

# Klang Valley Property Development and Construction Industry: A Case Study of Public Value Creation

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## Abstract

This article aims to demonstrate the necessity of public value in pursuit of a sustainable approach in the property and construction sector and improve the collaboration of the stakeholders in the industry by involving more with green buildings. The article also aims to present the importance of government and property developers as the main key players in driving legitimacy and support and how it can enhance its operational capabilities among stakeholders to create public value by adopting green buildings. The study was conducted through a case study with various construction and property development stakeholders, specifically in the Klang Valley. The research interviewed a total of 12 stakeholders as case studies. The data was analyzed following the strategic triangle from the public value theory focusing on the necessity of collaboration among stakeholders to uphold sustainable development in their projects. The case findings demonstrated both legitimacy and support and operational capability from the government and property developers is necessary to build a collaborative environment among the stakeholders to ease public value creation in pursuit of sustainable development by adopting green building. Focusing more on public value creation would be important among the stakeholders to ensure a sustainable approach in the property and construction sector.

**Keywords:** Green Building, Property and Construction Sector, Sustainable Development, Climate Change, Public Value

## Introduction

The property and construction industry is one of the major contributors to Malaysia's economy, contributing significantly to the country's gross domestic product (GDP) and creating employment opportunities and wealth. A large portion of total construction output is derived from intermediate inputs from other sectors of the economy, primarily from the building materials and service industries. According to the 2022 Census from Bank Negara Malaysia (BNM) and the Department of Statistics Malaysia (DOSM), which were extracted from the Economic Planning Unit, Prime Minister's Department, the construction sector

added 3.7% (RM53.9 billion) to the Malaysian GDP (RM1,466.6 billion) (Malaysia Economic Planning Unit, 2022). As a result, Buildings and infrastructure are a repository of wealth; they make up the most significant portion of nations' wealth in tangible terms.

Despite the urgent call to prioritize sustainable development, the United Nations reported that the sector is not on track specifically for the building and construction industry. Hence, this implies that Malaysia is unlikely to achieve its promise to decarbonize by 2050 while climate change is rapidly outpacing. According to IEA's Tracking Clean Energy Progress (TCEP), approximately 30% of all global final energy consumption and 26% of all global energy-related emissions come from buildings (18% are direct emissions, and 18% are indirect emissions from the electricity and heat produced in buildings). In 2022, there was an increase of around 1% in energy use in the building sector (International Energy Agency, 2023). Similarly, the Global Status Report for Buildings and Construction 2022 (United et al., 2022) published by the United Nations shows that despite substantial investments and successful efforts at a global level to lower the energy intensity of buildings, energy consumption, and greenhouse gas emissions increased compared with pre-pandemic levels in 2021. Energy demand for buildings increased by around 4% from 2020 to 135 EJ - the most significant rise in ten years. The amount of CO<sub>2</sub> emitted from building operations has reached an all-time high of around 10 GtCO<sub>2</sub>, up 5% from 2020 and 2% over 2019.

## **Literature Review**

### *Property and Construction Industry in Klang Valley*

In the first few decades following independence, Malaysia's economy experienced rapid growth. It is primarily dependent on rubber and tin exports for its economic growth. After the 1980s, the country began to diversify its economy away from natural resources into secondary manufacturing (Noh, 2017). In Kuala Lumpur, there was a great deal of tin mining activity, which greatly influenced the urbanization of Klang Valley, where tin miners settled at the confluence of the Klang Valley, which served as a strategic location for receiving supplies and support, as well as a transportation route. According to Diego, the rubber industry grew significantly in Selangor at the beginning of the 20th century, resulting in an inflow of international investment and the establishment of large corporations which led to a rapid increase in the city's population. The Klang Valley has experienced gradual growth since its independence, with a particular surge during the 1980s and 1990s when petrol flowed from Malaysian offshore wells and electronics flourished in Selangor, transforming the city from a modern to an ultramodern one as a result. As urbanization and economic development have increased rapidly since the late 1980s, the number of houses being constructed in urban areas, particularly in the Klang Valley, has also increased significantly. Today, due to the booming economy and active supply-demand dynamics, the housing market has flourished. During the early days of independence, the construction industry was primarily controlled by small-scale contractors in the general property and construction sector, particularly in the Klang Valley. It is noteworthy that even two decades later, they still make up the majority, although a small number of medium-sized companies set up by professionals have started to appear (Chan, 2020). Bursa Malaysia, formerly known as Kuala Lumpur Stock Exchange, has 45 listed companies on its main board today. As far as the industry is concerned, these are the largest and most active players.

While urbanization has increased rapidly since the 1980s, carbon emissions have also increased. Aware of the adverse impact on the environment, Sunrise Berhad, is the first developer in Malaysia to adopt green buildings from Singapore's Green Mark certification, for its 11 Mont Kiara residential project (Green Building Index). Since then, Malaysia has developed its first green rating tool under the initiative of the Malaysian Institute of Architects (PAM) and the Association of Consulting Engineers Malaysia (ACEM), the Green Building Index (GBI). Today, there is a large concentration of housing developers in the Klang Valley of Malaysia, which is a major metropolitan area of the country (ISA, 2019). According to Isa, green buildings are not a popular choice among developers since there have been only 16 projects certified by the Green Building Index (GBI) since its development in 2009 as opposed to 818 housing projects delivered in the Klang Valley.

