

THE INFLUENCE OF GREEN HOUSE CONCEPT ON CONSUMER'S BUYING INTEREST AND GREEN CONCEPT DEVELOPMENT IN HOUSING ESTATE

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ABSTRACT

The issue of natural conservation is being emerging discussion since it is a key for sustainable development. Furthermore, the demand for housing is increasing. Here, housing developers are required to participate in sustainable development. One of the solutions for the developer is to provide housing with green concept as a part of sustainable development. The aim of this research is to see how the effect of green house can gain consumer's buying interest and what design can be applied in housing estate. The method used in this research is qualitative with descriptive statistical analysis. The results showed that if residential developer offers houses with green concept, then this may attract consumers to buy. Potential consumers are young families to middle and upper class.

Keywords: green homes, consumers, buying interest

1. INTRODUCTION

Economic condition in Indonesia is increasing as well as high population growth that makes the increasing of housing demands. According to UN Habitat (2006), it is estimated that in the early 21st century, the people in the city will be as much as on village. Between 2005 and 2030 the world's city population will be increasing as much as twice of the world's total population. This has made housing become one of the basic needs and makes market segment for housing quite wide. On the other hand, global warming became one of the most discussed topics. Therefore, all the people from government, private and community levels should support sustainable development. One of the contributions for real estate actor like housing developer is to provide housing and its environment with green concept. By using green concept which is environmentally friendly into its real estate product can be a business opportunity for developers in product differentiation.

Based on Miles et al (2006), real estate development could be separated to three parts, first is idea inception, idea refining, and feasibility study. On feasibility study, market study is done to identify who the market is. To determine its market characteristic, the study of consumer behavior is required. Before buying a product, goods or services, consumers need to know and understand about the products and their benefits (Nitisusastro, 2012).

This study was done to explore consumer knowledge about the green house where this will affect consumer's behavior in the decision to buy. Consumer's knowledge about the green house can determine consumer's interest towards residential estate which applies green concept into its real estate.

2. LITERATURE REVIEW

2.1 Green Building

Green architecture appears as an architectural planning approach that tries to minimize the various harmful effects on human health and the environment. The concept of green architecture has several benefits including: the building is more durable, energy saving, minimum building maintenance, more comfortable to live in, and healthier for occupants. The concept of green architecture contributes to environmental issues, especially global warming. Moreover, building is the largest producer of more than 30% of global emissions of carbon dioxide as one of the causes of global warming (Sudarwani, 2012).

Energy efficient building, or more widely known as green building, is being enforced as an anticipation of global warming. With the right energy efficient concept, the energy consumption of the building can be cut down up to 50% with only 5% increase in cost. (Sudarwani, 2012).

2.2 Green Building Council Indonesia (GBCI)

Indonesia has a non-governmental and non-profit organization that aims to create a more healthy environment. The organization is called Green Building Council Indonesia (GBCI). GBCI consists of several professionals, such as: construction, building and property industry, government, academicians, and communities who concern for the environment. In 2009 GBCI issued a greenship criteria in assessing the greenness of a building. There is three types of greenship assessments issued by GBCI such as greenship of existing building, greenship for new building, and greenship for interior space.

In general each greenship has six assessments criteria:

1. Appropriate Site Development-ASD

These aspects include: green base area, site selection, community accessibility, public transportation, bicycle user facility, landscaping, micro climate, and rain runoff water management.

2. Energy Efficiency and Conservation-EEC

These aspects include: the installation of sub-meters, natural lighting, passive cooling, renewable energy.

3. Water Conservation-WAC

These aspects include: water meter, the calculation of water use, water use reduction, water features, water recycling, alternative sources of water, rainwater, and the efficiency of water use landscaping.

4. Material Resources and Cycle-MRC

These aspects include: fundamental refrigerant, building usage, waste material usage, eco friendly material, ODP-less refrigerant usage, certified woods, prefabricated material, and regional material.

5. Indoor Health and Comfort-IHC

These aspects include: chemical pollutant, outside building view, visual comfort, thermal comfort, noise level.

6. Building Environment Management-BEM

These aspects include: basic waste management, pollution from construction activities, advanced waste management.

2.3 Consumer' s Buying Behavior

Market consumer consists of individuals and households who buy products for personal needs. Stimulus response is the simplest model of consumer's buying behavior model. Based on this

model, the marketing stimuli (4P) and other external forces (economic, technology, politics, culture) is into consumers "black box" and the consumer gives some observable response. The responses being studied are product choices, brand choices, purchase time, and purchase amount (Kotler dan Armstrong 2008).

Consumer's buying behavior is affected by four main characteristic of customers which is: culture, social, personal and psychology (Kotler dan Armstrong 2008).

1. Culture

Culture has been the basic determinant of wants and needs. Culture includes basic value, perception, preference and behavior gained by someone from their family and other important institution. Sub-culture is culture inside culture which has different value and lifestyle based from age group to ethnic. People with different culture and subculture have different preference.

2. Social

Social factor is also affecting consumer's buying behavior. Communal reference such as family, friends, social organizations, profesional asosiasi, can affect product and brand choice.

