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EXPLORING GREEN FINANCING AND ITS CHALLENGES IN MALAYSIAN REAL ESTATE PROJECT

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ABSTRACT

This paper aims to explore the landscape of green financing adoption in Malaysia's real estate sector and its challenges for sustainable real estate development. It attempts to uncover the challenges of incorporating green finance into real estate projects and comparing the challenges faced by the local players with the global players. The results will allow recommendations to be made for successful green financing in Malaysia. The examination of Malaysia's present green finance adoption is made through a qualitative approach. Interviews were conducted with real estate developers and local financial organisations for the achievements of the main objectives. The findings found that the challenges faced by stakeholders in the implementation of green finance in real estate in Malaysia such as the lack of consistency in defining green terms, public awareness of green financing and projects, profitability uncertainty, limited green finance initiatives, longer green finance processes, and a lack of green efficiency data. In order to address these challenges, several recommendations were suggested which include standardising terminology, raising public awareness, providing financial incentives, improving funding accessibility, streamlining procedures, and strengthening data collection and transparency. Thus, the findings provide the potential to pave the path for widespread adoption of green financing in Malaysia's real estate sector by overcoming constraints such as restricted rules and incentives.

Keywords: Financial institutions, Green finance, Property developer, Real estate, Sustainable development

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1. INTRODUCTION

In recent years, there has been a growing emphasis on the implementation of sustainable practices and environmentally friendly investments within the real estate market. Among the ways to achieve this emphasis is the shift toward green financing mechanism in Malaysia. This practice is to be aligned with the 12th Malaysia Plan (12MP) to promote investment in green infrastructure including energy, transport and housing. As the concept of green financing in Malaysia is relatively new, it lacks comprehensive policies and incentives that specifically encourage the use of green financial instruments in the real estate sector. Additionally, real estate lenders are increasingly offering loans based on sustainable performance as demand grows for green-linked financing.

The green financial system is an institutional arrangement to support the green transition of the economy through financial instruments such as green bonds, green credit, green insurance, green securities, green investment and carbon finance, as well as related policies (Ben-xian and Huang, 2019). It is also a strategy for incorporating financial aspects into the transition towards efficient resource usage and low carbon emissions has gained prominence in achieving sustainable development (Talha, 2023). The real estate sector plays a pivotal role in global sustainability efforts, given its significant environmental impact in terms of resource consumption, carbon emissions and overall ecological footprint. With the urgent need to mitigate climate change and promote sustainable development, the notion of green finance has developed as a critical instrument to stimulate environmentally responsible practices within the real estate market (Giglio et al., 2021).

The insufficient understanding of the distinct features and frameworks of green financing within real estate projects presents a notable obstacle, limiting its effective application. Nedopil et al. (2021) stress the significance of comprehending the underlying differences and developmental paths of existing green finance standards. They argue that without this framework, future efforts to harmonise these standards are likely to fail. Furthermore, identifying and understanding the obstacles in green financing for the real estate industry is crucial. These challenges encompass a spectrum of issues, ranging from regulatory complexities to market-related obstacles. According to Managi et al., (2022), the successful implementation of green financing faces challenges such as the absence of standardized and transparent green finance markets, complexities in measuring and verifying the environmental benefits of green projects, limited availability of green finance products and services, high transaction costs. Hence, this suggests that greater efforts are required to identify the challenges in implementing green financing for green projects, particularly within the real estate industry.

With a focus on green finance in Malaysia's real estate development, this study aims to explore the landscape of green financing adoption in Malaysia's real estate sector and its challenges for sustainable real estate development. This study also compares the challenges faced by the local players with the global players in implementation of green finance. The comparison is meant identify commonalities between the global and Malaysian perspectives. Identifying barriers which include the fundamental understanding of green finance among policy makers and players as well as the level of awareness of the public can lead to proposed strategies that will enhance policies and incentives. Through this, insights for academic discourse and practical initiatives in Malaysia's real estate sector can be provided.

2. LITERATURE REVIEW

2.1 An Overview of Green Financing

Global green financing has a history dated back to the early 2000s, when sustainable investing gained traction (Yu et al., 2021). This transition towards sustainable methods has intensified in recent years, owing to the rising urgency around climate change and environmental sustainability. The notion of green finance developed from early conceptions of sustainable development, as underlined by Chen (2024), which may be traced back to the Club of Rome's 1972 "Limits to Growth" study. The paper presented the notion of sustainable development, providing the groundwork for environmental finance, the precursor of green finance.