### **Green Building Development in Malaysia**

Considering Malaysia's high level of urbanization, the country is expected to experience an accelerated housing demand and associated environmental impacts. Malaysia's urbanization and climate change are today's most pressing issues (Li et al., 2022). Hence, the approach towards sustainable development and construction plays an important role and can be achieved by adopting green building technologies in this country. Green building ratings have increased worldwide in the past few decades, and their adoption has been widespread. Several countries have since developed rating systems with measurable criteria covering aspects of socioeconomic and environmental parameters of design that guide stakeholders toward sustainable development (Zuhairi et al., 2014). Green Building Index (GBI) and Green Real Estate (GreenRE) are the standard rating systems used in Malaysia, established in 2009 and 2012, respectively. GBI and GreenRE were formed to promote sustainability in the Malaysian property and construction sector by providing green building certification and rating, training and awareness programs, and research and development.

Nevertheless, the adoption rate of green buildings in Malaysia is still low, even with the development of a proper green building rating system (Razman et al., 2023). Other research (Amos et al., 2017) has shown that resistance to change in the sector's stakeholders, lack of knowledge and awareness, and high costs are the most critical barriers to green building adoption. As a result, this hinders the transition towards a sustainable approach in the industry.

### *Green Building Necessity in Klang Valley*

Despite the efforts and numerous warning hazards by international agencies around the world, like the United Nations, on the issues of property development and the construction industry being a significant contributor to climate change, green buildings in Malaysia are relatively few compared to the total number of buildings and new launches. As of 2022, Malaysia has only 1165 applications, 1089 registered green buildings, and 619 certified green buildings, according to the Green Building Index (GBI) rating tool (Khoo et al., 2023). This result indicates that sustainable green building development moves extremely slowly despite the use of rating tools and increased awareness of climate change in the country. In specific areas, like the Klang Valley in Malaysia, the total number of certified green buildings for Green Building Index (GBI) and GreenRE Real Estate (GreenRE) is 226 and 93, respectively, as of 30 September 2023

Property developers believe that green buildings are costly. Overall, the green building industry in Malaysia is still in its infancy. Thus, sustainable materials and technologies are

insufficient and undeveloped. This impacts the number of green buildings being built in the Malaysian construction industry while, at the same time, the construction industry lacks green technologies (Algburi et al., 2016 & Yap et al., 2019).

#### *Public Value For Green Building Construction in Klang Valley*

The concept of public value was introduced by Mark Moore in his seminal work, *Creating Public Value: Strategic Management in Government*, in which he argues that public sector managers should strive to create value for the public (Moore, 1995). Public value focuses on the societal component in public management rather than economic individualism, with the public as the appropriate mediator (Moore et al., 2011). Public Value also emphasizes other principles, such as objectivity, equality, democracy, and justice (Bryson et al., 2015). Collaboration and engagement play a significant role in public value management. Public value management is driven by the intention to acquire public value and to determine its meaning as a process requiring collaborative efforts among public managers and eminent stakeholders. Stakeholders play an essential role in public value management, aiming to understand what the public considers significant.

Public executives have used the public value framework for over two decades to guide their management strategies and actions. Moore et al. (1995) begin by stating that public managers should pursue public goals that are valuable, legitimate, and achievable. In Moore's view, public value creation originated when the private sector started to adopt ideas about effective management. According to these concepts, individuals were considered the appropriate arbiters of the government's value. Moore's work revolves around the 'strategic triangle,' a three-dimensional structure that includes three considerations: a substantial public value model that is operationally, administratively feasible, legitimate, and politically sustainable.

Public value also enables empowerment among stakeholders. Empowerment is also a critical tool for stakeholders in sustainable development since it allows them to directly participate in the development process and engage in learning and self-development toward a more sustainable future (Thomasz et al., 2018). According to his research, stakeholders can co-create public value and development of long-term collaborative relationships between stakeholders and government agencies.

#### *Importance of Stakeholders in Green Building Adoption in Klang Valley*

A project's success is influenced by the degree of collaboration between stakeholders, which is influenced by their trust in one another. Hence, the success of a project is determined by the performance of the project and the integration and innovation of knowledge. The delivery of green buildings relies on collaboration and mutual trust among project participants (Bond et al., 2018). However, most countries have few green buildings, and their performance is not always satisfactory (Horman et al., 2006). Green building projects always suffer from delays, changes, wasteful rework, and overproduction. It can be concluded that green building projects are associated with delay risks (Hwang et al., 2016). Improving collaboration among stakeholders is an important objective when required to deliver a green building project to reduce the delay risks of the green building project.

A stakeholder is anyone who can affect the project or who is affected by it. Clients, developers, designers, contractors, suppliers, end-users, government, and the public are typically stakeholders in building projects. Because green buildings require extensive technical and managerial considerations, a wide range of stakeholders should be actively

involved in the project, including facility managers, energy service companies, and green accreditation professionals (Li et al., 2022). Thus, a lack of cooperation among stakeholders and limited knowledge and understanding of how to design and build green buildings, as well as a lack of government support in advocating for green buildings, would cause stakeholders to be less interested in participating in more green building projects in the future (James et al., 2023).

Government intervention is also essential to ensure the adoption of green buildings in Malaysia. Taking Singapore as an example, Singapore is one of the pioneer countries that sets mandatory environmental standards for buildings. Singapore's first Green Building Masterplan was launched in 2005, incorporating the BCA Green Mark scheme to encourage, enable, and engage industry stakeholders in adopting green buildings. Since its inception in 2006, the Green Building Masterplan has been continuously updated. In the first edition, sustainability was emphasized from the beginning of a building's life cycle to encourage developers to embed sustainability into their work. BCA expanded its reach to engage building occupants in reducing energy consumption and greening existing buildings as the Built Environment sector embraced sustainable building. Singapore aims to have "at least 80% of buildings (by floor area) green by 2030". Malaysia adopted the Singapore BCA Green Mark by introducing GreenRE Real Estate (GreenRE) in 2013 to promote sustainability in Malaysia's property sector (GreenRE Real Estate). However, Malaysia still has no mandatory ruling to make all new buildings green. Despite the efforts to promote and advocate for green buildings, stakeholders still lack knowledge, and the adoption rate of green buildings in Malaysia is low.

