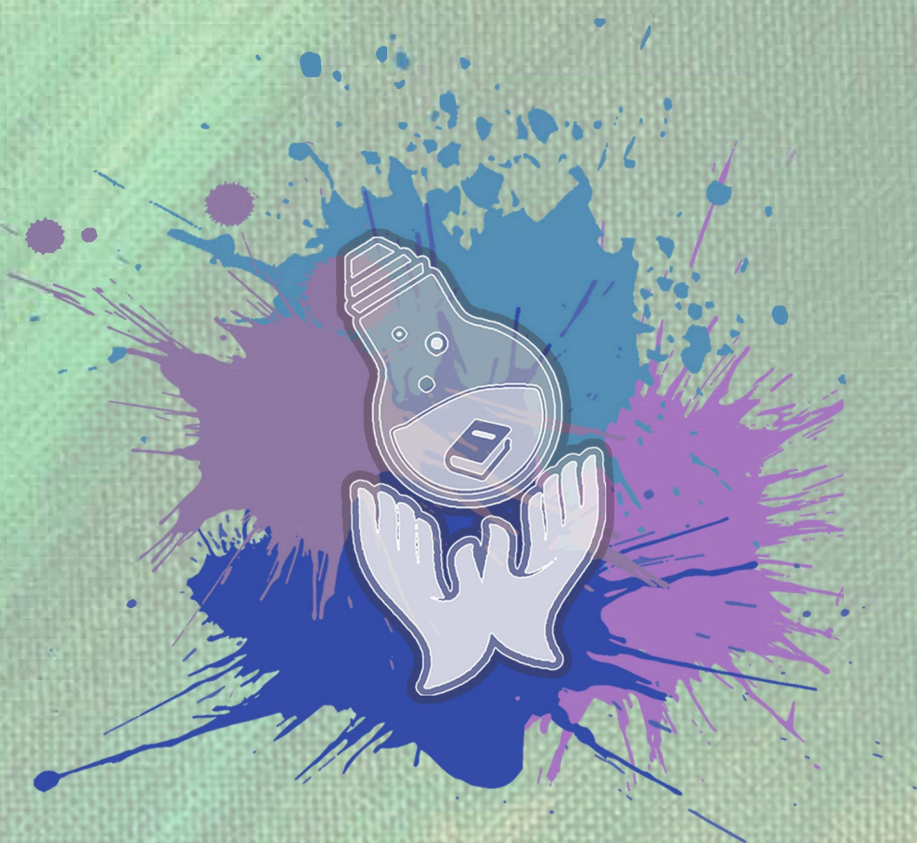




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BARRIERS OF GREEN BUILDING IMPLEMENTATION DURING PRE-CONTRACT STAGE

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Abstract:

Green building is already existing longer in construction industry and many countries had succeeded to implement the technology. But in Malaysia, many barriers have identified due to green building adoption especially among the consultant team. Quantity surveyors are to perform financial control, cost and contractual administration of a project from inception to completion. But they also agreed that, the evolution of the quantity surveying profession due to changes from traditional to green construction become challenges and global threats. The aim of this study is to establish the best practice of green building implementation in Malaysia from quantity surveyors' profession. The objective is to identify the barriers of green building implementation during pre-contract stage. The method used was questionnaire survey and the responses were from 56 quantity surveyors who involved in green building projects in Malaysia. The data collected analyzed by SPSS version 25. This study identified that the highest mean value for barriers of green building implementation during pre-contract stage is during tendering stage longer time during the selection process and lack of experience in green projects.

Keywords:

Barriers; Green Building; Pre-contract Stage

1.0 INTRODUCTION

According to Frej and Browning (2005) green building can be defining as a design that focuses on increasing the efficiency of resources use such as energy, water, and materials. Plus, it is also reducing the building impacts on human health and the environment during the building's life cycle, through better siting, design, construction, operation, maintenance and removal. Many big countries such as Australia, Japan and Singapore are pushing their construction industry towards greener so that they can protect the earth from the global warming. However, green building is not achievable without the implementation of it (Chan et al., 2017).

