The European Proceedings of
Multidisciplinary Sciences
EpMS

ISSN: 2421-826X

https://doi.org/10.15405/epms.2019.12.5

ICRP 2019

4th International Conference on Rebuilding Place

AN INVESTIGATION OF GREEN BUILDING OUTLOOK IN MALAYSIA

Mohammad Tahir Ghafori (a), Atasya Osmadi (b)*
*Corresponding author

(a) Construction Management Programme, School of Housing, Building and Planning, 11800, Universiti Sains Malaysia, Penang, Tahirghafori@student.usm.my
(b) Construction Management Programme, School of Housing, Building and Planning, 11800, Universiti Sains Malaysia, Penang, a.osmadi@usm.my

Abstract

The construction cost of a green building is higher than a normal type commercial construction. This is because green buildings involve high technologies, specific designs, special materials and equipment, and construction of waste management. Although the construction cost of a green building is expensive, the cost of maintenance for the building could be reduced in the future. However, the high costing of a green building affects its development and investment. The research objective of this study will focus more on the investment of green building in Malaysia. Therefore, the objective of this study is to explore the green building outlook in Malaysia. Furthermore, this research covers the discussion on the relationship between the results and opinion of 78 respondents and the data represents the need of green buildings in the future. Besides, the research also describes the factors that influence the investment of green building, particularly the challenges and views of green building in the future. From the result, to ensure the green building concept continue to develop in the construction industry in Malaysia, the government, non-profit organisations, investors, developers, and buyers shall cooperate to ensure the development of green building in the future.

Keywords: Green building, outlook, Malaysia.

https://doi.org/10.15405/epms.2019.12.5
Corresponding Author: Atasya Osmadi
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2421-826X

1. Introduction

Global warming has become a serious worldwide issue along this few years. Global warming will cause the increase of sea levels, escalated storms, inordinate floods, continuous drought, etc. Among the solutions are reducing the energy in a building and increasing the efficiency of the resource. Green building is a good concept for reducing the energy and at the same time maximising the use of scarce resources. However, a green building or sustainable building is depending on the application, design, construction, operation or maintenance of the project. Besides, there are also other factors that will influence the process of green building (New Tax Incentive for Green Buildings, 2016; U.S. Environmental Protection Agency, 2016; United Nations Environment and IEA, 2017). Therefore, the purpose of this investigation is to provide a critical analysis of green building appropriateness including the factors influencing the investment of green building, whilst determining the challenges and identifying the outlook of green building in the future.

2. Problem Statement

According to statistics, there was an overall increasing trend in terms of CO2 gas emission development from year 1980 to year 2014 in million tons (WorldData.info, 2015). According to Advanced Control Corp (2017), the implementation of green building technology can give vital benefits to the humankind such as providing energy efficiency structure and lowering carbon footprint to maintain sustainability. Based on Sim and Putuhena (2015), the fundamental factor that obstructs usage of this idea of green structure in Malaysia's construction industry is the monetary requirement or cost factor and the green structure and supportable development is accepted by numerous individuals to be financially non-feasible where practices are accepted to expand task cost. This is on the grounds that the green structure needs higher initial capital. It has caused greater expense and expensive rates on the green structure.

Realising the important of sustainable environment for the continuity of construction in the future within the hectic of changes in the global climate, many efforts have been taken to introduce the initiative of maintaining the earth condition. Thus, Malaysia encourages the construction players to be concerned about the problems that might occurred. According to Mohd Nordin, Abd. Halim, and Yunus, (2017), there are several options of barriers that prevent the implementation of green home development such as causing the high initial cost, less awareness among developers, public people, project team and contractors, lack of demand from buyers, less encouragement from government and also low availability of green building materials and technology locally.

The cost of green concept building is high due to the expensive building material and system. According to Srinivas (2015), material efficiency concept can be realised earlier through technical strategies planning and implementation during planning and construction stages of the development project. Olubunmi, Xia, and Skitmore (2016) argued that the financial incentives from the government are not as effective as density bonus or administrative incentives which mean green projects permitting to achieve greater unit density and expedited permitting respectively.

https://doi.org/10.15405/epms.2019.12.5
Corresponding Author: Atasya Osmadi
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2421-826X

3. Research Questions

The research questions are as follows:

- What are the factors that will influence the investment of green building?
- What are the challenges and views of green building in the future?

4. Purpose of the Study

This study will focus on the effects of the research objective by highlighting the concept of green building investment among buyers and investors in Malaysia. Even though the concept is still new, it might affect the investment properties in Malaysia. Therefore, the objectives of this research are as follows:

- To identify the factors influencing the investment of green building.
- To examine the challenges and views of green building in the future.

Since most buildings are in the process of contracting which some are still on going and some have already constructed, the discussion is concentrated around the feedback from respondents. Furthermore, this research will cover the discussion on the relationship between the results and opinions of the respondents. The data collected need to be reliable as it represents the need of green building in the future. A total of 78 respondents answered the questionnaires. It is recommended to provide more questionnaires for a bigger sample size which will result in a more reliable feedback and opinion.