#### *Improving Stakeholders' Collaboration For Sustainable Development with Public Value: The Strategic Triangle Analytical Framework*

Sustainable Development Goals (SDGs) have broad relevance for management and organization studies in green construction since these goals build accountability and consequently, public value. Even though the SDGs represent a 'universal language' in the public and private sectors, organizations still struggle to integrate them into daily operations (van Gestel et al., 2023). Van Gestel et al. (2023) study was based on an intensive case study of a large national agency with a public value strategy that utilized a critical analytical framework from the public value literature (the "strategic triangle"). His studies show significant staff support for public value (through sustainable development goals). However, inherited constraints from previous management models inhibit the realization of public value ambitions. He further suggested that his theoretical approach suggests that the Public Value model can synergize existing models' elements in a new configuration. Therefore, to address sustainable development, Public Value Theory suggests that organizations should engage with the public communities and other stakeholders and emphasize the implementation of Sustainable Development Goals in their management or business models. Since public value emphasizes other principles, such as objectivity, equality, democracy, and justice, stakeholders, such as public managers, are empowered to advocate for a healthier environment. Stakeholders can be public role models by being creative in their green building design, and their projects can be examples for the public to adopt. As a result, stakeholders can empower other stakeholders indirectly to participate in the development of green building design as stakeholders can adopt sustainable design from completed green building projects. Also, government agencies can engage in learning and self-development towards sustainable development from successful green building projects. Through empowerment,



the government can create policies that benefit the stakeholders and public, which co-create public value and sustainable development as part of a relationship.

The strategic triangle analytical framework developed by Moore from the public value literature is adopted in this research. An essential function of the strategic triangle is to facilitate the transition from an abstract world where the importance and opportunity of creating value and pursuing defined objectives are drawn to the concrete environment in which the stakeholders operate. Stakeholders require an analytic framework that can provide them with a framework for bringing abstract possibilities for value creation into concrete situations. This purpose begins with understanding the public value that the stakeholder wishes to create and how this can be achieved. After that, the strategic triangle focuses stakeholders' attention on two critical elements of their practicality in creating public value.

The two key elements are:

The stakeholder's conception of public value has legitimacy and support for participating in green building

The stakeholders possess the operational capacity to accomplish the task of green building being mandatory. Hence, the fundamental characteristics of public value can be classified into three categories: public value, legitimacy and support, and operational capacity.

Thematic analysis was based on the strategic triangle analytic framework shown in Figure 1.

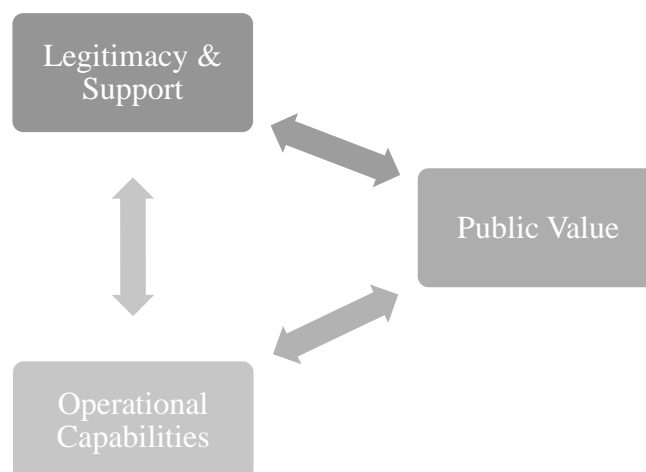


Figure 1: Source from Moore's Public Value Literature (Moore, 1995)

The strategic triangle can allow stakeholders to define the scope of work by framing the objective and issues through public value, operational feasibility, and political legitimacy. For a potential scope of work to be worth pursuing, it must be valuable to the public, feasible, and supported by key stakeholders (Moore, 1995). In the context of stakeholders involved in a green building project, for example, there may be a mix of political support for efforts to reduce carbon emission, even if attempts to achieve that goal have a public value and specific activities to assist it are operationally feasible. Legitimacy and support act as an authorizing environment that provides an ecosystem for stakeholders that allows and supports the movement of green building projects and sustainable efforts in the industry. Operational capabilities are how stakeholders can acquire resources to support and adopt green building projects. For example, budgeting is crucial in developing green buildings as the implementation requires additional costs (Wannawit et al., 2019). Lack of government

incentives and lack of financing schemes are associated with the critical barriers to stakeholders adopting green buildings due to the high cost of implementation (Albert et al., 2018). Green financing is a solution to bridge the gap in green buildings; the term green finance refers to financial instruments that support the transition to a climate-resilient economy by supporting initiatives that reduce greenhouse gas emissions and energy consumption and develop climate-resistant infrastructure (Caleb et al., 2022), as a result providing resources and enhancing the operational capabilities of the stakeholders to adopt green building. Public value measures and demonstrates the value creation in stakeholders to whom the value is valuable. In this case, green building promotes sustainable development that benefits the people and is inclusive to all.

### **Research Methodology**

The qualitative case studies applied the strategic triangle analytical framework (Moore, 1995) from the public value literature to understand its implications and influence on the property and construction sector stakeholders in adopting green buildings. Based on the strategic triangle by Moore, we aimed to understand the perceptions and willingness of the stakeholders to adopt green building to advocate for sustainable development. The research analyzed the willingness and understanding of the stakeholders in adopting green buildings to advocate for sustainable development in the industry. A qualitative approach research would be suited for direct contact as it involves several stakeholders and the importance of differentiating between or aligning the implications of theoretical and practical aspects of the research (Baskarada, 2014). The research was conducted within the Klang Valley areas, and the stakeholders involved have experience in green building adoption to uncover their experience regarding adoption and green building strategies. The participants were chosen based on their involvement and role as stakeholders in their ongoing green building project that provides different perspectives on green building and sustainable development approaches for their Klang Valley green building project). Thus, the chosen participants were based on the following inclusion criteria:

1. Participants have more than five years of working experience in green building projects;
2. Participants have completed at least two green building projects in Klang Valley;
3. Participants have successfully provided at least two green financing to property developers for green building projects (specific criteria for a financial institution).

Table 1 below summarises the data of the research group.

Table 1

*Profile of Case Study Research Participants*

No	Participants	Gender	Position	Role / Background
1	Participant A	M	Vice President	Financier: Provide green financing to developers that develop green building
2	Participant B	F	Deputy General Manager	Property Developer: Have experience in green building development for landed and high-rise residential
3	Participant C	F	Assistant General Manager	Property Developer: Have experience in green building for high-rise residential
4	Participant D	F	Chief Architect	Architect: Have experience in designing and developing green building
5	Participant E	M	Principal Consultant	C&S Engineer: Have experience in designing civil structures for green buildings
6	Participant F	F	Senior Engineer	C&S Engineer: Have experience in designing civil structures for green buildings
7	Participant G	M	Senior Manager	M&E Engineer: Have experience in designing the M&E system for green buildings
8	Participant H	M	Associate Engineer	M&E Engineer: Have experience in designing the M&E system for green buildings
9	Participant I	F	ESD Consultant	Green Building Consultant: Advise stakeholders in green building design and obtain green building certification
10	Participant J	M	Principal Consultant	Green Building Consultant: Advise stakeholders in green building design and obtain green building certification
11	Participant K	M	Director	Main Contractor: Involved in the construction of green building
12	Participant L	M	Manager	Local Council: Ensure that all standards comply with the law in Malaysia



In-depth interviews were carried out with 12 case participants, which involved a small sample size. A small study size and an appropriate number of participants are preferable to learning about their opinions and experience in the field of study (Rebolj, 2013). The data collection process took eight weeks, with each interview session lasting 20 to 30 minutes. The core questions were based on the strategic triangle from the public value literature:

- 1) What are your reasons for participating in green building construction projects?
- 2) What is your perception of collaborative partnerships with other stakeholders and government agencies in green building construction projects?
- 3) What are the operational challenges and constraints in the implementation of green building construction projects?

The first core question is derived from public value context. Understanding the driving motivation of each participant in green building is essential, as public value is the concept of doing good for the public. Therefore, the first core question drew out each participant's belief in their view of value creation that they had provided to the public by their participation in green building construction projects. The second core question is derived from legitimacy and support, to understand whether the stakeholders receive proper support from government agencies and other stakeholders to produce legitimacy in their journey to implement more green buildings. Lastly, the third core question refers to the operational capacity of the stakeholders in their involvement in green buildings. Understanding the challenges and constraints was essential to know the barriers that cause the stakeholders to be demotivated and neglect green buildings.

### **Findings**

The interpreted findings from this case study will demonstrate how the collaboration of stakeholders plays a vital role in advocating for green building. To acquire green building certification in Malaysia, Property developers must submit their project details and design to certification bodies such as GreenRE Sdn Bhd (GreenRE) and Greenbuildingindex Sdn Bhd (GBI) for certification assessment. Therefore, stakeholders must collaborate and ensure their design meets the green specifications the green building certification bodies set out. Property developers play an important role in adopting green buildings as they are the main stakeholders in deciding whether to adopt green buildings as part of their commercial decisions, as green buildings are not yet mandatory in Malaysia. As a result, developers may opt not to pursue green building and ignore sustainable approaches and the greater good of society. Consequently, project stakeholders may also choose to ignore adopting green buildings due to this matter.

The themes are based on three strategic principles to study how stakeholders can collaborate and influence each other to adopt green buildings. The first theme is "4.1. The value perceived by the stakeholders in participating in green building". The second theme is "4.2. The driving motivation behind the implementation of green building". The first and second themes are the value creation or public value that the stakeholders seek as a source of driving motivation to adopt green building for a sustainable approach. The third theme is "4.3. The support from stakeholders in implementing green building. The fourth theme is "4.4. Stakeholders' negative prejudice towards a full transition towards green building". (see Table 2)

Table 2

*Research Findings Themes*

Research Questions	Theme	Sub-Theme
<b>Public Value</b> 1) What are your reasons for participating in green building construction projects?	The value perceived by the stakeholders in participating in green building	Negative impact of conventional construction method
	The driving motivation behind the implementation of green building	New trend of building construction
		Fulfil corporate branding as part of ESG
		Maintain competitiveness in the market
		Fulfil project owner requirements
<b>Legitimacy and support</b> 2) What is your perception of collaborative partnerships with other stakeholders and government agencies in green building construction projects?	The support from stakeholders in implementing green building	Government as Policymakers
		Property developers play an essential role
		Stakeholders to Leverage Their Expertise
<b>Operational capacity</b> 1) What are the operational challenges and constraints in adopting green building?	Stakeholders' negative prejudice toward a complete transition toward green building	High Initial Cost
		Lack of awareness

**Public Value****Main Theme 1: The value perceived by the stakeholders in participating in green building**

The interviewees believed that adopting green buildings naturally creates a better environment, as it reduces carbon emissions. They also felt good, as they were helping to create a better future. However, the interviewees had different perceptions and motivations for participating in green buildings.

*Sub theme 1.1: Negative impact of conventional construction method*

In the interviews, all participants were generally aware of the negative impact of the property and construction sector on the environment and how it would deteriorate shortly. Participant D said,

"I have been aware of the negative impact of conventional construction methods as they emit high carbon emission."

Similarly, participant B highlighted that her participation in green building is personal as she is concerned for a better environment. According to her,

"I am more concerned about our environmental sustainability attributed to the green construction methodology." (Participant 2)

Green buildings encourage proper waste management and the reuse of recycled materials, which are more environmentally friendly than conventional materials. As a result, the usage of natural resources is reduced, eventually leading to a reduction in carbon emissions. Reducing the environmental impact also directly impacts the occupant's well-being by enhancing the building's indoor comfort. Green buildings encourage lesser energy usage by reducing mechanical ventilation and increasing the area of natural ventilation. According to participant I,

“I hope to learn and contribute to the building’s design that can reduce the environmental impact and enhance the building’s indoor comfort that directly impacts occupant’s well-being.”

Furthermore, Participant I highlighted that green building projects contribute to achieving Sustainable Development Goals (SDGs), especially SDG Nos. 3 (good health and well-being), 7 (affordable and clean energy), and 12 (responsible consumption and production). As described by participant I,

“In my personal opinion, if green building projects are done correctly, they can successfully contribute towards green development goals—for example, Goal 3, Goal 7, and Goal 12. Green buildings are mainly designed to achieve energy efficiency, water efficiency, and indoor comfort).

This illustrates that the stakeholders in the property and construction industry believe that green building provides positive benefits not only to the environment but also to the well-being of the people.

### **Main theme 2: The driving motivation behind the implementation of green building**

Every participant believes in the value of green building and is driven by their agenda or motivation. Therefore, motivation is critical in adopting green building in sustainable development.

#### *Subtheme 2.1: New trend of building construction*

Despite knowing that green buildings benefit the environment and people, the driving motivation behind the implementation of green buildings is different, and the source of motivation is mainly following the current trend. Participant 4 expressed that she is into green building for commercial purposes,

“It is a new business opportunity to be involved in green building as I have mentioned that green building is the new construction trend.”

Her concern is more towards her business continuity rather than advocating for green building or a more sustainable approach for the industry. She believes that the demand for green buildings is growing as developers are heading towards a new trend in building construction. Therefore, she must seize the market opportunity by participating in more green buildings and partaking in more green building jobs. She also emphasized that she needed to self-educate herself by studying examples from neighboring countries like Singapore to be more creative in her green building design. She often participates in green building seminars and roadshows to ensure she keeps up with the latest trends in green building adoption.

Moreover, participant J has a similar intention. However, the reasons behind the involvement in green building are on a personal level rather than concerning business continuity. According to this participant,

“The reason is that green building is a sustainable way to move forward in the twenty-first century. The current trend is to find solutions that have the least negative effects on the environment from human activity”.

He, too, believes that green building is the new trend in building construction; however, he expressed his concern that the reason behind the involvement of green building should be emphasized more on personal value rather than business continuity.

Comparing the motivations of Participant D and Participant J, the motivation for Participant D is more profit-oriented compared to Participant J which focuses on personal values. Despite

the differences in motivation, both participants have a common goal, which is to participate in green building for sustainable development for the greater good. Therefore, profit can boost the motivation among stakeholders in implementing green building.

**Subtheme 2.2: Fulfil corporate branding as part of ESG requirements**

Participant B, an employee for a publicly listed company in Malaysia, said that she rationally adopted green buildings as part of corporate branding and has better value for her company. It further enhances the quality of the product and increases sale value. According to her, "It is part of social responsibility in business model to contribute to a sustainable environment and further enhance corporate branding. Green building usually has better market value to Multinational Company (MNC) tenants, leading to higher occupancy rates, rental, and sellable value".

Her expression towards green buildings is that the property's value is higher and tends to be more premium. This is due to the higher construction cost of implementing a green building, which only applies to high-end commercial buildings and residential development in her company. Due to the premium price for green buildings, many may still hesitate to buy them, especially for residential buildings. On the other hand, multinational corporations (MNCs) tend to seek commercial buildings that are green-certified, as environmental, social and governance (ESG) framework is highly advocated in foreign countries. Therefore, adopting green certification for commercial buildings is the right business choice as it opens the markets for local and international buyers.

Participant A, who is from the financial institution, highlighted similarly that the banks are providing green financing as part of ESG. According to participant A,

"Financial institutions are providing green financing to comply with ESG as financial institutions in Malaysia are highly regulated by Bank Negara, especially in ESG."

Hence, the driving motivation behind the participants is much more driven by the need to fulfil the compliance requirements rather than driven from a personal agenda advocating sustainable development.

***Subtheme 2.3: Maintain competitiveness in the market***

Participant C's view on her involvement and motivation in green building is to maintain competitiveness in the market for her company. According to her,

"The main driving motivation is to create market differentiation and to enhance company reputation to attract environmentally conscious customers, investors and employee."

She conveyed that most publicly listed property developers would adopt green buildings for company reputation purposes. She believes that companies that adopt green buildings can maintain competitiveness and, at the same time, educate fellow buyers about the importance of establishing sustainable projects that endure over time and are environmentally friendly. She emphasized that education is the key to changing the mindset of stakeholders and prospective buyers in sustainable development. She also compliments that her current company policy mandates all projects to attain green building certification, ensuring a commitment to environmental sustainability across all endeavors. She hopes that all her competitors are doing the same.

In this scenario, a company needs to maintain competition in the market as it is economically viable while protecting the environment. In light of this, property developers need to slowly transition to be more involved in green building projects to ensure that the company can maintain and enhance its financial well-being in the long term.

Participant G's perception was similar to that of Participant C's viewpoint as green building is needed to enhance long-term economic viability. Participant G said, "I involved myself in green building to help save energy; it is sustainable, able to reduce the negative impact on our earth, and can enhance long-term economic viability, which is good for business."

#### *Subtheme 2.4: Fulfil project owner requirements*

Participants E and F differ in their reasons for adopting green buildings. Both participants expressed interest in adopting green buildings to meet project owner requirements. However, neither participant had any negative view of green buildings. They believe green buildings use less water, energy, and other natural resources by introducing eco-friendly materials and reducing waste. Participant E was involved in green building to meet his client's requirements: "I adopt green building purely due to the project owner's requirements. It is purely for business survival because there is a demand in the market for green building." Participant F in particular, mentioned that she is involved in the green building project as her employer needed to be involved for his business survivability:

"In my company, my boss needs to source for more projects to retain his business. So, my boss starts to be involved in the green building to get more projects."

Amid the low rate of green building, there is an increase in demand for it, increasing new business opportunities for the stakeholders. In light of this, participants see this as an opportunity to expand their business. Participant D specifically stated this:

"It is a new business opportunity to be involved in green building. Good to get involved earlier before the market is saturated."

Participant K also has views similar to those of Participants D, E, and F as illustrated below:

"When the project is awarded, the specification for the building is already predetermined by the Developer and Consultants. My job is to build according to the requirements, be it green building or not".

Therefore, participants are involved in green buildings as they demand it, enhancing their business's economic viability. Nevertheless, all the participants agree that green buildings reduce negative environmental impacts and are a better option for society, even if the reasons for the involvement are purely commercial.

### **Legitimacy and Support**

#### **Main theme 3: The support from stakeholders in implementing green building**

Collaboration is an essential tool for stakeholders in implementing green buildings as they need to work together to ensure that the target is achieved to acquire green building certification. As an external stakeholder, the government also plays a vital role in ensuring developers adopt green buildings for a sustainable future.

#### *Subtheme 3.1: Government as Policymakers*

Most participants expressed that as the policymaker, the government is vital in introducing policies that ensure stakeholders implement a more sustainable approach when designing and building properties. Participant G viewed that the government should force developers to be more participative in sustainable approach:

"The government should introduce more policies that force developers to adopt a sustainable approach for their projects."

He admitted that as a consultant for his clients, mainly developers, he needed to follow his client requirements to maintain his business relationship with the client. His perception towards green buildings is that the government should be strict in imposing policies that encourage more developers to adopt green buildings as they are not mandatory in Malaysia. He also expressed his frustration that he always introduces products and specifications that are environmentally friendly; however, it is subject to the client's approval due to cost constraints.

Nevertheless, Participant L has a positive view of the government as he works with the government as a local council member in Klang Valley:

“Most councils have adopted sustainability as part of building plan approval. For example, OTTV calculation is required to be submitted to get approval. OTTV must also be submitted if developers want to get green building certification”.

He explains that Overall Thermal Transfer Value (OTTV) is a calculation stated in the Uniform Building By-Laws (UBBL), which all developers must comply with when developing buildings. The OTTV calculation aims to reduce external heat gain and increase energy efficiency by reducing the usage of internal cooling loads such as air conditioning systems. He expresses that the government is considering adopting such policies because they take time to implement. He is also optimistic that Malaysia will someday be like Singapore, where green building will be mandatory.

### *Subtheme 3.2: Property developers play an essential role*

Both participants, E and G, stated that property developers have the most critical role in green building adoption:

“Developers are the decision-makers at the end of the day. My advice is just an opinion for developers. They are the ones paying for the construction cost and my fees. So, it is up to developers whether they want to take up green buildings.”

Participant E expressed his frustration that property developers are the key stakeholders in green building adoption. As a consultant, he can only influence the developers by explaining to his clients how important green buildings are to society. Nevertheless, developers are the ultimate decision-makers, as adopting green buildings may affect their profit margin. The view from Participant G aligns with Participant 5 as he, too, is a consultant that serves developers.

“I always tell my clients (property developers) that green building is good. The high construction cost is contra with the savings in long-term operational cost, but developers still think green building is expensive and do not proceed with it.”

### *Subtheme 3.3: Stakeholders and leveraging of their expertise*

Participant B, in particular, mentioned that all the stakeholders need to leverage their expertise for the project to adopt green buildings successfully:

“The project team members need to know how to leverage their expertise, resources, and networks for continuous exploration and improvement of sustainable development.”

She expressed that all stakeholders are equally important as they are their field's subject matter experts and should collaborate and find ways to improve green building adoption. She also stated that stakeholders can leverage their talents to help developers reduce construction costs while adopting green buildings by continuously finding new solutions.



Furthermore, she states that in her line of work as a developer, she will always encourage her stakeholders to bring forth innovative ideas in her project for sustainable development.

However, participant E expressed a different view. In his opinion, most consultants, as part of the project's stakeholders, would be required to meet the demands of their clients. Expressing their views is hard for them as their clients are mostly cost-driven; therefore, leveraging expertise among stakeholders is difficult for most consultants if the property developers are not open to new options and only seek a higher profit margin. The illustration is as below:

“Developers only want to earn more by saving cost and will only push consultants to develop designs that help them save construction costs. So, I did what the client told me to do, as we had no negotiating options. Developers want to do green building but want to save money simultaneously.”

