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A STUDY ON THE AWARENESS AMONG LOCAL RESIDENTS TOWARDS GREEN HOME CONCEPT

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***Abstract*:**
The objective of this study is to identify the level of awareness of potential homebuyers on green home concept among government staff in Seri Iskandar. This research also studies whether the potential homebuyers understand the benefit of having green homes. In Malaysia, the number of green developments is relatively below par as compared to other countries in Asian. One of the issues recognized through previous literature is the awareness among Malaysians. Malaysians may have little knowledge on the benefit of green building and most of them do not realize the importance of green home. The green home has a long-term benefit towards users and the environment, either from the economic and social perspective as well as environmental. This research was conducted among government staff in the District of Perak Tengah. A total of 120 questionnaires were distributed at two main administration buildings, Perak Tengah District Council and Perak Tengah District Administrative Complex. The data was analysed using SPSS Version 21.0 using descriptive statistics analysis. From the result of the analysis, majority of respondents are aware of the green home concept and they believed it can give the benefits into their life if they are apply the concept of green homes. It is recommended that further research to be done in other settings or areas.

Keywords: Awareness; Homebuyers; Green home; Benefit

1.0 INTRODUCTION

Green building is also known as sustainable building as the structures of the building are environmentally friendly. The construction of the building uses environmentally-friendly products starting from design, construction, operation, maintenance, renovation and until the demolition of the building. It refers to an outcome of a design of the building to increase the efficiency of resources used - energy, water, and materials while reducing building impacts on human health and the environment. However, green building concept is still low in demand compared with conventional buildings. To date, our country lacks awareness on environmental pollution which leads to high cost of energy used among residents if they do not take any initiatives to overcome the problem. Are residents in Seri Iskandar also not aware of green homes? Thus, the objectives of this study are to identify the awareness of potential homebuyers on a green home concept and to identify the level of awareness of green home benefits.

2.0 LITERATURE REVIEW

Samari et al. (2013) defined green building as a foundation for sustainable construction development. The issue of sustainability has been debated at length and much literature has discussed the subject within the field of construction. Sustainable development aims to reduce the impacts of the built environment on the natural environment, so as to be in line with the term 'green building'. Green building or green home was constructed by individuals or companies since the last thirty years. Bavesh et al. (2016) mentioned that a significant number of people still do not apply the environmentally friendly homes because the solar panel is expensive. A solar panel can reduce the use of energy in homes. As the price of solar panel becomes gradually inexpensive than before, the number of users is increasing from time to time. The researcher also mentioned the developers, builders and consumers are starting to apply the green home

concept which has led to eco-friendly construction. A large number of issues such as the advantage of green building were found, and it makes green home now being used by a large number of people and developers due to the green building benefits. According to Syed Yahya (2014) a green building is designed to reduce impact towards the occupant and the natural environment. Other than that, the green building also efficiently uses the resources that can create a healthy environment for users.

Chua and Oh (2011) have mentioned in their research that the development of green building in Malaysia was started when the government launched the National Green Technology Policy (NGTP) in 2009. The manifesto of NGTP was to implement the concept of 'green' for development in the country which is an initiative by the government to ensure that green building concept will expand in Malaysia. .The government implementing "green" initiatives for the country includes among others, the intensification of green technology research and innovation towards commercialization, promotion and public awareness of green technology.

Concurrently, Pertubuhan Arkitek Malaysia (PAM) and the Association of Consulting Engineers Malaysia (ACEM) introduced the Green Building Index (GBI) on 21 May 2009. The GBI rating tool provides an opportunity for developers and building owners to design and construct sustainable buildings that can provide energy savings, water savings, a healthier indoor environment, better connectivity to public transportation, and the adoption of recycling and greenery for their projects hence reducing the side effects on the environment. For buildings to achieve the GBI rating, assessment is based on six criteria which are Energy Efficiency (EE), Indoor Environmental Quality (EQ), Sustainable Site Planning and Management (SM), Material and Resources (MR), Water Efficiency (WE), and Innovation (IN). The six criteria as mentioned above will assist the building to obtain points which can be awarded GBI Platinum, Gold, Silver and Certified.

