

The 5th Sustainable Future for Human Security (Sustain 2014)

## The empirical study of green buildings (residential) implementation: perspective of house developers

Ezanee M. Elias<sup>a\*</sup>, Chong Khai Lin<sup>b</sup>

<sup>a</sup>*School of Technology Management, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia*

<sup>b</sup>*Disaster Prevention Research Institute, Kyoto university, 611-0011 Gokasho, Uji-shi, Kyoto, Japan.*

---

### Abstract

This paper presents a study of green buildings implementation from the perspective of housing developers. The agenda of green buildings is to preserve all natures from the destruction by human activities. However, not many of house owners know that their houses are degraded and produced CO<sub>2</sub>, roughly 10 to 30 tonnes annually. This means that our houses are one of the causes of the global warming and environmental pollution. Therefore, the green building concept for green residential is an alternative effort to decrease the effects of CO<sub>2</sub>. Green residential means applying the houses with a minimum energy, water and natural resources that provide good air quality and reduce wastes. This qualitative study aims to explore the perceptions of housing developers towards green residential development. Presently, the demand for green residential is very low because buyers hesitate to pay 30% more costs for a green residential than a conventional house. The data collections for the study area are throughout face-to-face semi-structured interviews, photo collections, and some observations with housing developers. There are twenty-two respondents involved during the data collection period from two home and property exhibitions. The study finds that 77% of respondents are aware of the green residential concept. The other 23% of respondents realize about the green residential concept and the perceived benefits but indistinguishable. Government roles are significantly crucial for flourishing the development of green building and technologies into the housing projects.

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of Sustain Society

*Keywords:* buildings; developers; green; perceptions; residential

---

---

\* Corresponding author.

*E-mail address:* [catherine\\_cho28@yahoo.com](mailto:catherine_cho28@yahoo.com)

## 1. Introduction

Excessive development has led to main changes in world civilization, including the economic, social, and natural environment<sup>1</sup>. The negative impacts of human unlimited activities like extreme energy production (e.g., oil and gas industry) and overload transportations become problems to the world's financial, economic, social, and environment. According to a report in United State of America, residential, commercial, and industrial buildings produce Carbon Dioxide (CO<sub>2</sub>) emissions more than 38% as compared to 10% of world's CO<sub>2</sub> emissions<sup>2</sup>. Therefore, the air pollution becomes a tremendous impact to all of us, especially our health, environment and property damage. As examples, an environmental degradation and extreme release of CO<sub>2</sub> worldwide significantly impact human quality of life. In the U.S. alone the average output rate by using coal-fired electricity generation is about 954 grams of CO<sub>2</sub> per kilowatt-hour. And recently, the petroleum consumption to produce electricity, as much as 119 billion kilowatt hours of the nation, has produced 106 million of metric tons of CO<sub>2</sub> emissions. This indicates that the nation becomes the second biggest polluter at 863 grams of CO<sub>2</sub> per kilowatt hour. Thus, green development becomes the world new agenda to ensure that the human standard of living can be sustained. At the same time, the surrounding nature must be preserved from any damages caused by the pursuit of economic growth through the heavy development. Green development now has been developed by various countries in the world such as European countries, America, and Australia. Besides, Asian countries such as Singapore, China and Japan also have applied it appropriately to the needs and development of their society. Green development is not only important to the extent to advanced countries, but also important to developing countries such as Malaysia and Thailand. As one of the major industries in Malaysia, the construction industry certainly can effectively achieve human living standard by developing the green residential. One of green residential criteria is that the house can achieve long lasting, sustainable through the efficiency of energy use. It can be achieved through green technology applications like photovoltaic systems, rain water collection, and recycled materials.

### 1.1. The study background

As a developing country, Malaysia also adopts the green programs (green buildings and green technologies). The government has implemented the green programs as stated in the government agendas since 2010. Several implementations included are improvement of living standards, promoting sustainable development system, preserving and conserving the environment, and green supply management. The entire agenda is based on the implementation of Agenda 21, Sustainable Development Program United Nations (UN). Throughout the agenda, Malaysia was interested to follow the footsteps of developed countries in developing foresight in-line with the consensus with other countries as included in the World Summit on Sustainable Development (WSSD) on the planning and direction of green development in the new millennium. For example, the European countries have used many of energy efficiency systems and green buildings such as the British Research Establishment Environmental Assessment Method (BREEAM) and the German Green Building Association (GGBA). As consequences, Malaysia has launched its green building program by introducing the Green Building Index (GBI) developed by PAM (Malaysian Institute of Architects) and ACEM (Association of Consulting Engineers Malaysia), in order to promote and to flourish the construction industry with green building technologies. GBI is the first green building program where the environmental rating system becomes one of its standards and also the first comprehensive system in Malaysia to evaluate the environmental design and building performance<sup>3</sup>.

### 1.2. The problem statement

House as a part of human life should be planned with a balance between physical buildings, environment, and people as the residents. As basic knowledge, the conventional house produces 10 to 30 tons of CO<sub>2</sub> a year and it directly becomes one of the major factors to contribute in the global warming catastrophes. Therefore, a green development agenda becomes a new impetus in the arena of construction industry in Malaysia. The introduction of GBI can be a motivation for a green benchmarking in the Malaysian construction industry. Since the agenda is novel, it has created a lot of misperceptions and problems, not only for potential buyers, but also for the construction industry players such as developers, architects, engineers, town planners, and contractors. According to the Ministry

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات