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INVESTIGATING THE CHALLENGES OF GREEN BUILDING MANAGEMENT PRACTICES FOR PLATINUM OFFICE BUILDINGS

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ABSTRACT

Green building has become an important aspect in achieving a sustainable environment for the country and one of the highest achievements in green building certification is platinum certification that issued by Green Building Index (GBI) Malaysia. However, the management of platinum green office buildings in Malaysia has been reported to have low numbers, with only 4% of the total green certified buildings achieving platinum status and from that only 4 buildings are office building. The number is significantly very low compared to the total number of green building certified. Why there is low numbers of platinum GBI certification? Is that difficult to manage the GBI certification building? Thus, this study seeks to identify the reason of low number of platinum office building and to investigate the challenges of management practices in platinum green office building. Three property managers of platinum-certified green office buildings in Kuala Lumpur and Putrajaya are selected as participants. The research employed a qualitative approach using face-to-face semi-structured interviews for data collection, which were then analysed using content analysis. The findings indicated that the main issue faced by platinum green office buildings is maintenance cost. The findings revealed property manager should prioritize the element of energy efficiency, safety, comfort and compliance in the management.Challenges arise when unexpected damage occurs to building components, requiring immediate repairs or timely attention. Addressing the issues and challenges, as well as identifying the crucial elements in managing platinum office buildings, may contribute to an increase in the number of platinum-certified green office buildings in Malaysia in the future.

Keywords: *Green Building Index (GBI), property management, platinum rating, property manager*

INTRODUCTION

The concept of green buildings has gained prominence in Malaysia, particularly in Kuala Lumpur and Putrajaya, due to concerns about energy conservation, global warming, and depleting non-renewable resources. However, achieving higher green certifications, especially platinum status, remains a challenge as only a small percentage of buildings have attained this level. According to GBI executive summary as of 30 September 2022, it is reported the low numbers of platinum green building which only 24 buildings out of 625 green buildings which are only 4% of the total green certificate building. Based on that numbers, only 4 offices building certified as platinum green office building which is Diamond Building that own by Suruhanjaya Tenaga Malaysia, Bangunan Perdana Putra, Bangunan KKR2 own by Kementerian Kerjaraya and PAM Centre own by Pertubuhan Arkitek Malaysia. There are four classifications for green building that will be awarded once the building reaches the criteria determined by the GBI body which either the Platinum, Gold, Silver or Certified ratings. The property managers of green office buildings play a crucial role in meeting green building criteria (Jaafar & Salleh, 2017), but many developers and designers still prefer conventional construction methods over sustainable architecture. Thus, this research was conducted to identify the reason of low number of platinum office building, and to investigate the challenges of management practices in platinum green office building. Considering their unique design requirements and the need for expertise in handling them, understanding and addressing these issues can contribute to increasing the number of platinum-certified green office buildings in the country in the future.

LITERATURE REVIEW

This part will explain the information concerning the reason of low number of platinum office building available, property management, basic elements in platinum green building management,and the challenges encountered when managing platinum green office buildings.

Definition of Green Building

The Malaysian Green Building Index (GBI) Sdn. Bhd has defined green building as concept that focusing on increasing the efficiency of resources use for example energy, materials, and water. Next, World Green Building Council (2016) also mentioned that a 'green' building is a building that reduces or eliminates negative effects on its architecture, construction, or operation and can positively affect our atmosphere and the natural environment. Muniandy (2019) found that green building features a number of terminologies such as "green building," which is adopted by the US, "sustainable building," which is adopted by both the UK and Australia. These buildings are often referred to interchangeably as green buildings, high-performance

buildings, sustainable buildings, and sustainable construction (Shaikh et al., 2019). Green buildings not only provide the construction industry with environmental, economic, and social benefits but can also offer a sustainable development opportunity as they can minimize pollutants and renew natural resources (Wang et al., 2018).

Platinum Certifications of Green Building Index

Based on the Malaysian Green Building Index (GBI), the green building certification rating level can be classified into four levels: platinum, gold, silver, and certified. The highest certification level in the GBI rating system is platinum certification. According to GBI (2019), to achieve the platinum standard, a building must obtain a score between 86 to 100 points.

Property Management

Property Management is the process of taking care of properties to meet the interests of all individuals with a stake in the property. According to the Hong Kong Productivity Council (HKPC, 2014), property management can be considered as simple operations serving buildings. Property management is viewed as a value-added professional service that contributes positively to investment performance and maximizes property value (Read & Carswell, 2019). Additionally, theory and practice have shown that property management activities are crucial for the sustainability of buildings and their facilities and are key to ensuring the ecological benefits of green buildings (Elmualim et al., 2012). Green property management is driven by the new business model, which takes into consideration sustainable measures to manage buildings in urban areas since it is one of the largest contributors to carbon emissions (Razali & Hamid, 2017).

The Challenges to Manage Green Office Building

The low numbers of platinum green office buildings are due to a lot of challenges that building owners and managers need to face in obtaining certification and ensuring sustainability. Some of the challenges that have been identified from previous research include: financial factors, lack of expertise, technical factors and lack of awareness.

Financial factor

The financial factor in managing and maintaining green office buildings comes with a high cost. According to Li et al. (2016), the higher the green building star-level, the higher the incremental cost due to the evaluation project under different green building rating standards, leading to variations in the incremental cost. Ong and Osmadi (2021) also agree, stating that one of the barriers to green office adoption is a lack of budget.

Lack of expertise

Effective management plays a crucial role in the successful operation of green office buildings due to their complexity compared to common buildings (Fauzi et al., 2016). These environmentally sustainable structures require specialized knowledge and expertise for their efficient functioning. Notably, Fauzi et al. (2023) further emphasize that a skilled and competent workforce is highly vital in managing green office buildings. The complexity of these structures demands a well-trained manpower that is well-versed in sustainable building practices, energy-efficient technologies, and innovative green solutions. Appointing the right person to manage a property is crucial, as underscored by Usman & Abdullah (2018). Having qualified personnel who understand the intricacies of green building management is essential for ensuring optimal performance and adherence to sustainability goals. However, Ong et al. (2021) highlight the challenges faced by employers in finding professionals capable of undertaking green project tasks. The unique skill set required for managing green office buildings often presents a difficulty in sourcing and recruiting individuals with the necessary expertise.

Technical factors

Technical factors pose significant barriers to the green operation of office buildings, as evident from the findings of Rock et al. (2019). The case for green buildings inevitably requires greater technical requirements and complexities compared to conventional ones due to the need for superior performance (Raouf and Al-Ghamdi, 2018). Green buildings are designed with a focus on sustainability and energy efficiency, which often results in higher design complexity and necessitates more modifications (Chakravarthy et al., 2022). Among the challenges faced in green office building management is the difficulty in identifying green operation strategies (Rock et al., 2019).

Lack of Awareness

The lack of awareness emerges as a significant challenge contributing to the low numbers of green office buildings, as emphasized by Ong and Osmadi (2021) and Esa et al. (2011). Limited awareness and understanding of the benefits and importance of green building concepts hinder widespread adoption in the corporate sector. Evidence presented by Fauzi et al. (2018) supports this claim, showing that during the initial stage of involvement in the green building concept, many corporations were primarily driven by the trend and novelty of trailblazing the evolutions of the world building industry.

METHODOLOGY

Research methodology can be defined as the systematic way to solve the research problems (Kothari, 2004). In order to achieve all of the objectives of this study which is to identify the reason of low number of platinum office building, to investigate the challenges of management practices in platinum green office building and to explore the management practices in platinum green office building, the primary data has been collected from qualitative approach by semi-structured interviews. The face-to-face interview session that has been conducted with three (3) property managers. As for that, the secondary data collected from journals, articles, books, and previous study has been validated through the interview session that has been done.

As for this research study, the researcher used census method where the entire population is studied to collect the detailed data about every unit (Business Jargons, 2016). Moreover, there are only 4% of green office building that certified with platinum certifications in Malaysia, and the total number of platinum green office buildings is only 4 buildings with targeted numbers of 2 property managers from each building to participate for the interview session. Unfortunately, only 3 property managers are willing to participate in the face-to-face interview session representing for two different platinum green office building. This is where each of the participants from the same building did their interview session in separate time and as for the other platinum green office building, only 1 participant are managed to join the interview session. There are 10 questions prepared for the participants with one additional question reported after the semi-structured interview sessions.

FINDINGS AND DISCUSSION

Table 1: Participants Background Information.

Participants Background Information	
Participant 1 **Position :** Property Manager	**Gender :** Male **Working experience** : 11 years
Participant 2 **Position :** Assistants Property Manager	**Gender :** Male **Working experience :** 7 years
Participant 3 **Position :** Property Manager	**Gender :** Male **Working experience :** 10 years

(Source: Research, 2023)

The participants in this study hold professions as property managers and facilities managers, with experience in managing platinum green office buildings. The interviewees are all from platinum-certified green office buildings located in Kuala Lumpur and Putrajaya, two major metropolitan areas in Malaysia known for their commitment to sustainable development and green building initiatives. All of the participants are male. Notably, two of them have more than 10 years of working

experience in building management, providing valuable expertise and insights to the study.

The Reason of Low Number of Platinum Office Building

- High cost

  Based on the interview session that has been done from 3 participants from the different platinum green office building, all of them stated that cost is the most important thing on why the low numbers for platinum green office building in Kuala Lumpur and Putrajaya.

Participants	Quotations	Explanations
Participant 1	"Costing. Well definitely, it is the costing and maintenance of the building itself. As for the green office building to get the platinum certification it is mostly government building. This is because if the private sector has the features like our green building it will be a challenge for them to continuously maintain and keep the building in its initial state considering with cost and so on.... So, I would definitely say the costing are the most important factors on why there is such low numbers for platinum green office building not only in Putrajaya and Kuala Lumpur but for the Malaysia..."	The statement provided by participants 1 shows that in the cost for maintaining the platinum green office building are higher than any other green certification building.
Participant 2	"Well... I don't necessarily think that any other common building can manage this type of green building certification because it surely costed a lot... even for a piece of glass to be replaced from the building... it surely about the cost..."	The statement emphasised that for other building such as private sector will be in difficult position to accommodate the cost of replacement for the building.
Participant 3	" Aaa.. I think the primary factor influencing the low number of platinum green office buildings in Putrajaya, Kuala Lumpur, and Malaysia as a whole is the costing associated with green building maintenance. While government buildings have a higher likelihood of obtaining platinum certification due to their resources, the private sector faces challenges in sustaining and preserving green building features over time due to financial constraints. Consequently,	In this statement, the participant 3 also mention that the building maintenance cost are the primary factor on the low numbers of platinum green office building. It also will be difficult to preserve the initial state of the building if the costs are insufficient especially cost of maintenance. Moreover,

	cost considerations play a pivotal role in explaining this scarcity…."	another factor found is financial constraints.

(Source: Researcher, 2023)

The finding highlighted the significant impact of costing on the low numbers of platinum green office buildings in Putrajaya, Kuala Lumpur, and Malaysia as a whole. The high costs associated with obtaining and maintaining green building features were emphasized, making it challenging for both government and private sector buildings to achieve and sustain platinum certification. The financial constraints faced by the private sector were particularly noted as a barrier to achieving and preserving green building standards over time. Overall, cost considerations emerged as a primary factor influencing the scarcity of platinum green office buildings in the region. These findings align with the research conducted by Ong and Osmadi (2021), which also identified the lack of budget as a barrier to green office adoption. Moreover, Fisher (2010) further supported these results by mentioning that the initial costs of green buildings are higher compared to conventional buildings.

- Difficulty in Achieving the Platinum Green Certification

Participants	Quotations	Explanations
Participant 1	"Hmm…as for our building, to say that it is difficult yes, it is… but we managed to achieve it … this is because our initial targeted building energy index for this building supposedly is 85% kwh/m2/yr but we manage to achieve lower energy consumption than expected which is 57% kwh/m2/yr..."	In this quote, participants 1 admit it is difficult to achieve the platinum green certification for their building and they managed to lower it down than expected energy usage. It is indeed difficult but their initial target is to achieve platinum green certifications and they managed to achieve it.
Participant 2	"Well… it is truly a challenge for us to achieve this certification as the building are construct using specialist from other countries that has the knowledge to complete the building and achieving these certifications..."	As for participant 2, the statement shows that the platinum green certification was difficult to achieve as all they need a specialist contractor with the knowledge in achieving these certifications.
Participant 3	"Hmm… we admit that to obtain this certification is certainly difficult because the building's construction involves special materials and	In this quote, participant 3 also admit that it is difficult the achieves the platinum certification as most of the

	specialists from other nations who have the requisite competence to complete the structure and meet the certification requirements and our building managed fulfil the requirement for platinum green certification …"	materials used during constructions is special materials and it needs specialist in the area to construct it.

(Source: Researche, 2023)

The finding acknowledged that achieving platinum green certification for their building was indeed challenging. Despite the difficulties, they successfully attained the certification by surpassing the initial targeted building energy index. The building's energy consumption was significantly lower than expected, showcasing their commitment to sustainable practices. They also recognized that the construction process involved specialists from other countries with the necessary expertise to meet the certification requirements. Despite the complexities and the use of specialized materials and skills, the building fulfilled the requirements for platinum green certification, demonstrating their dedication to sustainability and environmental responsibility. In line with the findings by Wu et al. (2017), it has been identified that developers face difficulties in obtaining the required green building requirements. Similarly, Xia et al. (2013) agreed and stressed that while some green building requirements are easier to obtain, others are more challenging to achieve.

The Challenges of Management Practices in Platinum Green Office Building

- Required for green building expertise

Participants	Quotations	Explanations
Participant 1	"Hmmm… as I mention earlier each of the green features of the building required an expertise of the green building to maintain the initial state of the building…"	As for this quote, participants 1 state that each green feature of the building necessitates the expertise of a green building specialist to ensure the maintenance of the building's initial state.
Participant 2	" Aaaa… as we all can guest that in maintaining the highest certifications of green building which is the platinum certifications, it is necessary to have green building maintenance experts that have the various knowledge and	Based on participant 2 statement, it is evident that in order to uphold the highest certifications of green building, such as the platinum certification, the presence of green building maintenance experts with diverse

	strategies for the wellbeing of the building…"	knowledge and strategies is crucial for the overall well-being of the building.
Participant 3	"hmmm… our team emphasize on the building maintenance and management needs to have a comprehensive understanding in managing and maintaining the sustainable building… but in terms of thorough and major maintenance we do required an expert in the area to solve the problem…"	Participant 3 stated that their team places great emphasis on the importance of a comprehensive understanding in managing and maintaining the sustainable building. However, when it comes to extensive and significant maintenance, the expertise of professionals in the field is required to effectively address the issues.

(Source: Research (2023)

The findings highlighted the crucial role of green building maintenance experts in preserving the initial state of the building and ensuring its long-term sustainability. Achieving and maintaining the highest certification, such as platinum certification, necessitates the expertise of professionals with diverse knowledge and strategies for the wellbeing of the building. While the building maintenance team emphasizes the importance of a comprehensive understanding of managing and maintaining sustainable buildings, they also acknowledge that certain thorough and major maintenance tasks may require specialized experts to address complex issues effectively. The findings align with the research by Fauzi et al. (2023), who emphasized the significance of a skilled and competent workforce in managing green office buildings. Agreed by Usman and Abdullah (2018) that appointing the right person to manage a property is crucial.

