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FACTORS AFFECTING SUSTAINABLE DEVELOPMENT: PERSPECTIVE OF ENVIRONMENTALLY FRIENDLY

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ABSTRACT

Balancing sustainable development is a challenge to global human beings in terms of the use of natural resources, industrial products, energy, food, transportation, shelter, and waste management with the claim of preserving and protecting the quality of the environment and natural resources for future development. This concept is a long-term human need but would be impossible unless the natural physical condition of the earth, chemistry and biological systems were preserved and preserved. Therefore, this study was conducted to identify the factors that influence sustainable development based on the perspective of environmentally friendly interior decoration. These factors were analyzed using regression analysis. The findings show that there are 18 factors that influence sustainable development based on the perspective of environmentally friendly interior decoration. Therefore, sustainable construction requires certain practices in construction especially in terms of selection of materials that have been labeled green, environmentally friendly resources, construction methods as well as design. It is also important in ensuring that efforts to improve performance, reduce project load on the environment, reduce waste of resources and more environmentally friendly construction can be achieved holistically.

KEYWORDS: ***pembangunan lestari, hiasan dalaman, mesra alam, analisis regresi***

INTRODUCTION

Sustainable development in Malaysia can be said to have started in 1973 with the establishment of the Ministry of Technology, Research and Local Government. The Ninth World Urban Forum (WUF9) held in 2018 at the Kuala Lumpur Convention Center (KLCC) aims for all countries in the world to have the same vision in future urban development (Bogdanova, 2016). In ensuring sustainable development, the basic knowledge of science and scientific thinking of the urban population is very important (Mohd Nazaruddin et al, 2018).

Along with the Sustainable Development Goals 2030 (Chan, Darko, Olanipekun & Ameyaw, 2018), the organization of WUF9 this time shows the government's commitment in sustainable and prosperous urban development. Malaysia needs to see a better urban future by taking into account the well-being of the urban population in terms of urban poverty, health, security and well-being as well as comfort and cleanliness (Natocheeva et al, 2019). In line with the passage of time and technological advances, there are various concepts of interior decoration and housing used by developers to reduce problems involving environmental pollution and energy consumption (Zhang, Kang, Jin, 2018).

Eco-home or also known as eco-friendly house is a concept of housing designed, built and occupied to give a lower impact than conventional house on its occupants (Dobson, Sourani, Sertyesilisik & Tunstall, 2013). This concept is an important innovation in environmental sustainability, climate change adaptation and affordable housing. Universiti Teknologi Malaysia (UTM) has successfully developed the concept of eco-friendly home with the support of smart applications for energy control. The house is built with environmentally friendly interior and exterior materials as well as the concept of interlock brick and does not require a frame or without beams and pillars that is firmly standing with the wall as a pillar. Named UTM Eco Home, the house is built to a height of one and a half storeys and is equipped with

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energy saving features through nine construction models (Jeddi, McCoy & Hankey, 2019). Therefore, this study aims to identify the factors that influence the elements of sustainability in property development, especially from the aspect of interior decoration in Kuala Lumpur, Malaysia.

LITERATURE REVIEW

The world community has begun to take proactive action by applying sustainable aspects in design and construction. This application will further ensure the comfort of occupancy, increase energy efficiency and in turn save property maintenance costs in the long run (Matiso, Noonan & Flowers, 2016). In addition, greenhouse gas emissions of almost 40% come from property development and operations (Hwang, Zhu & Ming, 2017) which are related to global warming. Balancing sustainable development is a challenge to global human beings in terms of the use of natural resources, industrial products, energy, food, transportation, shelter, and waste management with the claim of preserving and protecting the quality of the environment and natural resources for future development. This concept is a long-term human need but will be impossible unless the natural physical condition of the earth, chemicals and biological systems are preserved and preserved (Afanas & Shash, 2020).

The three main problems underlie and affect the overall sustainability issues in the construction environment. First, the increase in world population. Around the 1850s, the world's population was about 1 billion people. But now, the world's population has grown to more than 7 billion people and is estimated to reach about 10 billion people by 2050 (Revell & Blackburn, 2007). Projections by the U.S. Census Bureau show that the world's population will continue to grow until the 21st century, but growth will be slower. The world population is estimated to increase from 6 billion people in 1999 to 9 billion people by 2045, which is an expected increase of 50% in 46 years (Urba, Haque & Oino, 2019). This increase will affect economic activities in developing countries. Malaysia is one of the three most populous countries in addition to China, India and Indonesia with a population growth of around 100,000 people per day (Shurrab, Hussain & Khan, 2019).

The second thing that underlies this sustainability issue is the growth of the world economy. When the world's population reached 1 billion people in the 19th century, most (80% majority) of the population would live in cities and the rest would live in rural areas. After more than a century of industrial and urbanization activities, it is predicted that the majority of the world's population will live 10 times more in urban areas than in rural areas. At the same time, the quality of life of the population will increase as well as increase in per capita income as well as the rate of life expectancy will also increase (Akimzhanova, Ilyassova, Nukusheva & Rustembekova, 2018).