There is a significant intersection among various terms such as “green finance”, “sustainable finance”, “climate finance”, and “low carbon finance” (Dikau and Volz, 2021). The United Nations Environment Programme defines these words in connection with the use of financial resources. Green finance stands out as a more defined notion than sustainable development goals (SDGs) in a variety of sectors, most notably the environment.

The emergence of the concept of green finance between 1998 and 2002 has been affected by both regional and global activities, as stated by Fu and Irfan (2022). The World Bank's first green bond, issued in November 2008, established the framework for sustainable investment in the capital markets. By the conclusion of 2020, the green bond framework was utilised for bonds that were issued to secure funding for all 17 Sustainable Development Goals, amounting to a total of $1.2 trillion (RM5.302 trillion) (Florea & Morales, 2022). According to UNEP (2018), green financing directs financial resources towards sustainable development priorities and aims at managing environmental and social risks across sectors such as banking, micro-credit, insurance, and investment. It involves channelling investments towards opportunities that yield both financial returns and environmental benefits while aligning with Sustainable Development Goals. Green finance is also channelling financial support offered to projects with efforts that aim to improve environmental sustainability and reduce carbon footprints (Rawat et al., 2020). It seeks to shape future ecosystems through measures like regulatory framework enhancements, public financial incentives harmonisation, and the utilisation of green bonds. Also, it plays a pivotal role in aligning financial systems with the 2030 sustainable development agenda. In Malaysia's real estate sector, green finance is critical in promoting the development of environmentally friendly buildings and infrastructure, eventually contributing to the nation's goal of environmental sustainability.

2.2 Green Financing in Real Estate

It is known that the real estate sector is a significant contributor to global greenhouse gas emissions, accounting for nearly 40% of total energy-related carbon dioxide emissions worldwide. This is largely attributed to the high energy demands of construction activities, as buildings continue to have a lasting environmental impact over their entire life cycle (Hong et al.,2015; Wibowo et al., 2018; Zhang et al., 2019; Röck et al., 2020). By incorporating sustainability considerations into the planning, design, construction and operation of buildings, real estate developers can significantly lower the environmental impact of their projects.

One key milestone in the adoption of green financing in real estate was the establishment of Green Building Councils around the world (USGBC | U.S. Green Building Council, 2023). These councils have played a crucial role in promoting sustainable practices and setting standards for green buildings, which has further propelled the evolution of green financing in the real estate sector. The real estate sector is seeing an increase in green financing due to the growing importance of environmental considerations. Financial institutions and investors are leading this shift by introducing innovative financial products tailored for sustainable real estate projects, such as green bonds, green mortgages, and other specialised financial instruments providing crucial support for environmentally friendly developments.

Moreover, green financing can provide access to a variety of incentives and financial instruments that can help offset the higher upfront costs associated with sustainable construction. For instance, green bonds, a type of debt instrument specifically earmarked for financing green projects, have emerged as a popular tool for raising capital for eco-friendly real estate developments (Ning et al., 2022). Importantly, the benefits of green financing extend beyond just environmental considerations. Previous studies have found that sustainable buildings can also generate significant economic and social benefits, such as lower operating costs, improved occupant health and productivity, and higher property values (Reddy, 2016; Zhang, 2023; Bhattacharyya, 2021). As the real estate sector increasingly recognises the need to address climate change and environmental concerns, the role of green financing is likely to become even more crucial in shaping the future of the industry.

2.3 Government Intervention

Government initiatives and policies have also played a significant role in promoting green financing in the real estate sector. Many countries have introduced tax incentives, grants, and subsidies to support the construction and renovation of green buildings (Walker & Goubran, 2020). These financial incentives aim to alleviate the initial costs associated with sustainable real estate development, making it more financially feasible for developers and investors. With the increasing concerns towards environmental, social, and governance (ESG) concerns investment decisions have resulted in an increasing trend of responsible real estate investment. Investors are increasingly considering the environmental impact and sustainability performance of real estate assets, driving the demand for green financing options. This shift in investor behaviour has prompted real estate developers and companies to prioritise sustainability and seek green financing as a means of aligning with ESG principles and attracting capital from conscientious investors (Yap, 2022).