5. Research Methods

The data obtained were divided into two sources of data collection, namely primary data and secondary data. The primary data were obtained through the designed questionnaire. The data collected were analysed and studied based on the research methodology quantity, interview, and direct communication. The questionnaire was divided into two sections, demography of the research and research questions. Meanwhile, secondary data were collected from relevant articles, books, local and international journals, reports, etc.

6. Findings

This section discusses and analyses the output of factor analysis including examining the factors influencing the investment of green building and determining the challenges and outlook of green building in the future (11th Malaysia Plan, 2015; Green Building Council Australia, 2019; Greenbuildingindex Sdn Bhd., 2019; Isa, Sipan, Megat Abd Rahman, Ting, & Jibril, 2014).

6.1. What are the examining factors that influence the investment of green building?

Figure 1 details the factors that influence the investment of green building. Out of 78 respondents, 64.1% (50) chose knowledge improvement, 56.4% (44) chose availability of technology, government policy, and project cost of green building, 42.3% (33) chose rule and regulation of country, 41% (32) chose policy awareness, 39.5% (31) chose social requirement, 38% (30) chose organisation commitment,

https://doi.org/10.15405/epms.2019.12.5
Corresponding Author: Atasya Osmadi
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2421-826X

51.4% (40) chose market demand, and 26.9% (21) chose supplier support as the factors influencing the investment of green building. The analysis demonstrates that most of the respondents chose knowledge improvement, availability of technology, government policy, and project cost of green building as the important factors that influence the investment and development of green building. This demonstrates that most people are interested in green building. This will affect the costing of investment and increase the development of green building. Most of the respondents opined that regulation, policy awareness, organisation commitment, and social requirement able to influence the investment of green building as the construction of green building must attain full support from the supplier in terms of material, technology, financing, responsibility, and others. Therefore, the unavailability of these green building factors will lead to the failure of on-time completion or even fail to be qualified by rating tools of green building in Malaysia, such as GBI, MGBC, and others.

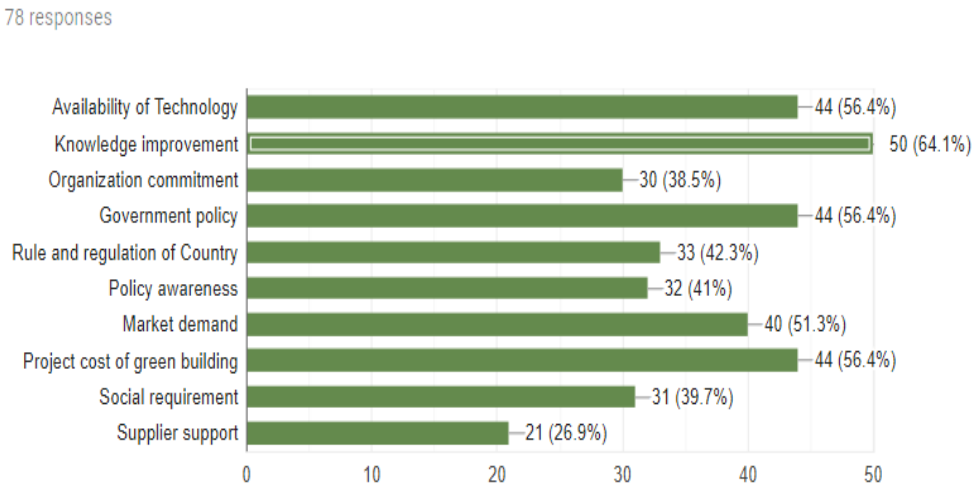

Figure 01. Factors that influence the investment of green building

6.2. What are the Challenges and Outlook of Green Building in the Future?

Figure 2 details the challenges and outlook of green building in the future. Out of 78 respondents, 59% (46) voted improvement of national environmental protection (NEP), 51.3% (40) voted green building priority and affordability, 47.4% (37) voted cost factor, 47.4% (37) voted lack of enforcement, 46.2% (36) voted consumer acceptance and choice and education vs experience, 35% (28) voted government intervention and urgency factor, 25.6% (20) voted labour retaining and financing, 24.4% (19) voted pointing fingers, and 23.1% (18) voted rating systems as the challenges and outlook of green building in the future. Hence, most of the respondents view national environmental protection (NEP), lack of enforcement, cost factor, education vs experience, government intervention, and urgency factors as the challenges that will be faced by green building in the future, as well as pointing the outlook of green building. It demonstrates that most of the respondents are willing to care and consider the green building challenges and outlook in future since it involves material, labour, and machinery cost.

https://doi.org/10.15405/epms.2019.12.5
Corresponding Author: Atasya Osmadi
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2421-826X