As awareness increases among state and local government agencies on the economic, health, environmental, and social benefits of green building, the same need to be expanded for effective green building policies that state and local agencies can promote to their areas of jurisdiction. Past study shows that advertising frequency research and observation of communication styles demonstrate that people must be exposed to a message several times before that message becomes successful. According to Umar and Khamidi (2012), the factors to consider for powerful public awareness strategy can encourage the people through media relations, such as create an article and publish it in the media. Besides that, community relations can also enhance the awareness level of people through developing "direct-connect" possibilities to reach audiences; such as trade show participation, and communicating events with local community organizations.

A green building has long-term benefits towards users and the environment in the forms of tangibles and intangibles. The common tangible benefit of green building is operational savings, energy and water efficiency, and waste reduction; while for intangible benefits are likely less toxic interiors and better facilities. Usually, energy may achieve around 40-50% savings, and water savings is around 20-30% (Shalwee et al, 2016). Also, reduction in waste and improvement in indoor environment quality will increase the comfort of consumers and achieve good healthy conditions. According to public health researchers and health educators, the relationship between the environment and health is very strong. One of the key strategies of the environmental movement is to incorporate environmentally friendly or "green" practices by individuals and groups into their daily activities (Mohindra, 2008).

The benefits that are associated with green building include in terms of social, economic, and environmental benefits. These three pillars are introduced as the Triple Bottom Line concept using years to explain the sustainability. For the social benefits, it can enhance the occupant's comfort and health through the high qualities of aesthetics and improve overall qualities of life. For the economic benefit, it can reduce operating cost, expand and shape markets for green product and services, improve occupant productivity, also optimize life-cycle economic performance. Further, some empirical studies done in Malaysia found that green building result in better price and value of property when adopting green concept in the development (Lizawati et al., 2017; Halim, 2009). In terms of environmental benefit, it can

enhance and protect biodiversity and ecosystems, improve air and water qualities, reduce waste streams, and conserve and restore natural resources (Shalwee et al, 2016).

Figure 1: Triple Bottom Line Concept

3.0 METHODOLOGY

The case study is located in Seri Iskandar, Perak. The research is about residents in Seri Iskandar whether they have knowledge and awareness of a green home concept. No residential area has applied green building concept yet in this area. This research is conducted to identify the level of awareness among residents on the concept and the benefit of a green home. Furthermore, this research is to identify any potential buyers who are interested to buy green homes in future. Moreover, Seri Iskandar is a town that has grown tremendously over the past ten years due to the increment of facilities, amenities, and infrastructure within its locality. The demand for housing in Seri Iskandar also keep increasing. The developer or contractor should offer a better home concept which can attract homebuyers.

To conduct the survey, the researcher uses a quantitative method by distributing questionnaire forms among government staffs at Perak Tengah District Council and Perak Tengah District Administrative Complex in Seri Iskandar as they are considered as local residents in Seri Iskandar. Using convenience sampling, about 120 sets of questionnaire were distributed, but only 76 sets were returned which makes up about 63% of the total response. The data obtained from the questionnaires were analysed using SPSS version 21.0. The questionnaire is divided into three parts which are Part A to survey respondent profile, Part B to survey awareness among homebuyers on a green home concept and Part C to survey awareness among homebuyers on green home benefit. Both Parts B and C used the Likert scale whereby the results and discussions were based on the mean score of the questions in these parts. The reliability test has been conducted using Cronbach's Alpha score to determine the validity and reliability of the questionnaires. For this research, the Cronbach's Alpha score is 0.929 which is above the minimum score of 0.7.

4.0 ANALYSIS AND FINDING

Table 1 shows the respondents' backgrounds in this study on the awareness of green homes or sustainable homes. The level of education consists of four categories which are SPM, Diploma, Degree, Master and PhD. However, after analysis of this study, the respondents involved showed only three categories as tabulated above. According to the results, the higher percentage level of education is represented by diploma level which is 48.7% (37 respondents) followed by SPM level which is 44.7% (34 respondents) and 6.6% (5 respondents) for degree level. As respondents' education level increases, their awareness about green homes benefits rises. This situation will lead to higher demand for green homes in the near future in Seri Iskandar.