3. Personal

Age, life cycle phase, jobs, economic condition, life style, personality, and other personal characteristic affecting consumer's decision. Consumer's lifestyle, whole action and interaction in the world also have important impact on consumer's buying.

4. Psychology

External stimuli such as economic, technology, politics, and culture, is initial point to understand consumers behavior. Four psychological processes (motivation, perception, memory, and learning) are fundamentally affects consumer's response to marketing stimuli.

2.4 Consumer' s Understanding About Product

Before a product is launched, the product must be socialized to the people. What is the product name, what are the benefits, what group it is aimed, how much is the price, how to get it, etc (Nitisusastro, 2012). Next, to understand the benefits of a product, according to Nitisusastro (2012) consumers need to know and understand the product, its benefits and risks. This is because consumer's behavior could be determined by knowledge level of the consumer.

Nitisusastro (2012) proposes some aspects in determining consumers knowledge.:

1. Knowledge about the characteristic

Every product has different characteristic just like human. These characteristics including color differences, model, size, capability, etc.

2. Knowing the benefit

By knowing and understanding the benefits of a product, consumers can decide whether they should buy the product or not. These benefits include functional, psychological, technical, and economic.

3. Knowing the risk

Risk understanding concern about negative impact which will happened if the consumer buy the product. Risk understanding includes risk of functional, economic, psychological, time and management.

3. METHODOLOGY

3.1 Research Design

This research used qualitative method supported by quantitative method. A questionnaire is made to collect quantitative data.

3.2 Participants

Participant for the questionnaire consisted of 42 people which 23 of them are male and 19 are female. Chosen participants are prospective buyer of real estate in Surabaya. The age range is between 23-35 years old young family who works in private office or self-employed.

3.3 Measures and Procedures

Data from questionnaire is quantitative data then it is analyzed using descriptive statistic to see how far the relationship between the knowledge of green building and their buying interest.

4. RESULT AND ANALYSIS (FINDING AND DISCUSSION)

4.1 Consumer' s Buying Interest On Housing With Green Concept

One of many factors influencing consumer's decision is their knowledge of the product. This research showed that from 42 people there were 32 people having knowledge of green building. Table 1 shows the knowledge of the respondent.

Table 1. Respondent's Knowledge About Green Building

		Knowledge		Total
		Know	Not Know	
Gender	Male	17	6	23
	Female	17	2	19
Total		34	8	42

The knowledge of the respondents or the consumers based on their education level can be seen in table 2.

Tabel 2. Respondent's Knowledge Based On Education Level

		Knowledge		Total
		Know	Not Know	
Education Level	Senior High School	1	-	1
	Diploma	0	1	1
	Bachelor	30	5	35
	Master/Doctor	3	2	5
Total		34	8	42

Based on table above, the most educated about green building is the consumers with bachelor degree. On the other hand respondent with the most uneducated about green building is also bachelor degree this could happen because the respondent with bachelor degree dominates the sample group. There are 5 respondents of master degree, two of them don't know about green building. One respondent with diploma degree doesn't know about green building but one

respondent with high school education has knowledge about green building. This shows that education level doesn't have connection with knowledge about green building. Next, the analysis and results of consumer's buying interest can be seen in table 3.

Tabel 3. Consumer's Buying Interest

		Knowledge		Total
		Know	Not Know	
Interest	Yes	36	3	39
	No	3	-	3
Total		39	3	42

Based on above table and diagrams 39 respondents (93%) has interest in buying house with green concept with 36 of them knowing the concept of green building and 3 of them don't. From the questionnaire, respondents interested in buying house with green concept have many reasons such as to preserve nature balance and to save energy. Next, 3 respondents are not interested in buying because it costs more money for them. This shows that if the consumers know the benefits of house with green concept, there is big chance that they will be interested to buy.

The analysis of consumers buying scale shows that 23 people (54,76%) have interest in buying house with green concept in scale factor of 4. This means that if a housing developer offers some kind of house with green design could influence buying behavior of consumers. However, consumers also have consideration before they make buying decision such as price so they didn't choose the highest scale (Figure 1).

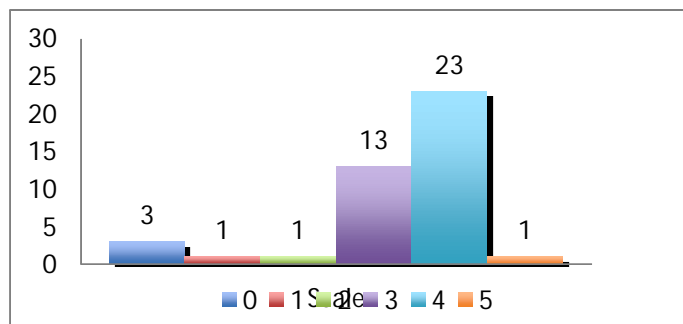


Figure 1. Consumer's Buying Scale

The level of buying interest is influenced by information obtained by consumer. This will influences consumer in buying the product offered. The more consumers have knowledge and information about the benefits, it's easier for consumer to make decision before they buy.

