

The Effect of Green Building Application to Property Value

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Abstract—The green building concept is one of the solution for the next sustainable development. One of the biggest barriers is the feasibility of financial return. This research is conducted to determine the influence of the green building aspects application towards the property value of high rise building that seen from the design and material aspects in Surabaya. This study, conducted by a survey research using questionnaires for data collection, and regression analysis. There are ten aspects that its use may increase the property value, which are the horizontal massing design, secondary skin, smart lighting systems, grey-water systems, green roof, lightweight concrete, photovoltaic systems, smart lighting systems, air conditioner with VRV systems, gray-water systems, Low-E glazing, low VOC paint wall, and green roof.

Index Terms – Green building, high-rise, property value.

INTRODUCTION

Buildings represent 32% of total final energy consumption in the world [1] and the largest emitter of carbon in nature, thus the business in the building sector has a responsibility to contribute to reducing carbon emissions. The green building concept is one of the solution for the next sustainable development [2]. One of the biggest barriers to invest in green building is the perception that the cost spent is greater than the conventional buildings, such as an increasing initial investment cost on the building [3].

Building and Construction Authority Singapore (BCA) [4] states that sustainable development becomes a necessity, because it becomes an important green building design. Using green building materials can help improve indoor air quality (IAQ) and satisfy consumer demand. At this time, the property market trend is more receive a product that applies the concept of green, one of the indicators is the market price of the property is higher than the property that do not apply the concept of Green Development [5]. Assets that retain value through higher occupancy and easier maintenance, much easier to sell and has higher market valuation [6]. Indonesia Property Management Association estimate, the green projects bring added value. Rental prices could rise to 6.4 per cent,

while the selling price could rise to 19.6 percent [7]. The companies that have image as ‘environmentally friendly company’ can attract more consumers to buy their products [8].

Veld and Vlasveld [9] examined the effect of sustainability on retail values, rents, and investment performances. The results showed that green retail properties have significantly higher income return. Isaa et al. [10] examined the factors that affect investment in green office building concepts. The results are increase in investment, market and the value of the rent, the cost savings gained from the use of green materials, also beneficial to the surrounding environment and social. The findings of Eichholtz in Falkenbach, et al. [11] describes the increase in property values by comparing rental prices average labeled green buildings compared with surrounding buildings that are not labeled green.

The similarity of this study is the assessment of the property as seen from the green features. The difference is the methods and the end goal, that is to figure out how the impact of green building on the property value.

METHODS

This study is a confirmatory study, conducted during January 2015 until April 2015, with 38 respondents. The selected population is a property developer practitioner that ever and/or directly involved in the high-rise building projects in construction management and property development in the area of Surabaya. The questions have been addressed to the manager upwards to the director. The questions contained twelve aspects green building concepts that related to property value, using Likert scale questions analyze. A preliminary research was done to obtain green building aspects in design and material aspects before the questionnaire survey to respondents.

The type of method used is nonprobability sampling, with the purposive sampling followed by snowball sampling. Purposive sampling conducted to obtain initial respondents in accordance with the limits and scope of the research. Snowball sampling is used because researchers lack of understanding the scope of the study population.

RESULTS & DISCUSSION

The increasing value of the property in high-rise building related to green building concepts is influenced

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by ten aspects. The empirical model of property value related to green building concepts as shown in Figure 1.

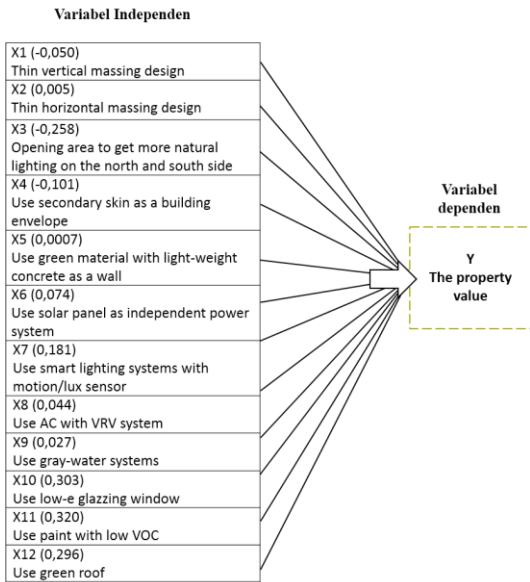


Figure 1. Empirical model of property value.

Figure 1 shown the positive and negative value. The positive value means the effect is in the same direction with the increasing property value. The negative value means the effect is in the opposite direction with the increasing property value. The equation, formula can be explained as in (1), that seen from the empirical model in Figure 1.

$$Y = 0,021a - 0,05x_1 + 0,005x_2 - 0,258x_3 + 0,101x_4 + 0,0007x_5 + 0,074x_6 + 0,181x_7 + 0,044x_8 + 0,027x_9 + 0,303x_{10} + 0,320x_{11} + 0,296x_{12} \quad (1)$$

With:

Y = Property Value

a = constants

bx₁, bx₂, ..., bx₁₂ = regression coefficient x₁, x₂, ..., x₁₂

CONCLUSION

It is concluded that not every aspect in green building can increase the property value. The ten aspects that have positive effects such as the horizontal massing design (X2), secondary skin (X4), the application of lightweight concrete (X5), photovoltaic systems (X6), smart lighting systems (X7), Air conditioner with VRV systems (X8), gray-water systems (X9), Low-E glazing (X10), low VOC paint wall (X11), and the application of green roof (X12). The 2 other aspects gives the opposite effect on increasing property values, such as the vertical massing design (X1) and opening direction area in north – south side (X3).

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