Table 1: Respondents' backgrounds

Age		Frequency	Valid percent
Valid	20 to 30	21	27.6
	31 to 40	39	51.3
	41 and above	16	21.1
	Total	76	100.0
Gender			
Valid	Male	39	51.3
	Female	37	48.7
	Total	76	100.0
Education level			
Valid	SPM	34	44.7
	Diploma	37	48.7
	Degree	5	6.6
	Master/ PhD	0	0
	Total	76	100.0

Figure 2 illustrates the awareness of potential home buyers towards the green home concept. From the above data analysis, it can be observed that there is a strong relationship between homebuyers and their willingness to purchase green home concept in future. It is because the attitudes of respondents towards green and sustainable homes are positive as they believe green and sustainable concepts are beneficial because these homes may enhance our quality of life. Also, they are attracted to the incentives that encourage potential homebuyers to purchase or renovate to be a green home. This is because they believed green homes could improve health and productivity, energy and water savings thus resulting in low utility bills. Therefore, a higher general perception of green home benefits can increase demand for green homes in society.

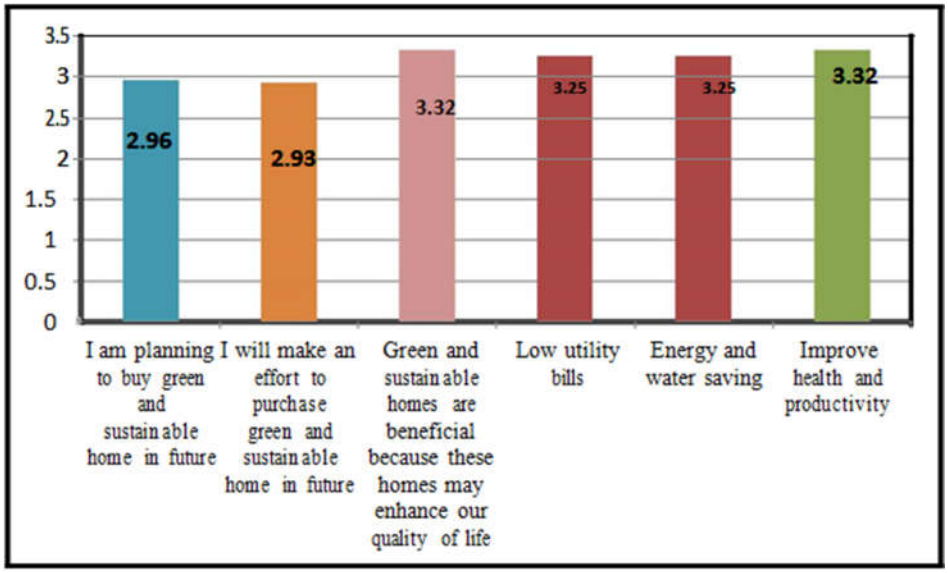

Figure 2: The mean score of awareness of potential homebuyers towards green home concept

In this section, this research identifies the respondents' awareness about green home benefits. To organize this process, benefits were categorized into three main groups: environmental benefits, economic benefits and social benefits. In terms of environmental benefits, the majority of respondents were more aware of the improved air and water qualities than other factors. The average mean is 3.41. This confirms that the Seri Iskandar residents' awareness about green home environmental benefits is quite high.

The next category evaluated was economic benefits of green homes. Green homes bring a variation of financial benefits for the users such as optimization of life-cycle economic performance and reduction of operating costs during construction and etc. The economic benefits can recap the premium costs of green homes for their buyers. The lower life cycle and operating costs will naturally lead higher to savings for homeowners. This may be considered as an incentive for a green home buyer to pay more to enjoy higher savings during the building life cycle. According to the Singapore Green Building Council (2010), the acceptable breakeven point even from the home buyers' point of view is less than five years. Therefore, if society has a high level of awareness about the green home financial benefits, it may encourage them to buy a green home with the knowledge of earning more within a short period because the premium costs will be recouped by savings on utility bills and operating costs.

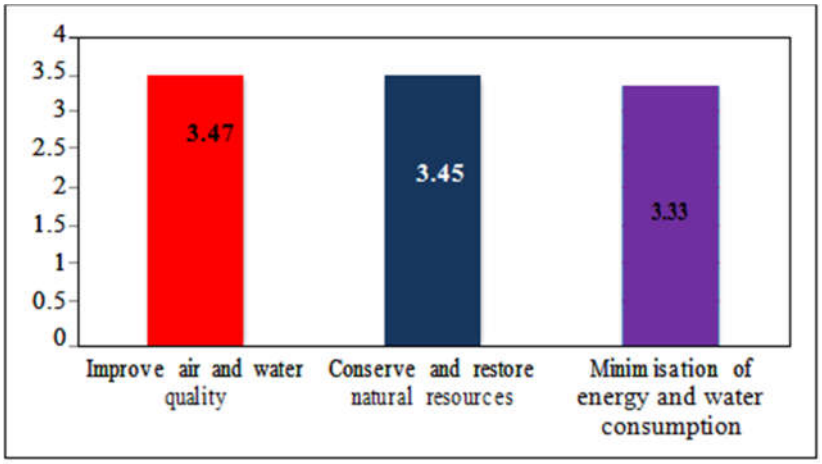

Figure 3: Environment benefit awareness

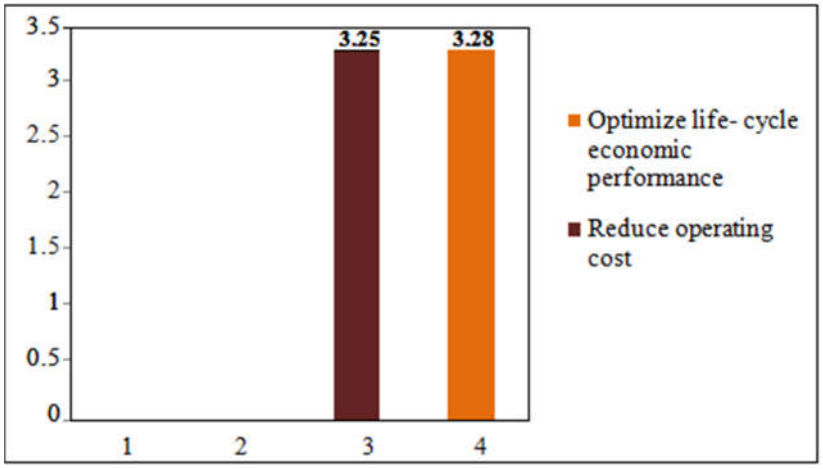

Figure 4: Economic benefits awareness

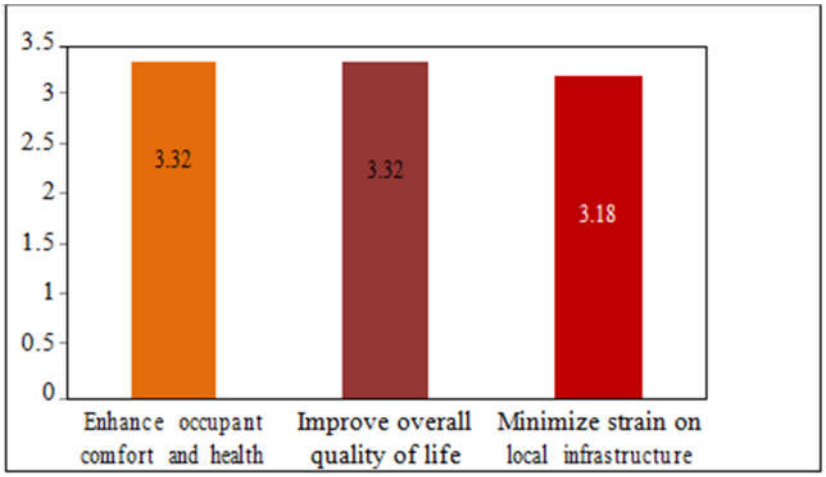

Figure 5: Social benefits awareness

In addition to environmental and economic benefits which are well-known, green homes have other intangible benefits for their owners. Enhancement of occupant's comfort, improvement of their quality of life, and minimization of strains on local infrastructures are benefits that are difficult to measure. Respondents are less aware of the social benefits (average mean 3.27) compared with environmental benefits (average mean 3.41). According to the U.S. Green Building Council, optimizing natural lighting in green homes can reduce the incidence of headaches and improve the occupant's quality of life. Thus, the Malaysian government needs to establish and launch new programs to improve public awareness on green concept to achieve national sustainable development objectives.

5.0 CONCLUSION

From the data analysis and results, respondents who are the government staffs at Perak Tengah District Council and Perak Tengah District Administrative Complex in Seri Iskandar are likely to invest in green home concept property as they agree on the intention to buy in future. Further, in line with previous literature, the respondents agreed that green home concept benefits society from all three aspects which are social, economic, and environmental. According to the findings shown, the dominant group of respondents agreed that the green home concept can influence all the elements in environmental benefits. As the research takes place in government administration buildings, it is recommended to further the studies among other residents of Seri Iskandar regardless of their backgrounds whether government or private staffs.

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