Third, the world's climate has never been truly stable. This condition has persisted since the cold season and has been hot since the ice age (ice-age). Minimum sea level has also shown significant differences. We are now in the middle of the warm-up era. Human activity that causes global warming to occur rapidly (Ngowi, 2001).

It is generally known that the terms eco-friendly building refer to the building's relationship with the environment. However, there are also authors who use various definitions to explain the concept of building sustainability such as intelligent building (intelligent building), high performance building, green building, engineering smart building and sustainable building. All these definitions will refer to environmental aspects that involve reducing pollution, reducing energy consumption and reducing damage to the environment (Darko & Chan, 2018) According to Filipenko and Abakumov (2017), environmentally friendly buildings also known as sustainable buildings (sustainable building) is a structure designed to meet objectives such as preserving the health of occupants, increase productivity, low energy, water and resource use effectively and reduce impact on the environment as a whole.

Based on Flanagan, Lu, Shen and Jewell (2007) in their book entitled 'The Green Building Revolution' describes eco-friendly buildings as, "… .a high performance property that consider and reduce its impact on environment and human health. The definition of eco-friendly building is sometimes referred to as high performance building. High-performance buildings are designed based on a comprehensive philosophy taking into account all considerations of the interaction of building structures to all systems (Vatalis, Manoliadis & Charalampides, 2011).

According to Zubizarreta, Cuadrado, Orbe and García (2019) have defined eco-friendly buildings as a concept of integrated and holistic approach in terms of location, place, design, specifications, energy consumption and resources in order to reduce the impact on the environment. This condition refers to the building that is comfortable to occupy, does not have a negative impact on the health of the occupants and less impact on the environment.

According to Telichenko and Benuzh (2014), design by integrating various parties in the early stages of development projects is to obtain quality and environmentally friendly buildings. An environmentally friendly building is a building that has no impact on the environment, built in a sustainable area, with a sustainable design, which makes the occupants comfortable to live and work in it in a sustainable manner. The design of environmentally friendly buildings is based on its

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ability to optimize resources efficiently. In other words, the design of this building can reduce the health problems of the occupants, increase the ability to work, reduce the use of energy, water and other resources in turn will reduce the impact on the environment. In addition, the use of building materials can also be expanded by introducing the concepts of recycled, renewable and reused for the building materials. The building materials used are of good quality, do not affect the health of consumers, moreover the cost of construction will be saved.

According to Kibert (2016), environmentally friendly buildings refer to standards of economic practices and considerations as well as emphasize quality development, energy efficiency, indoor air quality, water conservation and natural resources as well as productivity-based planning and design and focus on health aspects . Among the things that are important in the concept of eco-friendly building is the 'life cycle approach,' which is the cumulative estimation of environmental and social effects by a building throughout its life cycle, starting from the construction, operation, maintenance, maintenance phase to demolition , Chan & Zhan, 2017). Such a holistic approach is nothing new. This concept of sustainability has begun to be given worldwide attention, especially in developed countries.

The concept of environmentally friendly buildings is in line with the concept of sustainable development towards achieving a cleaner and healthier environment. The process of building environmentally friendly buildings is proven to reduce the impact on the environment, save energy and reduce waste production. The target of environmentally friendly buildings is to reduce the release of CO2 into the atmosphere which has been estimated to reach 40% globally (UNEP, SBCI, op. Cit.). The potential for owners / consumers is a reduction in energy consumption, improved indoor air quality and less maintenance throughout the life of the building. Although the concept of eco-friendly building is still in its infancy, but the concept is increasingly popular and given attention around the world. The concept of eco-friendly building has emerged since the 18th century and the 19th century and the early 20th century (Roaf, et al., 2005).

However, lately eco-friendly buildings have become an important element in property development. In the 1980s, when vigorous talk of sustainable development coverage and sustainable design was discussed, the concept of eco-friendly buildings proved its effectiveness (Rees, 1989). Thus, began the activity of research and publication on concepts, practices, assessment criteria and opinions related to environmentally friendly buildings. Eco-friendly buildings are also referred to as high performance buildings. High-performance buildings are designed based on a holistic philosophy taking into account the interaction of building structures with the entire building system including its service system (Crosbie, 2000). The expected benefit is a reduction in energy consumption in the operation of a building.

Shiers (2000) has defined eco-friendly buildings as a concept of an integrated and holistic approach in terms of location, location, design, specifications, energy consumption and resources towards reducing the impact on the environment. This condition refers to the building that is comfortable to occupy, does not have a negative impact on the health of the occupants and less impact on the environment. According to Ahn, Jung, Suh and Jeon (2016), design by involving various parties in the early stages of a development project is to obtain quality and environmentally friendly buildings. According to them, buildings designed by applying green elements will be able to reduce the impact on the environment. Such buildings are built in sustainable areas that will provide comfort to residents whether resident or working in it. Kibert (2005) states that environmentally friendly buildings are defined as 'healthy facilities designed and built in a resource efficient manner, using ecological based principles' (healthy design facilities and its ability to optimize resources efficiently based on ecological principles).

METHODOLOGY

This study focuses on the quantitative method approach. To achieve the objectives of this study, the instrument used is a questionnaire. Therefore, the population for this study consists of individuals involved in the construction sector. Population refers to the whole human being in a group, phenomenon or thing that interests the researcher. Samples are a subset of the population and are necessary to save time, expenses, energy and human resources, especially those involving large populations. Thus, the analysis unit or respondent is the individual involved in the field of interior decoration. Other than that, this study focus on regression analysis to identify the factors that affecting eco-friendly design elements.

RESULT AND DISCUSSION

Table 1 shows the findings for regression analysis for eco-friendly design elements. These findings are also indirectly able to identify the factors that influence the design of interior decoration to the elements of eco-friendly design. The findings show that there are 18 factors that are found to influence the design of interior decoration on environmentally friendly design elements, namely experience, education, employment sector, employment status, sustainability, needs, environmentally friendly, environmental quality, global warming, returns, energy saving, cooperation guidance, encouragement, conducive, incentives and courses. Overall, these

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factors accounted for 81.3 percent in identifying the factors that influence interior design designers on environmentally friendly design elements.

Table 1
Factors Affecting Eco-Friendly Design Elements

Variables	Significant
Experience	**0.001*****
Education	**0.000*****
Jobs sector	**0.000*****
Jobs type	0.911
Jobs status	**0.000*****
Sustainable	**0.003*****
LEED	0.609
Essential	**0.006*****
Eco-friendly	**0.000*****
Quality	**0.055***
Problem	0.615
Global warming	**0.000*****
Praktical	0.779
Profit	**0.000*****
Energy saving	**0.000*****
Collaboration	**0.021****
Allocation	**0.000*****
PBT	0.378
Rules	0.102
Guide	**0.000*****
Encouragement	**0.000*****
Condusive	**0.000*****
Insentive	**0.026****
Programme	**0.000*****
R^2 = 0.813	
Sig = 0.000	

Note: *** = significant at 1%
** = significant at 5%
* = significant at 10%

Sustainable construction or green construction that is gaining attention among construction industry players is a construction concept that promotes environmentally friendly, economic, and social development (Hasif Rafidee, Mohd Nazaruddin & Mohd Nasrun, 2018). However, the implementation of this concept also faces challenges and requires strong support from various parties. This is clear because sustainable construction requires certain practices in construction especially in terms of the selection of materials that have been labeled green, environmentally friendly resources, construction methods and design. It is also important in ensuring that efforts to improve performance, reduce project load on the environment, reduce waste of resources and more environmentally friendly construction can be achieved holistically. In addition, the systematic process is also a key pillar in ensuring the smooth implementation of infrastructure construction either under the supervision of the government or the private sector.

There are several construction procurement systems commonly used in construction projects, including conventional systems, design and construction, project management and also systems based on cooperative relations. Typically, the selection of a procurement system depends on the needs of the client, the type of project, the level of risk borne by the client, the resources and organizational structure involved in the construction project. It can be said that most construction projects in the government sector use conventional procurement methods by open tender, selective or direct negotiations. The main feature of conventional and phased conventional acquisition methods between the design and construction processes is seen as a major factor in the duration of this procurement process to be long and long. The communication gap between the consultants and the contractors involved also contributes to the occurrence of disputes in construction projects that use this conventional procurement system.

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Based on this situation, government green procurement (Government Green Procurement) has been introduced to overcome the problem in conventional procurement, especially in the government sector. The government's green procurement guidelines to be strengthened are the government's efforts in promoting the use of green or sustainable products and services in the country. Apart from that, it is also one of the government's steps in achieving the main thrust in the Construction Industry Transformation Plan (CITP) 2016-2020 towards more sustainable development. With the existence of green procurement, it is expected to signal to all industry players that the need to emphasize the concept of green is important to address the problem of environmental pollution that occurs as a result of development processes that do not care about previous environmental impact. The implementation of procurement of products and services based on needs is also an effort to prevent waste from continuing to occur. The government's efforts to strengthen this innovative procurement practice should be commended. It clearly proves that the government is serious about improving the quality of environmental conservation and community life in a comprehensive manner. This initiative not only focuses on the environment but also encourages the effective use and production of green products.

CONCLUSION

This study was conducted based on its importance that is first, this study can examine more deeply related to the issue of global warming, climate change and environmental problems. The community has tried to find a way to alleviate this problem. Various methods and concepts have been explored, among them in the aspect of applying green interior design. Second, this study can provide knowledge in the application of environmentally friendly interior decoration, especially among designers who are directly involved in the construction industry. They need to be exposed to the features of environmentally friendly buildings, cost effectiveness and even reduce resource depletion. Third, this study can help policy makers, government authorities, academics and even the public (stakeholders) to update and make improvements to existing legislation and encourage developers, contractors and consultants to carry out sustainable development. This is in line with the government's recommendation that encourages sustainable development accompanied by the Green Technology Policy launched by the government.

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