Price becomes one of consumer's considerations before they decide to buy the product or not. Respondent's decision if the price of house with green concept is higher can be seen in Figure 2.

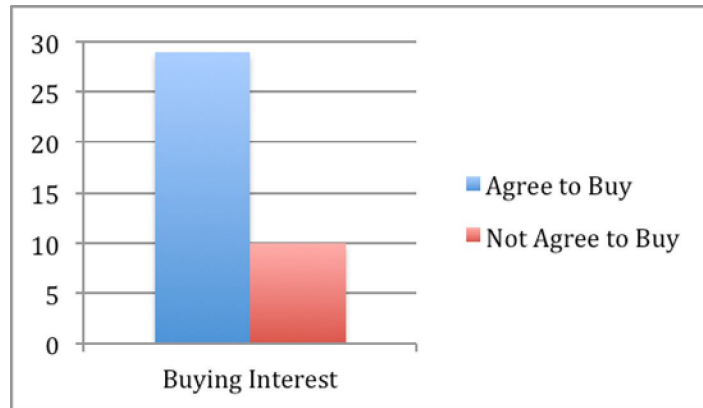


Figure 2. Consumer's Buying Interest if Price is Higher

From figure 2, it can be seen that 29 respondents are willing to buy house with green concept with many reasons such as participating in sustain environment, to save energy and the last they think even though the building cost is more expensive, the maintenance cost is cheaper in the long run. 10 respondents don't want to buy house with green concept if the price is higher because they think house with green concept doesn't need to be expensive, wasted material can be used to build it. But 3 respondents don't want to buy green house since beginning.

4.2 Consumer' s Perception Of Housing With Green Concept

Based on previous research by Alamsyah (2013), the consumers of a housing estate wanted the green areas such as parks, pools, playground, etc. Consumers also found that pedestrian paths should be distinguished from the path of the vehicle. Furthermore, regarding the physical condition of existing house in the housing estates when seen from greenhip criteria of GBCI only utilize a wide opening to insert natural light as much as possible. In addition, the houses in housing or residential estate also do not have alternative sources of energy in the house to reduce the cost of electricity and water consumption, whereas the consumers consider the need of alternative sources of power generation and supply of rainwater as an alternative water source.

4.3 Green Concept That Can Be Developed In Housing Estate

Based on the level of priority, from the sixth categories of greenhip from GBCI that can be immediately implemented is water conservation category (WAC). In addition, residents or consumers also consider there is a need to conserve water in their homes. Next is the category of energy efficiency and conservation (EEC) about renewable energy in the site or building. The last category is appropriate site development (ASD) about facilities for bicycle users.

Table 4. Design Criteria

Category		General Criteria	Specific Criteria
Water Conservation (WAC)	<ul style="list-style-type: none"> • Reduction of water use • Water features • Recycling water • Alternative water sources • Collecting rainwater 	Water conservation requires the designer as much as possible to make people realized the use of water to a minimum. Protection and conservation of water throughout the life of the building can be achieved by designing a double pipe for water recycling.	Using a water recycling system. Recycled water include former water, and rainwater.
Energy Efficiency and Conservation (EEC)	Renewable energy sources in the site or building.	Energy savings can be achieved if the passive design principles are applied. Housing development offers the potential to benefit from renewable energy sources.	Utilizing the sun or waste that can be used to be converted into energy.
Appropriate Site Development (ASD)	Facilities for bicycle users and pedestrians.	The arrangement of housing layout should consider sustainable travel pattern.	The availability of paths for cyclists and pedestrians that connects the house to supporting facilities. This path is separated by a pathway for motor vehicles.

From Table 4 it is known that there are three categories that can be used from GBCI as a design criteria for the development of housing estates. From the three categories are sought general criteria obtained from the literature and then from the general criteria appears specific criteria that can be applied to housing estates. These three aspects are the most likely to be developed in the near future because it is easy to be done and it is also supported by the occupants or consumer's perception that considers the need of pedestrian paths that connect with supporting facilities, alternative sources of electrical energy and alternative water sources.

5. CONCLUSION

This research concludes that consumer's decision to buy a product is affected by their knowledge of the product and the benefits of the product. 34 of 42 respondents are identified to have knowledge about green building. Most of the respondents said that green building can save their cost in maintenance even though it has higher early cost. Respondent's knowledge about green building and its benefits have made them interested in buying house with green concept. It is shown by 39 of 42 people.

Based on high buying preferences of green building it can be concluded that the demands are high as well. But facing with higher price some respondents prefer not to buy one. It is a job for developers to create a more accessible green house for the market. Design concepts that can be developed based on greenship criteria from GBCI are: Water Conservation (WAC), Energy Efficiency and Conservation (EEC), and Appropriate Site Development (ASD).

Based on the conclusion and survey result, this research can be further expanded. This research is intended to see the relation of buying preferences of respondent with applying green design which in turn could be a suggestion for developer to offer green design. For the next, research about green marketing is needed.

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