PalArch's Journal of Archaeology of Egypt / Egyptology

MARKET UNDERSTANDING ANALYSIS OF GREEN BUILDING IN INDONESIA

Hilyah Rihaanah[1], *Diki Firdaus*[2]

[1] Master of Management Program, Faculty of Economics and Business, Universitas Pembangunan Negeri Veterans Jakarta, Indonesia, 12450

[2] PT Semen Indonesia, South Quarter Tower A, Jakarta, Indonesia, 12430

E.mail: [1]hilyah.rihaanah@gmail.com

Hilyah Rihaanah, Diki Firdaus. Market Understanding Analysis Of Green Building In Indonesia-- Palarch's Journal Of Archaeology Of Egypt/Egyptology 20(2), 2393-2400. ISSN 1567-214x

Keywords : Green Building, Greenship, Indonesia

ABSTRACT

Eco-Friendly Buildings continue to be a global priority due to the issue of global warming. GBCI is a non-profit organization in Indonesia that assesses environmentally friendly buildings through GREENSHIP which includes six types of certifications : New Buildings, Existing Buildings, Interior Spaces, Homes, Environment, and Healthy Net Zero. This research aims to analyze the understanding of the green building market in Indonesia involving companies and end users. The methodology used is through in-depth interviews and primary surveys to obtain qualitative and quantitative data. Companies (Developers/Contractors) have quite high interest in the Green Building concept when compared to End Users. End Users are more likely to consider three main factors such as price, facilities and location when choosing an eco-friendly property.

INTRODUCTION

Climate change is the most pertinent environmental issue of our time and one of the greatest challenges we face as a global community. The scientific evidence is irrefutable; climate change is affecting agriculture, native ecosystems, infrastructure, health, and biosecurity (MfE, 2019). Recent studies have indicated that construction and operation of buildings accounted for 36% of final energy use and 39% of energy and process-related CO_2 emissions (Ahmad, 2023; World GBC, 2017). Given the massive growth of construction industry all over the world for the last decades, if nothing is done, it is estimated that the construction industry will be responsible for the destruction of natural habitats and wildlife on over 70% of the Earth's land surface by

2032 (Wimala et al., 2016). Green Building is defined as “the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building’s life-cycle from siting to design, construction, operation, maintenance, renovation, and deconstruction”(Li et al., 2022).

LITERATURE REVIEW

Green Building Indonesia Overview

As green building is relatively a new term of reference, especially for Indonesians, the green building concept remains at the initial phase and has not become a nationwide concern and awareness (Mediastika & Lie, 2015). Poor environmental performance causes the importance of applying the concept of sustainability (Dzikriansyah et al., 2023). The construction industry is a driver of economic growth and development, as well as the basis for a country's survival(Eze et al., 2021). In recent years, a new eco-friendly building movement has emerged in Indonesia. A non-profit organization called the Green Building Council Indonesia (GBCI) which was founded in 2009 has contributed greatly to the development of this initiative in Indonesia. GBCI has formulated criteria of green building named Green ship which has some aspects of assessment (Anisah et al., 2017). Green ship is a green building certification system developed by GBCI, this is the first comprehensive rating scheme in Indonesia to assess building performance and environmental design, it is designed specifically for local markets taking into account factors such as tropical weather, development and environmental context, and cultural and social needs. The ranking scheme consists of only three categories: for interior design, existing buildings, and new buildings. In collaboration with the Ministry of the Environment, GBCI is committed to promoting the application of best practices and encouraging a more sustainable construction industry. GBCI determines the green building assessment category itself, these categories include appropriate site development, energy efficiency and conservation, water conservation, material resources and cycle, indoor health and comfort, and building environment management (GBCI, 2023).

Green Building Market

Global Green Building Material Market size accounted for USD 285.4 Billion in 2022. It is projected to surpass around USD 768.8 Billion by 2032, and it is poised to reach a CAGR of 10.7% from 2023 to 2032 (Globe Newswire, 2023). In the Green Building market, the materials used are a recyclable product, which improves the environment and quality of life production. The housing sector is improving due to the increasing number of building regulations and policies that require energy efficient structures.These findings show that green building continues to remain a global priority, likely driven by increasing extreme weather events and despite other rising concerns like the global warming issues (Carrier, 2021).