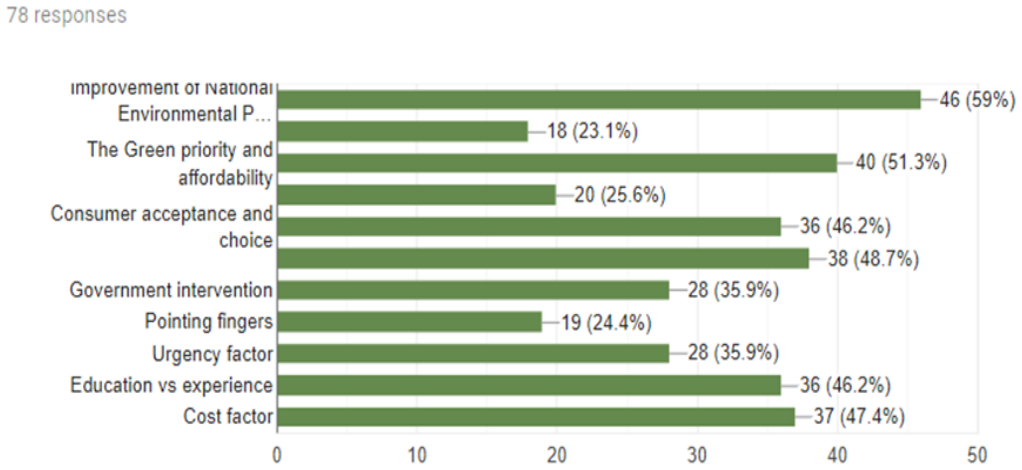

Figure 02. The challenges and outlook of green building in the future

7. Conclusion

The housing development industry has started the incorporation of green technologies into their development. This will increase the need and stock of green building. Besides, the Malaysia government also promotes green homes development by emphasising the need of green building design in the 9th and 10th Malaysia economic plans. Some non-profit organisations also promote green building as one of the best ways to protect the environment. This is because green building can reduce the production of extra energy to the environment, and the public is also aware of the benefit of green building implementation. It can also save the cost of maintenance in the future. Hence, green building become the new concept of current and future development. However, there are a lot of technical issues that have not been addressed in determining the initiatives of green building in Malaysia. Therefore, the green building index is formed as the green rating tool for buildings and towns in Malaysia. Nevertheless, green building is still facing some problems such as the influence of certain factors that may affect the investment of green building, determining the challenges and outlook of green building in the future, and exploring the outlook of green building development.

Although the green building concept has started in Malaysia, it still has a lot of challenges that need to be faced in the future. Furthermore, even though the cost for green building development is high, it will reduce the cost of maintenance in the future. To ensure the green building concept continue to develop in the construction industry in Malaysia, the government, the non-profit organisations, investors, developers, and buyers shall cooperate to ensure a successful development of green building in the future. In conclusion, this research identifies the important factors that influence the technologies, government policy, and cost and market barriers in green building development. All parties shall look into details of every aspect in order to help on the development of green building in the future.

References

11th Malaysia Plan. (2015). Retrieved from https://www.pmo.gov.my/dokumenattached/RMK/RMKe-11Book.pdf

Advanced Control Corp. (2017). Benefits of a Green Technology Application in Construction. Retrieved from http://advancedcontrolcorp.com/blog/2017/02/green-technology-application-in-construction/

Green Building Council Australia. (2019). Retrieved from https://new.gbca.org.au/

Greenbuildingindex Sdn. Bhd. (2019). GBI Executive Summary. Retrieved from http://new.greenbuildingindex.org/organisation/summary

Isa, M., Sipan, I., Megat Abd Rahman, M. M. G., Ting, K. H., & Jibril, J. D. (2014). Green Attributes Affecting Investment Returns for Green Office Buildings. *Advanced Materials Research*, *935*. Retrieved from https://www.scientific.net/AMR.935.8

Mohd Nordin, R., Abd. Halim, A. H., & Yunus, J. (2017). Challenges in the Implementation of Green Home Development in Malaysia: Perspective of Developers. *IOP Conference Series: Materials Science and Engineering*, 291, 012020. Retrieved from https://iopscience.iop.org/article/10.1088/1757-899X/291/1/012020/pdf

New Tax Incentive for Green Buildings (2016). Retrieved from https://new.greenbuildingindex.org/Files/Resources/20161215 - New Tax Incentive For Green Buildings Seminar/4.0 MIDA.pdf

Olubunmi, O. A., Xia, P. B., & Skitmore, M. (2016). Green building incentives: A review. *Renewable and Sustainable Energy Reviews, Elsevier,* 59(C), 1611-1621.

Sim, Y. L., & Putuhena, F. J. (2015). Green building technology initiatives to achieve construction quality and environmental sustainability in the construction industry in Malaysia. *Management of Environmental Quality: An International Journal, 26*(2), 233-249. https://doi.org/10.1108/MEQ-08-2013-0093

Srinivas, H. (2015). Material efficiency and 3R objectives. Retrieved from http://www.gdrc.org/uem/waste/material-efficiency.html

U.S. Environmental Protection Agency. (2016). Retrieved from https://archive.epa.gov/greenbuilding/web/html/

United Nations Environment and IEA. (2017). Towards a Zero-Emission, Efficient, and Resilient Buildings and Construction Sector. Global Status Report 2017. Retrieved from http://www.worldgbc.org/sites/default/files/UNEP 188_GABC_en %28web%29.pdf

WorldData.info. (2015). Energy consumption in Malaysia. Retrieved from https://www.worlddata.info/asia/malaysia/energy-consumption.php