- Complex features in platinum green office building

Participants	Quotations	Explanations
Participant 1	"Aaaa… for the complex features in our building I think it is the slab cooling features… this is because the systems are a build in features in the building and it also the hardest features to maintain…"	In this quote, participants 1 stated that for their platinum green office building, the most complex features are the slab cooling as it is one of the hardest to maintain and it is a build in features for the building.
Participant 2	"Yeah, you can see that we are on the highest level of the building but if you notice that there is no electrical light that has been switch on…this is because	As for participant 2, the property manager stated that the most complex feature in their building is the sloping glass façade that provide a natural lighting.

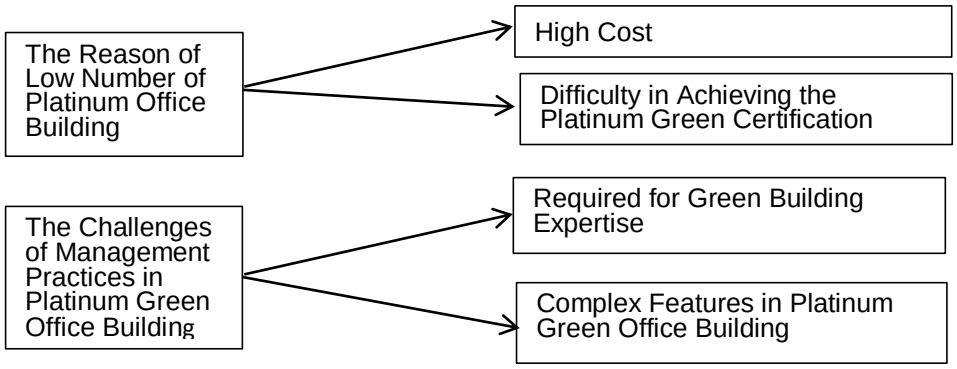
	of our sloping glass façade that provide a natural light inside the building…"	
Participant 3	"Hmm… as for our building I think the most complex features are the rainwater harvesting as they solely based on the works of nature to be operated…"	In relation to their building for participant 3, the rainwater harvesting features are perceived as the most complex features due to their reliance solely on the workings of nature for operation.

(Source: Research, 2023)

The interviewees pointed out different complex features in their building. One interviewee identified the slab cooling system as the most challenging feature to maintain due to its built-in nature. Another highlighted the innovative sloping glass façade that allows for ample natural light inside the building, eliminating the need for electrical lighting even on the highest level. Additionally, rainwater harvesting emerged as a complex feature, relying solely on the workings of nature for its operation. These complex features contribute to the uniqueness and sustainability of the building, requiring specialized knowledge and expertise for their effective management and maintenance. These findings are consistent with the research by Rock et al. (2019), which revealed that technical factors in green office buildings pose significant barriers to their operation. Green office buildings require greater technical requirements and complexities compared to conventional ones (Raouf and Al-Ghamdi, 2018).

Summary of the Results

Summary of the overall results are illustrated as below:



(Source: Research, 2023)

Figure 1: Summary of the results

CONCLUSION

The study highlighted the significant impact of costing on the low numbers of platinum green office buildings in the region. The high costs associated with obtaining and maintaining green building features were emphasized as a primary barrier for both government and private sector buildings. Financial constraints faced by the private sector were particularly noted as a challenge in achieving and preserving green building standards over time. Furthermore, it is indeed challenging to achieve platinum green building certification due to its stringent requirements that present significant hurdles in the certification process.

Moreover, the study shed light on the importance of a skilled and competent workforce in managing green office buildings. A comprehensive understanding of managing and maintaining sustainable buildings is crucial for the building management team. However, the scarcity of a skilled workforce, as well as the difficulty in finding professionals capable of undertaking green project tasks, poses challenges in the wider adoption of green building practices. Overall, the research findings underscore the multifaceted nature of challenges in green building management for platinum office buildings. Addressing these challenges will require collaborative efforts from government bodies, industry stakeholders, and educational institutions to promote awareness, provide specialized training, and establish cost-effective strategies for sustainable building management.

By recognizing and addressing these challenges, the region can move towards a more sustainable future, where platinum green office buildings play a pivotal role in promoting environmental responsibility and resource efficiency, thereby contributing to a greener and healthier built environment.

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