RESEARCH METHODOLOGY

Qualitative: In-Depth-Interview (IDI), by Expert

This research conducted IDI qualitative with 2 (two)experts in the green buildings : Expert Regulator (Ministry of public works and housing) and Expert Non-Regulator (Architect and Consultant).

Qualitative: In-Depth-Interview (IDI), by Segment

The total of IDI qualitative datain volved 19 (nineteen) contractor respondents: Residential Housing, Hotels, Apartments and Commercial/Office.The companies interviewed included Adopter Companies (companies that have adopted the green building concept and use green products) and Non-Adopters Companies (companies that have not adopted the concept and use the product but do not reject either of these things). The sample sizeof respondent areas were taken fromJabodetabek, Bandung, Jogjakarta, Semarang and Surabaya.

Table 1. Sample Size of Qualitative Research

City	**Sample Size**				
	Residential	**Hotel**	**Apartment**	**Commercial / Office**	**Total Numberof IDI**
Jabodetabek	3	3	2	2	10
Bandung	2	0	1	0	3
Jogjakarta & Semarang	1	1	0	0	2
Surabaya	3	1	0	0	4
Total	9	5	3	2	19

Quantitative: Primary Data

The sample size of quantitative research involved the Contractors (n=102) who are decision makers in the use of building materials used on properties project and End User (n=138) who are decision maker to buy or rent a residential, hotel, apartment and commercial / office.

Table 2. Sample Size of Quantitative Research

City	Sample Size
Jabodetabek	79
Bandung	29
Jogjakarta&Semarang	26
Surabaya	47
Medan	19
Makasar	20

Denpasar	10
Kutai	10
Total	240

RESULT AND DISCUSSION

Result

The survey of green building understanding conveys that using eco-friendly materials 48% by End User and 64% by Company (Table 3 & Table 4)

Table 3. The Result of Green Building understanding by End user (n= 138)

Understanding of Freen Building	Total
Using eco-friendly materials	48%
Cool, beautiful, clean and comfortable	17%
surrounded by green trees	16%
Energy saving (Electricity)	14%
Has clean and fresh air circulation	9%
Designed with health aspects	7%
Has natural lighting	5%
The material is recyclable	5%
Using more economical and affordable costs	4%
Nice and cool	3%
Using advanced technology	2%

Table 4. The Result of Understanding of Green Building by Company (n= 102)

Understanding of Freen Building	Total
Using eco-friendly materials	64%
Energy saving (Electricity)	16%
Cool, beautiful, clean and comfortable	13%
surrounded by green trees	10%
The material is recyclable	7%
Designed with health aspects	4%
Has natural lighting	3%
Has clean and fresh air circulation	2%
Nice and cool	2%

Company (Developers/Contractors) have quite high interest in the Green Building concept when compared to end users, the level of company interest is higher (Figure 1). Surabaya is a city that has high interest for companies. (Figure 2).