The relevance of green financing extends beyond mere economic considerations to encompass broader

sustainability objectives, particularly aligned with Sustainable Development Goals (SDGs) (Hernandez et al., 2020). The real estate sector plays a pivotal role in global sustainability efforts, given its significant environmental impact in terms of resource consumption, carbon emissions, and overall ecological footprint. With the urgent need to mitigate climate change and promote sustainable development, the notion of green finance has developed as a critical instrument to stimulate environmentally responsible practices within the real estate market (Giglio et al., 2021).

2.4 Green Financing Initiatives in Malaysia

In 2014, the Securities Commission Malaysia (SC) launched several initiatives of measures that aim to create a sustainable and responsible investing Sustainable and Responsible Investment (SRI) environment in Malaysia. This proactive strategy includes the launch of the SRI Sukuk Framework, which was created to help investors and issuers create climate responsibility investing (Securities Commission, 2019).

Green financing initiatives in Malaysia are a part of features designed to support and promote environmentally sustainable projects. These initiatives, such as Sustainable and Responsible Investment (SRI) Sukuk and the Green Technology Financing Scheme (GTFS), are designed to support the financing of projects that promote environmentally friendly practices. By adopting these green initiatives, financial resources can be directed towards projects that give priority to environmental sustainability and contribute to a more environmentally friendly future.

Following the SRI Sukuk Framework, the Securities Commission (SC) continued to expand its efforts in 2017 with the release of Guidelines on SRI Funds. This was followed by the Waqf-Featured Fund Framework in 2020, which further emphasized the close alignment between SRI and Islamic finance principles. These initiatives were part of a larger effort to improve Malaysia's status as a regional SRI hub, as detailed in the Sustainable and Responsible Investment Roadmap for the Malaysian Capital Market (SRI Roadmap).

The Green Technology Financing Scheme (GTFS) scheme is intended for small and medium-sized firms (SMEs) who see capital finance as a barrier to turning green. The oversight of the initiative was the prerogative of the Malaysian Green Technology and Climate Change Centre (MGTC), which was formerly known as the Malaysia Energy Centre. The Ministry of Environment and Water has authority over MGTC (Ezuma & Matthew, 2022). The Green Technology Financing Scheme 4.0 (GTFS) has recently become a crucial financial tool in Malaysia for backing green technology projects, namely in the real estate industry. The initiative, which will be in operation until 31 December 2025, offers significant financial assistance of up to RM1 billion to firms who use green technology in sectors such as construction, management, maintenance, and demolition of structures (*Financing in Malaysia*, 2024).

The Malaysian government has further demonstrated its commitment to sustainable development through various initiatives such as the Renewable Energy Act and the Low Carbon Cities Framework which are governed by the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) (Rahman, 2020). These efforts reflect the country’s dedication to fostering a conducive environment for green financing in the real sector.

2.5 The Challenges

The challenges encountered in the introduction of green finance are not confined to Malaysia but are prevalent globally. A major obstacle that has been recognised is the absence of regulations and standards for green building. Hence, this leads to uncertainty and inconsistency in the implementation of sustainable practices by stakeholders (De Nederlansche Bank, 2017). Financial barriers to green finance adoption include governance and institutional capacity issues, increased issuance costs, and stringent transparency regulations that impede investment decisions for green enterprises (Wong et al., 2021; Ozili 2022). Furthermore, the lack of understanding of green finance, inconsistent definitions, regulatory and policies, the absence of economic incentives for investors and financial institutions and uncertainties for new green technologies all constitute substantial barriers to green finance implementation in Malaysia (Iqbal et al., 2021; Wong et al., 2021; Ozili, 2022).

Additionally, Guo et al. (2022) emphasised the importance of green finance in attaining energy conservation and emission reduction objectives and enhancing the ecological environment. These references collectively highlight the interconnectedness of green finance with broader environmental and socio-economic goals, emphasizing the need for a holistic approach to address the challenges in its adoption.