#### **Main Theme 4: Stakeholders' negative prejudices toward a complete transition toward green building**

All the interviewees believed that Malaysia, specifically Klang Valley, is not ready for a complete transition to making green building mandatory. They were not confident due to operational capability and insufficient resources to fully implement it. As a result, newly upcoming projects may still have the option to proceed with conventional construction, which is not sustainable and further deteriorates the environment.

##### *Subtheme 4.1: High Initial Cost*

The interviews showed that high initial cost is why most developers opt out of adopting green buildings. Most interviewees expressed that developers care about their profit margin first, corporate branding, and sustainable development, especially for publicly listed companies. Green building is a tool developers use as a selling point for the public. Participant C, stated that green building is used as a selling point for the public:

“Sustainable development is also a great selling point to market and differentiate our projects from other competitors.”

Participant B, in particular, mentioned that her company neglected green buildings due to high construction costs:

“Due to the high construction cost, many of my landed developments in my current companies are not adopting green building.”

Additionally, participant D expressed that developers are implementing green building criteria in a minimum manner to reduce construction costs as illustrated below:

“Private sectors are doing it mainly for corporate branding purposes and only compliant to green building measures in a convenient way to save high construction cost, thus not much impact.”

All interviewees expressed frustration because incorporating green buildings will increase the construction cost, reducing developers' profit margin. Thus, it can be concluded that high construction costs are the most critical barrier to adopting green buildings.

However, Participant A who works in the bank, however, has a different view regarding the high construction cost of adopting green buildings:

“Banks are ready to provide full support in green financing to help developers. Green financing generally has lower interest rates than conventional loans”.

Participant A felt that developers lacked the motivation to drive for green buildings' high cost, which is the reason they justify their inability to adopt green buildings. She said most developers rely on bank financing to develop their property, as they reserve their cash to purchase land banks instead of self-financing their projects. In this sense, developers can fully transition to adopting green buildings by getting financing from banks with lower interest rates than conventional financing.

#### *Subtheme 4.2: Lack of awareness*

Participant J thought that developers believe green buildings are more expensive because of the public's lack of awareness as illustrated below:

“People’s lack of awareness about green building will lead to the development of new, untested concepts that will take time for people to accept. The development speed will slow down and cause developers to believe green buildings are more expensive”.

Participant J reflected on his previous green building projects, which had delays due to his unfamiliarity with the concept of green buildings. Construction delays generally increase construction costs as the cost of labor increases over time. He argued that green building materials are slightly more expensive than non-environmentally friendly materials and will not drastically increase the construction cost.

Participant I also expressed a similar view to Participant J:

“Regarding implementation, the most common challenges are the cost issues instilled in developers. Another one is the mindset issue, where developers' and consultants' awareness of sustainable design is still low and conservative”.

Participant I pointed out that both developers and consultants lack awareness of the implementation of green building as the stakeholders do not know how to design and build a green building in a cheaper yet sustainable way. She also stated that Klang Valley is still not ready to fully adopt green buildings as the stakeholders are not prepared and educated correctly in sustainable approaches, contributing to the mindset issue.

### **Discussion**

Concerning the strategic triangle, it is evident that public value is necessary to enhance the collaboration of stakeholders in advocating sustainable development, especially by adopting green buildings. The public value aligns with many businesses trying to implement environmental, social, and governance (ESG) as a concept of corporate sustainability. A central mechanism for implementing the goals in the private sector is through corporate social responsibility (Diaz et al., 2021). This correlates with the first theme of the research, which represents the value creation and motivation of the stakeholders to adopt green building for sustainable development.

#### *Public Value*

A public value is defined as good for the public based on fairness, justice, and transparency. All conceptions strongly focus on collective social goals rather than individual self-interest. In the first theme, the motivation behind the participant's involvement in green buildings can be either personal or the company's well-being. Either way, participants recognized the benefits of green buildings.

From the point of sustainable development, the first theme indicates there is value creation behind it, even if the motivation behind a corporation is just for branding or governance, as

the corporation needs to move in the direction of sustainable development by pursuing more green buildings. Companies that adopt green buildings must provide ample support to all stakeholders and ensure they have sufficient resources to ensure the project succeeds. This coincides with public value as it allows the stakeholders to define their objectives and issues through public value, operational feasibility, and political legitimacy. The stakeholders are doing good deeds for the public while achieving their desired outcomes, even for commercial purposes. Therefore, developing green rating tools in Malaysia is necessary as corporations are adopting green guidelines as part of their corporate branding and maintaining competitiveness in the market while being able to do good for the public.

Despite that, the participants know that adopting green building, not all companies are fully adopting green building, and the adoption of it is highly dependable on the profit margin.

### *Legitimacy and Support*

Moore's fundamental public value outlines the "strategic triangle" adopted in this research. Public value provides an opportunity for the public to benefit from socially valuable outcomes, with an operational capacity to achieve these outcomes, and with the support of the more excellent authorizing environment, producing legitimacy. As Moore (1995) points out, the government does not merely provide services or set rules; it can also produce public value through socially beneficial innovation.

