

# Sustainable House Principle in Affordable House

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**Abstract.** Sustainable housing must not excluded low income people. Housing affordability is an important matter in the housing market to ensure that each group such as high-income, middle income or lower income group are afford to own a house. Besides, a home provided benefits for individuals, government and economy. The objective of this research is to examine the sustainable housing principle in affordable house and to examine attracted factors that affected low income people to own a house. The sample for this research comprises individuals who own a low-cost house at Melaka. The double sampling technique was utilized to generate this sample. This research utilizes binary logistic regression as its analytical tool. The findings indicate that Malaysia have applied the principle of sustainable house in housing affordability for low income people. The main attracted factors that affected low income people to own a house include household income, household expenditures, type of occupation, education level, working household members and monthly payment for housing.

**Keywords:** Sustainable housing, Housing affordability, Low income people, Binary logistic regression.

## 1. Introduction

Clearly explain the nature of the problem, previous work, purpose, and contribution of the paper. Application of sustainable housing principle is uncommon in the current housing development trends. Sustainable house, not only supports the features and guidelines outlined in the sustainable development but also is an important aspect of human lives. Sustainable housing principles applied in the construction industry, such as for office buildings, residential buildings, commercial buildings and so on. In addition, the sustainable housing principle is also available in a variety of housing types including affordable housing. The objective of this research is to examine the sustainable housing principle in affordable house and to examine attracted factors that affected low income people to own a house. From there, this paper will explain more understanding about sustainable housing principle in affordable house and give more information about attracted factors that affected low income people to own a house.

## 2. Theoretical Framework

### 2.1. Sustainable Housing Principle

The principle of sustainable housing is to give comfort and safety in human lives (Fig. 1). The application of this principle occurs directly and indirectly recognized by the owner or not. The principles applied in sustainable housing, including concern for people by ensuring that they live in a healthy, productive and in harmony with nature (Nazirah, 2005). This principle needs to give priority to the interests of future generations without compromising the needs of the present generation.



Fig.1: Sustainable House

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There are six (6) principle of sustainable housing applied in Malaysia, namely:

- Energy Efficiency

Increasing use of energy by the optimum building orientation, sun minimize entry through building ventilation, natural lighting, adapt best practices in building services, including the use of renewable energy and regular maintenance.

- Internal Environmental Quality

Achieve good performance in indoor air quality, acoustics, visual and thermal comfort. This will involve the use of low volatile organic compounds, filtration applications in air quality, temperature control, conditioning and proper humidity.

- Site Planning and Management of Sustainable

Selecting a suitable site with access to public transport, community services, open space and landscaping. Conservation of environmentally sensitive areas through the development, implementation and management of a systematic construction, and reduce the pressure on infrastructure capacity.

- Materials and Resources

Choosing materials that are not environmentally friendly and have a negative impact on humans, flora and fauna. Sources used in preference to minimum and reusable materials.

- Water Efficiencies

Rainwater harvesting, water recycling and water system equipment.

- Innovation

Innovative designs meet the goals and initiatives of GBI.

There are many features of sustainable development among these are;

- Environment - The development of truly taking by human activities on the environment and health.
- Social Equality - Development that contributes to the acquisition and control of a more appropriate source.
- Human Economics - Social and economic development to help people meet basic needs.
- The Future - Ensure that the decision taken not to damage or prejudice the interests of future generations.
- Participation - The process that allows the entire community involved.
- Local Action / Global Impact - Local development that contributes to the resolution of global issues.

In conclusion, the principles of sustainable housing can be defined as a way of creation and the management responsible for achieving a healthy development.

## **2.2. Affordable House**

Affordable housing is a term used to describe dwelling units whose total housing costs are deemed affordable to those that have a median income. Although the term is often applied to rental housing that is within the financial means of those in the lower income ranges of a geographical area, the concept is applicable to both renters and purchasers in all income ranges. Affordability is the ability of a person in providing something, which is usually referred to his ability in financial terms (Norazmawati, 2007). Housing affordability has been referred to by a number of researchers in many different ways.

Anirban et al. (2006) mentioned that house affordability is a condition when people have the potential to save certain portion of their income to buy a house, as well as to pay other expenditures in their working period. Concept of housing affordability is generally to determine income affordability of a person to pay for housing monthly instalment. So, the concept of housing affordability is related with total of income to pay for housing monthly instalment and others necessary expenditures (Hancock, 1993). Nevertheless, it is owners of a house who are usually identified as afford, particularly in developing countries. This begs the question as to whether this owner is compatible with the affordability of housing ownership and whether it can assist in the resolution of problems associated with the exploitation of such resources.

## **3. Methodology**

The sample for this research comprises 30 individuals who own a low-cost house at Taman Sri Kesang, Jasin, Melaka. The double sampling technique was utilized to generate this sample. This research utilizes binary logistic regression and descriptive statistics as its analytical tool. The descriptive statistics included frequencies and percentages of respondent characteristics.

## **4. Results and Discussion**

We first give some background information and then discuss the sustainable housing principle in affordable house and attracted factors affecting low income people to own a house.

### **4.1. Respondents' Background**

Most of the homeowners in low-cost houses at Taman Sri Kesang, Jasin, Melaka (Figure 2) were Malays.



Fig. 2. Low Cost House  
(Source: Picture taken by Norazmawati, 2011)

### **4.2. Sustainable Housing Principle in Affordable House**

The sustainable housing principle in affordable house is measured based on GBI Malaysia on 6 criteria such as energy efficiency, internal environmental quality, site planning and management of sustainable, materials and resources, water efficiencies and innovation. From the descriptive analysis shows that low-cost house at Taman Sri Kesang, Jasin, Melaka applied the sustainable housing principle in their development. It means that although the development is for low cost house, the developer still applied the sustainable housing principle in their project.

### **4.3. Attracted Factors Affecting Low Income People to Own a House**

To determine the attracted factors that affect low income people to own a house, binary logistic regression have been used by Gyourko et al. (1999) in their research. Attracted factors affecting low income people to own a house are household income, household expenditure, type of work, education level, working household members and monthly payments for house.

## **5. Conclusion**

In conclusion, it appears that Malaysia has adopted the sustainable housing principle in affordable house for low income people. Attracted factors affecting low income people to own a house are household income, household expenditure, type of work, education level, working household members and monthly payments for house. Although sustainable housing principle in affordable house is still less implemented in Malaysia housing industry, but this principle has been adopted by the developer, government or private developers in affordable house for low income people. This shows the good attitude of government concern in ensuring a comfortable and secure life for low income people.

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