Managi et al. (2021) found that integrating sustainable practices into company operations is challenging due to the intricacies of green and climate finance. These obstacles comprise the absence of a definitive correlation between green finance and corporate performance, the potential for corporate greenwashing via exaggerated environmental disclosures, the absence of research concerning the influence of social capital and trust on firm performance within the realm of green finance, and the necessity to tackle environmental externalities including emissions and oil consumption.

With the numerous initiatives and challenges that stakeholders face on a global scale, there is a need for cooperation between governments, businesses and financial institutions and is emphasised to overcome these challenges (Hoang et al., 2023). As for the present study, it becomes increasingly valuable to delve into the specific experiences, strategies, and perspectives of stakeholders in Malaysia. By exploring and gathering insights from these local stakeholders, this study can gain a deeper understanding of how global trends and issues are being navigated within the Malaysian context, potentially uncovering unique approaches and solutions that could inform broader strategies.

The following Table 1 summarises the key issues in adopting green financing initiatives from global and local context.

Table 1: Summary of challenges in green finance adoption

No.	Issue	Summary	Source(s)
1	Governance and institutional capacity	Lack of expertise and resources to manage green finance initiatives	Ozili (2022)
2	Increased issuance costs	Makes green financing less attractive compared to traditional options	Ozili (2022)
3	Stringent transparency regulations	Strict rules for clear and open reporting	Ozili (2022)
4	Lack of understanding	Stakeolders (investors, financial institutions) do not fully grasp green finance concept	Iqbal et al. (2021) & Wong et al. (2021)
5	Inconsistent definitions and policies	Creates confusion and uncertainty for potential participants	Iqbal et. al. (2021) & Wong et al. (2021)
6	Absence of economic incentives	Discourages investment in green projects	Iqbal et al. (2021)
7	Absence of green building regulations	Leads to inconsistent implementation of sustainable practices	De Nederlandche Bank (2017)
8	Lack incentives for green technology	Higher upfront costs make green technology adoption less attractive	De Nederlandche Bank (2017)
9	Challenges in integrating sustainability into business operations	Complexities of green finance make it challenging for companies to implement	Managi et al. (2021)
10	Uncertain link between green finance and corporate performance	Difficulty in demonstrating the financial benefit of green practices	Managi et al. (2021)
11	Potential for corporate greenwashing	Faking environmental claims can undermine trust	Managi et al. (2021)
12	Lack of social capital research	Limits understanding of how social factors impact green finance	Managi et al. (2021)
13	Addressing environmental externalities	Difficulty in factoring environmental costs into financial decisions	Managi et al. (2021)
14	Limited long-term financing options	Hinders investment in sustainable projects	Wong et al. (2021)
15	Lower returns on green investments	Makes them less attractive than traditional options	Wong et al. (2021)
16	Regulatory uncertainties and market fluctuations	Increase risk for green project participants	Wong et al. (2021)
17	Limited market participant capacity	Restrict the number of companies involved in green projects	Wong et al. (2021)
18	Unfavourable financing conditions	Make it harder to secure funding for sustainable energy initiatives	Wong et al. (2021)

3. METHODOLOGY

This study aimed to acquire insights into the exploration of the green financing landscape in Malaysia and the challenges faced by various stakeholders in implementing green financing in the context of real estate development in the country. Through open-ended questions and discussions posed in interviews, valuable insights were obtained on the current state of green financing, as well as the strategies being employed to overcome challenges and leverage opportunities in this evolving landscape.

The purposive sampling technique was adopted due to the need to reach out the knowledgeable participants in the subject matter i.e. green financing. A total of four interviewees were involved in the interview sessions. All four interviewees were experts or key informants in the subject matter. They were from a real estate development organisation, a secondary mortgage organisation, a green rating organisation, and a green financing incentives organisation. According to Johnson et al., (2007), semi-structured interviews are a valuable data collection method in qualitative research, allowing researchers to gain insights into individuals' knowledge, perceptions, and experiences. By engaging with key stakeholders in the green financing sector through interviews, the study aims to capture firsthand perspectives on the challenges associated with green financing practices in the Malaysian real estate industry.

Thematic analysis is employed to analyse the data collected through interviews on green financing in the Malaysian real estate sector. A thematic diagram is employed to visually organise and illustrate the findings. This method is particularly effective for qualitative data, such as those obtained from interviews, as it allows for the identification and representation of patterns, themes, and relationships within the data.

