



**Market Barriers to Implementing Sustainable Building in Malaysia**

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**ABSTRACT**

The construction industry with its high contribution to countries' gross domestic product, has undeniable impacts on the economy and is recognized as an important user of natural resources. Sustainable building is a way for the building industry to move towards achieving sustainable development. Although sustainable building provides a wide range of benefits for the society, it suffers from various kinds of market barriers in developing countries such as Malaysia. In order to include sustainable construction development as part of a sound sustainable economic development plan, it is necessary to identify and eliminate obstacles at the beginning. This study aims to explore the barriers for developing sustainable building in Malaysia. Data was collected by literature review and questionnaire. The questionnaire was distributed among construction professionals in Malaysia. Data was analysed by SPSS. Based on the results of the study, the main barriers can be listed as: Lack of governmental financial incentives, public awareness, as well as economic barriers.

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**INTRODUCTION**

In the last decade, the construction industry has presented some of the most challenging issues in the world. This industry produces carbon dioxide (CO<sub>2</sub>) which is one of the main causes of global warming [1,2]. Buildings account for 17% of world's fresh water withdrawals, 25% of the world's wood harvest, and 40% of the world's materials [3]. Experts believe that developing an energy efficient system should be one of the goals of sustainable development in the construction industry [3,4]. Setting and reaching these goals in current and future building can significantly reduce CO<sub>2</sub> emission [5]. Hence, implementation of sustainable development objectives in the construction industry can minimize the negative effects of the industry on the environment [6]. According to the World Commission on Environment and Development (1987, p43), sustainable development "is development that meets the needs of the present without compromising the ability of future generations to meet their own needs [7,8]. Sustainable building covers a wide range of elements when compared with Green buildings. Sustainable building not only considers environmental matters, but also tries to consider social and economic factors as well.

**Table 1:** Type of buildings according to performance.

Concept	Functionality	Energy Efficiency	Environmental	Health	Social	Operation cost	Value	Technical Quality
Energy Efficient Building		*	*	*		*		
Green Building		*	*	*		*		
Sustainable Building	*	*	*	*	*	*	*	*

*Sustainable Construction:*

In the context of the construction industry, sustainable development tries to achieve sustainability simultaneously in three policy areas that can be presented as three bottom-line spheres: social, environment and economic. In sustainable construction, environmental factors must be considered in each stage. In order to have a more cost effective approach to sustainability, sustainability must be applied from the early design stage until the end of the construction and operation stages [9]. These buildings can bring more savings for their owners in

terms of less energy consumption, lower life cycle cost and operation. Therefore, sustainable buildings improve general satisfaction among the users and residents and can promote sustainable development at a local and national level [10].

#### Barriers:

Sustainable development can bring a number of social, economic and environmental benefits for people and government. However, this process has faced barriers that hinder sustainable development., Investigation on barriers can lead to finding out more effective solutions, promote sustainable development and attract more construction firms to apply this development concept. Knowledge Gap [11,12,13], Public Awareness [14,15,16], Economic Barriers [13,17,18,19] and Timing [20,21,22,12] are some commonly cited barriers of sustainable development in the construction industry by researchers.

#### Methodology:

For data collection, a questionnaire survey was conducted by a research team in the most important cities in Malaysia. The questionnaire was designed in three parts. In order to make the standard questionnaire and collect significant data, a pilot survey was launched. In all, 984 questionnaires were distributed among the experts. A total of 317 questionnaires (32.21%) were received during an 80 days period. SPSS version 19 was used to analyze the primary data. The reliability of each part of questionnaire was investigated to ensure that the data are reliable and trustworthy ( Section B, 0.884 $\alpha$  and Scetion C, 0.821 $\alpha$ ).

#### Discussion and Conclusion:

The data revealed that most of respondents were between 25-35 years old and Male. The education level of about 36% of research respondents was post graduate. In addition, a total 42% of respondents were working in developer firms.

**Table 2:** Professionals' point of view on sustainable building.

Descriptive Statistics		Percent	Cumulative Percent
Involvement in sustainable building	Yes	34.9	34.9
	No	65.1	100.0
	Minimum	Maximum	Mean
Construction companies commitment to sustainable building	1	5	2.35
Sustainable building impacts on firms future profits	1	5	2.50
Level of professionals' commitment to sustainable building	1	3	2.07

Based on the results, a majority of construction professionals in Malaysia were not involved in sustainable building projects. Less involvement in sustainable projects may be due to a shortage of knowledge and experience among professionals in terms of sustainable building. Consequently, the number of sustainable buildings designed and constructed by professionals in Malaysia, will be very low. Shortages of sustainable buildings will lead to a high strain on natural resources, especially water and energy reserves . In terms of the social aspects, non-sustainable buildings cannot meet residents' needs and decreases their satisfaction level. The importance of sustainable building will be more obvious as the population grows and there's a shortage of natural resources. This condition needs a high level of commitment to sustainability among the construction firms to optimize resources and increase efficiency in their projects. Unfortunately, in Malaysia a majority of construction firms such as, developers, contractors and consultants are not committed to including sustainability in their projects. The majority of them aim to cut sustainability in their projects in order to achieve higher profits. Based on the Master Plan, and the 10th Malaysia Plan, the government has to advance sustainable building in order to preserve Malaysia's natural resources and to enhance urban quality of life for its citizens.

Hence, the government should work as follows:

- Identifying sustainable building development barriers;
- Analyze the barriers;
- Establish new strategies or modify current strategies in order to eliminate barriers

To explore which barriers to sustainable building are the most important compared to other ones in the construction industry in Malaysia, respondents were asked to rate their importance in different levels for each item. Data were analyzed based on the mean and median. These measures of dispersal were used to assess the homogenous or heterogeneous nature of the collected data [23].

In Malaysia, for developing green building, the government has just introduced two incentives such as tax exemption and stamp duty. According to the findings of this study the current incentives are not effective enough to encourage construction firms to enter green building development [24]. Financial incentives are also not able to recoup the high upfront costs of green buildings and make it more affordable for construction companies. Governmental financial incentives must have essential rules to provide low risk and affordable

financial resources for green developers in both the commercial and residential sectors. Public awareness about green building is an important component that can lead to high demand [25]. Improving public awareness about green building leads to better informed consumers who will demand better products from companies and encourage more green building development. In addition, cost savings can potentially increase a consumer's willingness to pay extra. Achieving sustainable green home development and to creating balance between green home owners' benefits and construction companies' profits are critical issues. The findings suggest that government roles, especially incentive instruments are the significant drivers for eliminating barriers to sustainable building development [24].

**Table 3:** The most important Barrier.

Barriers	Rank	Mean	Medan	Variance	Skewness	
		Statistic	Statistic	Statistic	Statistic	Std. Error
Lack of building codes and regulation	2	3.4	4	1.47	-.41	.188
Lack of incentives	4	3.0	3	1.28	.17	.188
Lack of credit resources to cover up front cost	1	3.8	4	1.76	-.60	.188
Lack of Public awareness	5	2.5	3	1.13	.45	.188
Lack of government support	3	3.1	3	1.04	-.31	.188

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