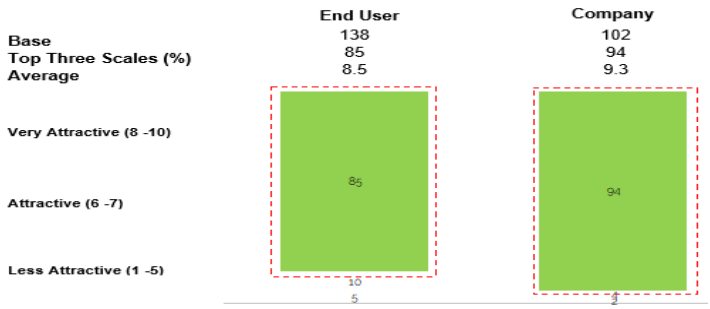

Figure 1. The attractiveness of Green Building by End User

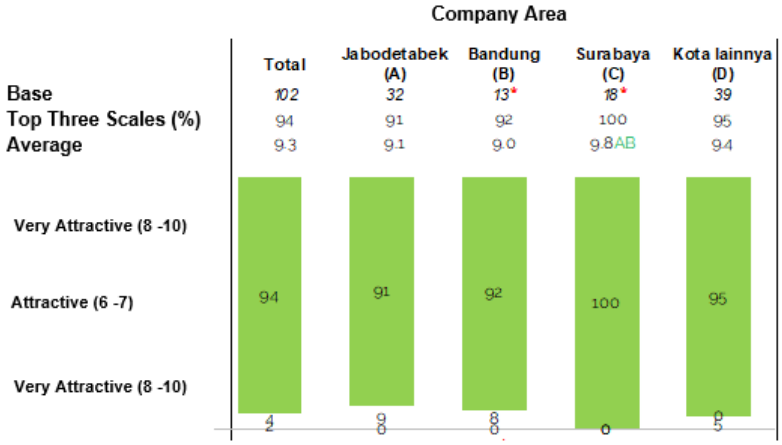

Figure2. The attractiveness of Green Building by Company Area

Price, facilities and location are the three main factors considered when choosing green property by users (Figure 3). Obstacles in using green products among the residential segment are not wanting to change the use of materials they usually use, concerns about expensive prices and not being offered by contractors. Meanwhile, the obstacle for the non-residential segment is the worry that prices will be more expensive.

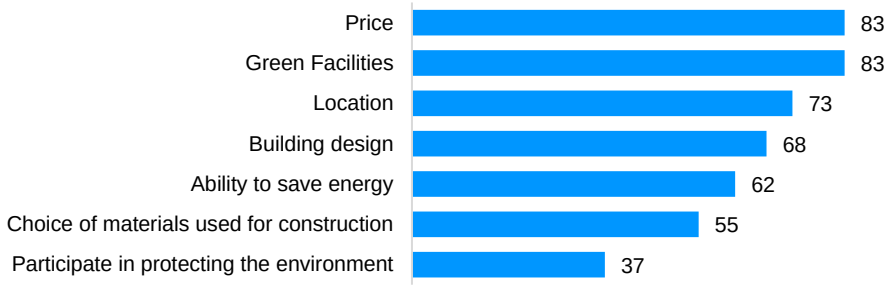

Figure3. Factors to consider when choosing Green Building/Green Products (users)

Based on case study data in previous research, it was clear that green building investment was relatively unattractive to investors because of a high premium

cost of green building implementation and uncertainty of the performance of the green building features (Basten et al., 2019).

DISCUSSION

Creating sustainable, high-performance andeco-friendly building especially in the world's ever-expanding regions is a challenge that draws in the concerned stakeholders (Agbajor & Mewomo, 2022).Green buildings are perceived to increase construction costs, but this is acceptable as long as they provide positive profits - commercially driven. Some landed house contractors / developers have used the benefits of the green building concept as a selling point. Furthermore, the cost to acquire a sustainable building construction project becomes higher as compared to a traditional building construction project due to additional items(Russ et al., 2018).

In Indonesia, There is 2 (two) institutions that issue green building certification. The certification system carried out by GBCI called Greenship, Meanwhile, Ministry of Public Works and Housing has also certification system called Bangunan Gedung Hijau (BGH). Understanding the concept of green buildings is associated with 3 (three) things: Material & Desain, User-Experienceand Resource Savings. Nowadays, the application of the concept of eco-friendly buildings is starting to become known. Buildings with this concept have been widely used for hotels, apartments, offices and shopping centers. Several buildings in Indonesia have implemented the Green Building concept, including Sequis Center, BCA Tower, Ministry of Public Works Building, Pacific Place, Sampoerna Strategic Square, L'oreal Indonesia Office, and Wisma Subiyanto(GBCI, 2023). With this understanding, the use of the concept of "Green Concept Building/Property" has become commonly used as a selling point which is expected to be able to increase competitiveness and increase the value of the property.