4. RESULTS AND DISCUSSION

A total of four (4) key informants participated in this survey after several selections to achieve the objectives of this study. Drawing the response given by these key informants, several themes emerged. The main themes that were identified from the interviews conducted was subsequently divided into six sub-themes that revolve around the challenges of green finance and its implementation in the real estate industry. The sub-themes are supported by the statements and quotes provided by the respondents. Within the first sub-theme of challenges in green financing, the key informant emphasised issues such as the absence of standardised green terms. The second sub-theme focuses on raising green awareness among real estate stakeholders. The third sub-theme is the uncertain profitability of green projects. The fourth sub-theme is the limitation of green financing incentives. The fifth sub-theme pertains to the longer duration required for green financing. Finally, the last sub-theme is the lack of data regarding green project efficiency.

4.1 Local Challenges in Implementation of Green Financing

4.1.1 Lack of Standardisation

In the first sub-theme of lack of standardization, it has emerged as a significant concern in various industries. The absence of standardised definitions for terms associated with environmental sustainability, such as "green," "eco-friendly," and "sustainable," has raised concerns about the possibility of confusion and misinterpretation among stakeholders, including those engaged in financing environmentally friendly projects like green sukuk.

The insights from Key Informant 1 and Key Informant 4 highlight the challenges posed by the lack of standardized definitions and limited knowledge of green financing and sustainable development. The ambiguity in what qualifies as green and the inconsistencies in rating systems lead to confusion within the industry. However, the unique nature of each green development necessitates flexibility in how we approach green building practices. As mentioned by Key Important 2,

"While I agree with the importance of clear definitions, achieving a one-size-fits-all standard for green projects might be challenging. The unique nature of each green development necessitates flexibility in how we approach green building practices. A rigid standard might not account for the specificities of each project. This highlights the need for a balanced approach – clear definitions and frameworks while acknowledging the need for adaptation based on project specifics." - Key Informant 2

Given the circumstances, it is crucial to prioritise the establishment of uniform definitions in order to promote clear, transparent, and consistent efforts towards achieving sustainable development goals and facilitating efforts for green financing. While clear definitions are crucial, as Key Informant 2 points out, a one-size-fits-all standard may not be practical given the unique nature of each green project. Therefore, it is necessary to develop a balanced approach that combines solid frameworks with flexibility to adapt to the specific needs of individual developments. Implementing this dual approach will guarantee the advancement of environmentally friendly efforts with both clear objectives and effective implementation.

4.1.2 Awareness Issues

For the second sub-theme of awareness issues, it is a critical need to enhance awareness among stakeholders about the significance of sustainability and the imperative to transition towards eco-friendly practices. Without a widespread understanding of the benefits and importance of green financing, the adoption and implementation of green finance may face resistance or lack of support from key players in the industry. Additionally, Respondents 2 and 3 collectively agreed that the lack of awareness and understanding of the environmental benefits among end users also resulted in lesser demand for green homes.

Key Informant 2 underscores the disconnect between users and the advantages of green practices, such as long-term cost savings, improved health benefits, and environmental impact. This lack of awareness hampers their willingness to prioritize green features in housing choices, leading to lower demand for such projects, as Key Informant 3 pointed out. Consequently, developers face a dilemma: whether to invest in green features that may not attract a premium price due to low public awareness or focus on conventional development to meet existing market demands. This dilemma presents a significant barrier to green financing, as developers are hesitant to invest in green projects with uncertain market reception.

4.1.3 Uncertain Profitability

The next sub-theme focuses on the uncertainty surrounding profitability which presents a major challenge in the pursuit of green financing. While lower interest rates offered through green finance aim to support sustainable practices, questions remain about whether these financial benefits can offset the higher costs associated with green materials and technologies. Most of the respondents (Key Informants 2, 3 & 4) opined that this ambiguity creates a complex decision-making environment for developers and investors, who must balance the upfront expenses with potential long-term returns.

The challenges around cost and profitability present substantial obstacles to the implementation of sustainable building practices. As pointed out by Key Informant 2, there is uncertainty regarding the financial implications of green building, specifically in terms of whether the reduced interest rates provided by green financing can adequately balance out the costs connected with green materials. Furthermore, it can be far more expensive to upgrade older structures to include green elements than it is to include these characteristics in newly constructed projects.