In the second theme, which relates to the legitimacy and support in the public value strategic triangle, participants believe that both government and property developers play an essential role in realizing the adoption of green buildings. Stakeholders can co-create public value and develop the future as part of a relationship. This can be achieved through collaborative relationships between property developers and government agencies (Thomasz et al., 2018). In Moore's view, public value creation originated when the private sector started to adopt ideas about effective management. Individuals were considered appropriate arbiters of government value (Moore, 2013). Henceforth, the government should continuously improve and impose new policies requiring property developers to adopt green buildings willingly. By enforcing more sustainable policies in the industry, property developers, as decision-makers in the market, must abide by the ruling and advocate for the value imposed by the government. In short, government policies can enforce public value creation in stakeholders as they are the executors of the sustainable policies mandated by the government. On the other hand, other stakeholders besides property developers and government agencies may provide legitimacy and support by spreading awareness of green buildings. Awareness can be spread throughout by sharing their green building experience via associations. For instance, professional engineers who are registered under the Board of Engineers Malaysia (BEM), may share with other fellow professional engineers on their completed green building projects as knowledge sharing. Similarly, stakeholders can also provide knowledge sharing through in regard to green building or sustainable development through publication in journals. Therefore, stakeholders have the ability to empower others and create realisation to the public by manifesting legitimacy and support through knowledge sharing.

Another consideration of public value is social inclusion, as the concept of good for the public is based on fairness, justice, and transparency. The urbanization process in Malaysia is more than a demographic phenomenon; it is a powerful force that can help the world overcome some of its most significant global challenges if it is effectively steered and deployed. These critical elements of sustainable development include poverty, inequality and inclusion, environmental degradation, and climate change. These functions are critical to the

development of sustainable societies, including establishing policies, mobilizing resources, and creating favorable conditions for society. The current adoption of green buildings in Malaysia does not include social inclusion, as the participants state that green buildings are considered premium and sold at higher prices due to the higher construction cost.

### *Operational Capacity*

The third theme in the strategic triangle relates to operational capacity. Operational capacity refers to whether the stakeholders have enough resources, such as people and time, to use assets to create the desired outcomes. The findings show that most participants are pessimistic that Malaysia, especially Klang Valley, is ready to fully transition towards green buildings due to the high cost of implementation and lack of awareness. It was also pointed out that the high cost of implementation is due to the lack of awareness and knowledge in green building adoption. Hence, there is a lack of expertise in people who are fully knowledgeable in green buildings due to the low adoption rate of green buildings in Malaysia. In terms of financial factors, financial institutions in Malaysia are fully capable of supporting companies by providing green financing with lower interest rates than conventional financing. However, developers are utilizing the green financing provided by the financial institutions as they are not involved in green building and still opt for the conventional method. The business profit margin is the crucial indicator for companies to use green building as they compare their profit margin with other competitors' benchmarks. Therefore, the high construction cost of implementing a green building may signify underlying issues with the company's cost structure and pricing strategy, leading to developers neglecting green buildings to enhance profit margin.

### **Conclusion**

The public value creation is defined as the value created by the activities conducted by the stakeholders that contribute to society by participating in green building for their organization. The findings are only limited to projects involved in green building certification as part of a sustainable development approach. It is suggested that future research could focus on the same topic of sustainable development approach in the property and construction sector but not limited to green building projects as stakeholders can create public value in the industry but not necessarily be involved in green building certification. Future research should also focus on fully transitioning the property and construction industry towards sustainable development by making green building mandatory in Malaysia. This should involve the government, which is responsible for the industry's legislation.

From the research results, it was found that stakeholders in the industry recognize the environmental benefits of green buildings. The reason behind the involvement of the stakeholders is mainly for the reputation of their organization and to ensure survivability in the market. Nevertheless, from the public value standpoint, the stakeholders successfully create value for society as they can effectively meet their objective of doing good for society by involving in green building.

To sum up, it can be concluded that property developers that adopt green buildings indirectly motivate stakeholders to create public value even if the reason behind the adoption of green buildings is just merely for branding or compliance. Therefore, the legitimacy and support for green building are highly contributed by property developers as they are the decision-makers in deciding whether to approach green building or not. While the industry especially property developers is aware of the importance of sustainable development, it is not prepared for a

complete transition to adopting green buildings to improve the environment. It is found that property developers are not keen to adopt green buildings due to two reasons: high initial cost and lack of awareness of the green building approach. These two factors hinder the operational capabilities of the stakeholders to partake in green building, hence, not able to create value as property developers choose to neglect green building. The lack of understanding of green buildings causes the increase in construction costs as stakeholders are not fully aware of green building methodology. In this scenario, the government plays an important role in manifesting legitimacy and support for green building by introducing policies and strategies that can increase the awareness of the stakeholders. As mentioned by one of the participants in the interview, stakeholders can leverage their expertise in exploring new ways of implementing sustainable approaches in their projects while ensuring that construction costs do not spike up. Henceforth, it is crucial to provide education to increase the knowledge of stakeholders in the green building method where they play an important supporting role for property developers that adopt green buildings. It can be concluded that government agencies are essential in ensuring companies have sufficient resources and knowledge to adopt green buildings. Additionally, green buildings are not fully sustainable if they are not inclusive and are only open to a specific niche market. Social sustainability and inclusion emphasize the importance of putting people first in development. Sustainable development should be inclusive to all without considering gender, age, ethnicity, race, social status, and other characteristics.

Public value can manifest legitimacy and support for green building adoption within Malaysia's property and construction industry. The case study demonstrated that public value can co-create a sustainable future through collaborative relationships among all stakeholders. This article concludes that public value is a necessity among stakeholders to advocate for sustainable development. Through public value, stakeholders can work together for a sustainable future. It is timely for the industry to start preparing to fully adopt green buildings as part of mandatory requirements to ensure environmental protection and transition to a more sustainable post-growth economy.

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