CONCLUSION

Green products demand is still small, the push factor that encourages players to start towards green products is because of specific customer demand for Green Building Certification. No one has moved to start providing education, From the government side, it is known that there are no regulations that guide green product of Building Material.

Expected value from Green Building certification : 1) Branding and company image. 2) Increase the selling power and value of the building. 3) Attracting certain market segments: tourists, corporate tenants who pay attention to environmental issues, green concepts and renewable energy. 4) Long-term utility efficiency

REFERENCES

Agbajor, F. D., & Mewomo, M. C. (2022). Green building research in South Africa: A scoping review and future roadmaps. In Energy and Built Environment. KeAi Communications Co. https://doi.org/10.1016/j.enbenv.2022.11.001

Ahmad, T. (2023). Green Building success factors: An exploratory inquiry. Journal of Building Engineering, 76. https://doi.org/10.1016/j.jobe.2023.107136

Anisah, Inayati, I., Soelami, F. X. N., & Triyogo, R. (2017). Identification of Existing Office Buildings Potential to Become Green Buildings in Energy Efficiency Aspect. Procedia Engineering, 170, 320–324. https://doi.org/10.1016/j.proeng.2017.03.040

Basten, V., Crévits, I., Latief, Y., & Berawi, M. A. (2019). Conceptual development of cost benefit analysis based on regional, knowledge, and economic aspects of green building. International Journal of Technology, 10(1), 81–93. https://doi.org/10.14716/ijtech.v10i1.1791

Carrier. (2021). World Green Building Trends 2021. www.construction.com

Dzikriansyah, M. A., Masudin, I., Zulfikarijah, F., Jihadi, M., & Jatmiko, R. D. (2023). The role of green supply chain management practices on environmental performance: A case of Indonesian small and medium enterprises. Cleaner Logistics and Supply Chain, 6. https://doi.org/10.1016/j.clscn.2023.100100

Eze, C. E., Ugulu, R. A., Egwunatum, S. I., & Awodele, I. A. (2021). Green Building Materials Products and Service Market in the Construction Industry. Journal of Engineering, Project, and Production Management, 11(2), 89–101. https://doi.org/10.2478/jeppm-2021-0010

GBCI. (2023). Green Building Council Indonesia Structure. Green Building Council Indonesia. https://www.gbcindonesia.org/structure

Globe Newswire. (2023). Green Building Material Market to Hit USD 768.8 Bn by 2032. MarketReasearch.Biz. https://www.globenewswire.com/news-release/2023/07/11/2702507/0/en/Green-Building-Material-Market-to-Hit-USD-768-8-Bn-by-2032-At-a-CAGR-10-7.html

Li, Y., Li, M., Sang, P., Chen, P. H., & Li, C. (2022). Stakeholder studies of green buildings: A literature review. In Journal of Building Engineering(Vol. 54). Elsevier Ltd. https://doi.org/10.1016/j.jobe.2022.104667

Mediastika, C., & Lie, K. (2015). Occupants' Perception on Green-rated Office Building in Surabaya, Indonesia. Procedia Engineering, 118, 546–553. https://doi.org/10.1016/j.proeng.2015.08.479

MfE. (2019). Climate Change Response Acts 2002. Ministry for the Environment. https://environment.govt.nz/acts-and-regulations/acts/climate-change-response-act-2002/

Russ, N. M., Hanid, M., & Ye, K. M. (2018). Literature review on green cost premium elements of sustainable building construction. International Journal of Technology, 9(8), 1715–1725. https://doi.org/10.14716/ijtech.v9i8.2762

Wimala, M., Akmalah, E., & Sururi, M. R. (2016). Breaking through the Barriers to Green Building Movement in Indonesia: Insights from

Building Occupants. Energy Procedia, 100, 469–474. https://doi.org/10.1016/j.egypro.2016.10.204

WorldGBC. (2017). Global Status Report 2017. World Green Building Council. https://worldgbc.org/article/global-status-report-2017/