The expensive expense of green materials has a significant effect on the profitability of developers, prompting important inquiries on the equilibrium between initial expenses, future gains, and the overall economic viability of environmentally conscious projects. The ambiguity around the future profitability of environmentally friendly projects highlights the intricate financial factors that developers and investors must negotiate while engaging in sustainable development initiatives.

4.1.4 Incentives limitations

The sub-theme of incentive limitation, it certainly poses a significant challenge, as outlined by the following aspects: difficulty in meeting eligibility criteria and restricted availability of green financing incentives. The constraints associated with financing limits and the restrictions on green financing incentives, particularly those offered by the Malaysian Green Technology Corporation (MGTC), further compound the challenges faced by companies seeking to leverage these incentives for sustainable real estate developments.

"The difficulty of fulfilling the eligibility requirements for green financing incentives is a major drawback, many times, applicants find it difficult to meet the strict standards these initiatives impose." - Key Informant 4

The requirements might encompass several factors such as project size, assessments of environmental consequences, criteria for energy efficiency, and compliance with specific green building certifications. The complexity and inflexibility of the rules for enterprises seeking green finance incentives can sometimes act as a barrier. For instance, the criteria for company eligibility to secure financing from the MGTC may involve a rigorous evaluation process, compliance with specific green standards, and alignment with the corporation's sustainability objectives. These requirements can create barriers for companies seeking to benefit from green financing incentives, limiting their ability to leverage financial support for implementing green initiatives in their real estate developments.

Furthermore, the existence of funding constraints imposes an additional restriction on the accessibility of green finance incentives. Companies aiming to take advantage of green financing prospects may encounter limitations on the amount of funding they can obtain, which can hinder the execution of extensive sustainability initiatives in real estate developments. The constraints on funding may impede companies from fully adopting green technologies, energy-efficient solutions, and environmentally friendly practices, thus limiting the overall effectiveness of green financing incentives in promoting sustainable development in the real estate sector.

4.1.5 Longer Process

The fifth sub-theme focuses on the extended duration of green financing in comparison to traditional financing. While green finance offers significant benefits for sustainable real estate development, the process can be lengthy and intricate. As mentioned by Respondent 1, obtaining Second Party Opinion (SPO) provides an additional layer of assurance for the investor. The statement further strengthened by Key Informant 2,

"Green building projects seeking green loans need to get at least a pre-certificate from a green rating agency. One important validation stage is this pre-certification. This assessment is part of the procedure to make sure the project satisfies sustainability standards. Getting this pre-certificate normally takes three to five months to finish." - Key Informant 2

The complexity arises from the specific criteria established to ensure the authenticity and effectiveness of sustainable practices. Additionally, the comprehensive assessments required for obtaining green finance may lengthen the procedure, but they are essential for guaranteeing transparency, strengthening investor trust, and advancing the long-term sustainability of projects. The transparency not only fosters trust among investors but also strengthens the credibility of the green financing sector. This rigorous approach helps in increasing the chances of delivering significant environmental gains.

Key Informant 4 also commented about the yearly audit requirement where these yearly green audits are needed for the duration of the green financing agreement. early audits are necessary to strengthen the enduring dedication to sustainability that is inherent in green financing agreements and function as a strong measure to prevent the misleading practice of greenwashing. Greenwashing, which refers to the deceptive presentation of a project as environmentally friendly despite not meeting sustainability criteria, is a major issue in the field of green financing. Through the implementation of periodical audits, stakeholders may actively oversee and authenticate the environmental performance of green initiatives, guaranteeing that they stay in accordance with their intended aims.

These stringent requirements can be burdensome for developers and other real estate stakeholders, as the process is more prolonged and complex. Balancing the need for thorough evaluations with the practical challenges faced by developers is crucial for the continued success and attractiveness of green financing in the real estate sector.

4.1.6 Lack of Data on Green Efficiency

The final sub-theme is to highlight the lack of data related to green efficiency. The effectiveness of green financing is intricately linked to the energy efficiency achievements of sustainable building practices. Nevertheless, a significant obstacle that stakeholders in the field of green financing encounter is the limited availability of complete data on energy efficiency results. The absence of comprehensive data impedes the ability to precisely evaluate and measure the environmental consequences and financial benefits linked to sustainable practices in the field of real estate development.