Esa et al., (2011) added, especially in developing countries, such as Malaysia, where green building is fairly new to the construction market. Clearly, that Malaysia is very much lacking behind in green building developments as compared to other Asia Pacific countries such as Australia, Japan and Singapore. According to CIDB (2011), Malaysia is one of the countries which is trying to impose the green building as the back bone behind the construction development agenda for the future.

From here, researcher believe that, even Malaysia is pushing hard the construction development to implement the green building but it still lacking on behalf consultants especially quantity surveyor. This is because research undertaken by Sonson and Kulatunga (2014) shows that quantity surveyors placed very little importance on environmental sustainability issues. But Karunasena et al., (2016) believe, professionals in the building industry need to drive for green building implementation.

2.0 LITERATURE REVIEW

Quantity surveyors are known as cost experts in the construction industry. And they have a big influential role in contributing their knowledge to developments. They are also providing clients with the appropriate advice on costs and value in the industry (Ashworth et al., 2013). Quantity surveyors are working closely with other members of the project team such as the architects, engineers, contractors, suppliers, project owners and financiers (Seah, 2009). However, Fellow, Liu and Fong (2003) agreed that the evolution of the quantity surveying profession due to changes from traditional to

green construction become challenges and global threats. Windapo (2014) believed, the active quantity surveyors can give them with an opportunity to influence green building designs along together with other industry stakeholders.

2.1 Barriers of Green Building Implementation during pre-contract stage

With green building, the profession of the quantity surveying (Olawumi and Ayegun, 2016) is growing together with challenges and opportunities (Dada and Jagboro, 2015). Stephen, K. (2017) found that quantity surveyors have the highest contribution at the pre-contract stage, where design stage was the highest mean followed by the tendering stage and construction stage placed at lowest rank.

Matipa et al., (2008) agreed that, to contribute green building implementation, the quantity surveyor needs to be fully integrated into the early design stages to be proactive as well as add value to the process. Green rating tools used to assess sustainable designs have gained traction and become more popular (Dwaikat and Ali, 2016) and incorporated at the design stage (Cole, 1999). Hiew and Ng (2007) agreed that, a threat to quantity surveyors which are viewed as lacking the skills to give strategic advice on green building projects when there is increasing on sustainable construction during the pre-contract stage.

During the pre-contract stage, the client is responsible for providing the detailed brief that outlines the use of sustainability within project. Architect, engineers and quantity surveyors are responsible for interpreting the clients' requirements and providing solutions that contribute to the sustainability of the project (Dewick and Miozzo, 2002). In other word, lack of commitment from team members, will make the design stage become more complicated. At tendering stage, quantity surveyor prepares a cost plan from a defined brief that will act as a cost control for the design of the project (Matipa et al., 2008) and insufficient time to prepare cost plans will happen due to the lack of availability of data to determine the LCC precisely (Boussabaine and Kirkham, 2008).

3.0 METHODOLOGY

Quantitative approach is used for this study. Total population of this study was 58 quantity surveyors who involved in green building projects in Malaysia. The questionnaires were distributed via face to face and online method such as email and google form. The purposive method is used to draw the samples of respondents. The data is analyzed in descriptive analysis presentation involving frequency, percentage, mean, mode and median by using Statistical Package for Social Science (SPSS) version 25.00. Out of 58 questionnaires, 56 questionnaires were returned which is the response rate is 97%.

4.0 ANALYSIS AND FINDINGS

According to the analysis on the respondents, 43% of the respondents who are quantity surveyors were have 1-5 years and 36% of the respondents admitted that they were have 5-10 years working experience in green building projects. While, the lowest is 21% of agreed that they were have above 10 years working experience in green building projects in Malaysia.

Table 1: The barriers of green building implementation during pre-contract stage

Barriers of green implementation during pre-contract stage	Mean	Standard Deviation
Feasibility stage		
- Limited resources to engage in sustainability e.g. LCC, green procurement	3.9821	0.84188
- Insufficient data and information to implement green initiatives e.g. green procurement, carbon footprint	4.0179	0.86321
Design stage		
- Lack of training and knowledge on sustainability material choices	4.0179	0.75054
- Difficult to assess the cost data for green materials and equipment	3.9821	0.92424
Tendering stage		
- Longer time during the selection process	4.0536	0.83043
- Difficulty in the selection of contractors in providing green construction service	4.0357	0.78542

Based on the findings, the data of mean value and standard deviation for the barriers of green building implementation during pre-contract stage is being measured to meet the objective. The findings show

that, the highest mean value of barriers is during tendering stage which are longer time during the selection process and difficulty in the selection of contractors in providing green construction service. Obviously, respondents agreed that those barriers contributed the most towards the failure of green building implementation in Malaysia. Literally, tendering stage has been reported to be the hardest stage in development process for quantity surveyors (Haron, Ibrahim and Rawi, 2017)

5.0 CONCLUSION

There are many barriers that leading to the failure of green building implementation during pre-contract stage. Through of this study, it was showed that barriers from quantity surveyors contribute to the slowness of green building implementation. All the parties involve such as government, developer, consultant teams, contractor and also academicians must take a prompt action to make sure the green building can be implemented well in Malaysia. Because green building was functioned to improve building operation energy and embodied energy efficiency, and minimize energy and wastes (Green Building Index, 2018). As a conclusion, the researcher hope that this study will help the construction players especially quantity surveyor to overcome the barriers of green building implementation from their profession respectively.

REFERENCES

- Ashworth, A., Hogg, K. and Higgs, C., 2013. Willis's practice and procedure for the quantity surveyor. United States. John Wiley & Sons
- Boussabaine, A. and Kirkham, R., 2008. Whole life-cycle costing: risk and risk responses. United States. JohnWiley & Sons.
- Chan, A. P. C. et al. (2017) 'Critical barriers to green building technologies adoption in developing countries: The case of Ghana', *Journal of Cleaner Production*. Elsevier Ltd, 172, pp. 1067–1079. doi: 10.1016/j.jclepro.2017.10.235.
- CIDB (2011), "Green technology: prospects, challenges and implementation in the construction sector", available at: www.1bina.my/blog/2011/01/16/ (accessed 10 November 2018).
- Dada, J.O. and Musa, N.A., 2016. Key factors affecting the competence of quantity surveyors: evidence from construction industry stakeholders in Nigeria. *Journal of Engineering, Design and Technology*, 14(3).
- Esa, M. . et al. (2011) 'Obstacles in Implementing Green Building Projects in Malaysia', *Australian Journal of Basic and Applied Sciences*, 5(12), pp. 1806–1812. Available at: <http://www.insipub.com/ajbas/2011/December-2011/1806-1812.pdf>. (accessed 10 November 2018).
- Fellows, R., Liu, A., & Fong, C. M. (2003). Leadership style and power relations in quantity surveying in Hong Kong. *Construction Management and Economics*, 21, 809-818.
- Frej, A. and W.D. Browning, 2005. "Green Office Buildings: A Practical Guide to Development". Washington. Urban Land Institute.
- Haron, R. C., Ibrahim, P. H. and Rawi, M. (2017) 'The Challenges Of Quantity Surveying Practice In Sustainable Construction Project', pp. 6035–6039.
- Karunasena, G., Rathnayake, R.M.N.U. and Senarathne, D., (2016) Integrating sustainability concepts and value planning for sustainable construction. *Built Environment Project and Asset Management*, 6(2), pp.125-138.
- Nkado, R. and Meyer, T., (2001) Competencies of professional quantity surveyors: a South African perspective. *Construction Management and Economics*, 19(5), pp.481-491.
- Olawumi, T.O. and Ayegun, O.A., (2016) Are Quantity Surveyors Competent to Value for Civil Engineering Works? Evaluating QSs' Competencies and Militating Factors. *Journal of Education and Practice*, 7(16), pp.9-18.
- RICS (Royal Institution of Chartered Surveyors). (2005). Green Value – Green buildings, growing assets, Report. U.K: Royal Institution of Chartered Surveyors.
- Samari, M. et al. (2013) 'The Investigation of the Barriers in Developing Green Building in', 7(2), pp. 1–10. doi: 10.5539/mas.v7n2p. (accessed 10 November 2018)
- Windapo, A.O., (2014) Examination of green building drivers in the South African construction industry: economics versus ecology. *Sustainability*,6(9), pp.6088-6106.