"There's a current lack of readily available data on the exact amount of energy savings associated with green buildings. There is still an absence of thorough information on overall efficiency even though attention has

moved to reducing greenhouse gas emissions." - Key Informant 1

The lack of available data on energy savings from green buildings has a direct influence on green financing. Without precise information on the financial benefits associated with energy efficiency, investors may hesitate to allocate funds towards sustainable projects. Considering the increasing emphasis on decreasing greenhouse gas emissions, it is crucial for financial institutions and investors to have access to comprehensive information regarding the overall effectiveness of green buildings.

The importance of having specific proof of cost reductions associated with maintenance and sinking funds stresses a critical part of adopting green building practices (Key Informant 3). Many proponents argue that green buildings offer long-term financial benefits, including reduced maintenance costs and lower depreciation rates. Nevertheless, in the absence of concrete proof substantiating claimed cost reductions, doubt may persist among prospective investors and property owners. Conclusive proof of cost savings is crucial to encourage increased investment in green building and practices, promoting a more sustainable built environment. Moreover, concrete proof of decreased long-term operational expenses can improve the creditworthiness of environmentally friendly projects, making it easier to obtain favourable financing conditions and encouraging more investment in sustainable growth.

4.2 Global and Malaysia's Challenges in Implementation Green Finance

A comparative analysis of these challenges within the global and Malaysian context is summarised in Table 2 which is then followed by specific recommendations to address Malaysia's unique challenges. Ultimately, this analysis compares Malaysia's strategic with global approaches, emphasizing notable distinctions and similarities in the promotion of green finance within real estate developments.

Table 2: Global and Malaysia's Challenges in Implementation Green Finance

No.	Global Challenges	Source	Feedback from Respondents
1	Governance & Institutional Capacity	Ozili (2022)	
2	Increased Issuance Costs	Ozili (2022)	✓
3	Stringent Transparency Regulations	Ozili (2022)	
4	Lack of Understanding	Iqbal et al. (2021) & Wong et al. (2021)	✓
5	Inconsistent Definitions & Policies	Iqbal et al. (2021) & Wong et al. (2021)	✓
6	Absence of Economic Incentives	Iqbal et al. (2021)	
7	Absence of Green Building Regulations	De Nederlandsche Bank (2017)	
8	Lack of Incentives for Green Technology	De Nederlandsche Bank (2017)	
9	Challenges integrating sustainability into business operations	Managi et al. (2021)	✓
10	Uncertain link between green finance and corporate performance	Managi et al. (2021)	✓
11	Potential for Corporate Greenwashing	Managi et al. (2021)	✓
12	Lack of Social Capital Research	Managi et al. (2021)	
13	Addressing Environmental Externalities	Managi et al. (2021)	
14	Limited Long-Term Financing Options	Wong et al. (2021)	✓
15	Lower Returns on Green Investments	Wong et al. (2021)	✓
16	Regulatory Uncertainties & Market Fluctuations	Wong et al. (2021)	
17	Limited Market Participant Capacity	Wong et al. (2021)	
18	Unfavorable Financing Conditions	Wong et al. (2021)	✓

Based on the findings in Table 2, four key challenges stand out, reflecting commonalities between the global and Malaysian perspectives. Firstly, there is a lack of standardisation. In both local and global contexts, stakeholders such as investors and financial institutions often lack a comprehensive understanding of green finance concepts, leading to inconsistencies in definitions and policies. This is emphasised by the interviewees in the present study and in line with the previous findings where this ambiguity creates confusion and uncertainty among

potential participants (Iqbal et al., 2021; Wong et al., 2021). Standardising green finance concepts is crucial for fostering confidence, ensuring alignment, and driving sustainable investments globally. Without clarity, the growth and effectiveness of green finance are hindered, undermining efforts to address environmental challenges.

Secondly, uncertainty surrounds the profitability of green financing, particularly concerning green projects. Increased issuance costs make green financing less appealing compared to traditional options, as noted by Ozili (2022). This opinion was also shared by most of the interviewees who believed that the unclear environment leads to difficulties in decision-making that should at least meet a balance between upfront costs and long-term returns. Additionally, lower returns on green investments, as identified by Wong et al. (2021), further diminish their attractiveness. Thirdly, there are limitations on green finance incentives. The availability of long-term financing options is limited, hindering investments in sustainable projects (Wong et al., 2021). Moreover, unfavourable financing conditions, including strict regulations and assessment processes, make it challenging to secure funding for sustainable energy initiatives (Wong et al., 2021). Additionally, the present study discovered that strict requirement to secure funding incentives imposes additional restrictions on the real estate development players.

Lastly, the lack of data on green efficiency poses significant challenges to integrating sustainability into business operations. The interviews also revealed that the complexities of green finance and the absence of thorough data on green building efficiency make implementation difficult for companies. Furthermore, there is uncertainty regarding the link between green finance and corporate performance, making it challenging to demonstrate the financial benefits of green practices. The absence of data also increases the potential for corporate greenwashing, where false environmental claims can undermine trust (Managi et al., 2021).

To conclude, there is a significant 50% similarity rate between the major global difficulties that Malaysia faces. This strong relationship not only validates the difficulties expressed by the respondents but also emphasizes the widespread nature of the barriers encountered in implementing green financing projects. In addition, it highlights the necessity of joint efforts on a national and worldwide level to tackle these common issues in their entirety. By utilising the combined knowledge and resources of many individuals and organizations, stakeholders can create detailed and customized solutions that are suitable for specific local circumstances, while also promoting global sustainability goals.

4.3 Recommendation for Moving Forward

In addressing the challenges that are faced by the real estate industry players in the country in implementing green financing, the recommendations that are presented in Table 3 can be considered. The recommendations were made based on the four (4) common challenges that were learnt from the comparison faced by the global and local players as a start in improving the current practice in Malaysia.

Table 3: Recommendations in Improving the Current Green Financing Practice in the Malaysia

Challenges	Recommendations
Lack of Standardisation	i. Develop national green standards for terminology in collaboration with key stakeholders. ii. Integrate the standards into financial products and services for consistent evaluation.
Uncertain profitability	i. Provide more financial incentives (grants, tax breaks) to offset upfront costs of green materials and technologies. ii. Encourage developers to prioritise green practices in new projects for better cost efficiency compared to retrofits.
Incentive limitation	i. Allow for more flexibility in green building certification requirements while maintaining sustainability goals. ii. Increase funding allocation for green projects. iii. Simplify the green financing incentive assessment process to reduce administrative costs.
Lack of data on green efficiency	i. Establish data collection systems in collaboration with relevant parties ii. Encourage property owners and developers to share case studies on energy-efficient measures and their impact. iii. Provide additional incentives like tax break and subsidies for projects that submit detailed data on energy efficiency achievements.

Overall, it is opined that the recommendations should focus on national strategies that are tailored to local contexts, involving local collaboration, specific financial incentives and streamlined processes. This will ensure relevance and effectiveness in addressing the challenges in the implementation of green financing in Malaysian real estate projects.

5. CONCLUSION

It can be concluded that four challenges have been identified in the adoption and implementation of green financing within the global and local real estate sectors. One of the key findings was the lack of standardisation in defining terms within green financing and real estate green projects. This challenge highlighted concerns about the ambiguity surrounding green finance concepts, which resulted in inconsistencies in definitions and policies, creating confusion and uncertainty among potential participants. Hence, hindering the effective implementation of environmentally friendly practices. Another significant sub-theme identified was the uncertainty surrounding the profitability of green financing, particularly concerning green projects whereby the increased issuance costs and lower returns on green investments made green financing less appealing compared to traditional options. This challenge was further exacerbated by limitations on green finance incentives and a lack of data on green efficiency. Hence, increases the difficulties in the implementation of green financing in real estate projects.

A few recommendations have been suggested to tailor to the challenges. The recommendations include developing national standards for green terminology through collaboration with key stakeholders, implementing streamlined strategies like automation and ongoing assessment to expedite procedures and allowing flexibility in green project certification requirements while maintaining sustainability goals. The recommendation further elaborates on an international level, aiming to provide strategies that can be broadly applied to fit a broader international spectrum. It is critical to recognise that establishing a sustainable green financing system for real estate developments would necessitate ongoing effort and collaboration over a 5–10-year timeframe.

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