
Challenges in Sustainable Residential Property Development in Shah Alam: Pathways towards Implementing Sustainable Development Goals (SDGs)

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Abstract

There is an urgent need to align urban growth with environmental, social, and economic sustainability principles in rapidly developing cities like Shah Alam. The pressing issue is the current gap between the city's rapid development pace and its ability to implement sustainable practices that align with the SDGs. The study focuses on two main objectives: to identify potential pathways for implementing Sustainable Development Goals (SDGs) and challenges in residential property development in Shah Alam. By employing qualitative content analysis and purposive sampling, the research identifies critical challenges, including lack of awareness among buyers, high costs, inadequate government support, lack of expertise, strict regulations, longer procurement times, and a focus solely on achieving green certification. However, these obstacles also present opportunities for strategic pathways toward SDG implementation. The study emphasises that addressing these challenges and embracing these pathways can drive Shah Alam toward sustainable residential property development, contributing to the city's overall resilience and sustainability while aligning with crucial SDGs. This approach is crucial for alleviating poverty, enhancing urban sustainability, promoting resource efficiency, combating climate change, and protecting local ecosystems. By overcoming these challenges, Shah Alam can progress toward sustainable development that ensures long-term environmental, social, and economic benefits.

Keywords: Sustainable Development Goals (SDGs), Challenge, Pathway, Sustainable Residential Property Development, Shah Alam

1. INTRODUCTION

Sustainable development has emerged as a pivotal concept in addressing urban growth's environmental, economic, and social challenges. This concept has been widely recognized since the Brundtland Report of the World Commission on Environment and Development in 1987, defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Mazijn, 2024). Besides, the concept of sustainable development is founded on the concepts of development (socioeconomic development within ecological constraints), needs (resource redistribution to ensure a high quality of life for all), and future generations (possibility of long-term use of resources ensuring the necessary quality of life for future generations) (Klarin, 2018). This paradigm shift has influenced various sectors, including residential property development, which is pivotal in shaping sustainable urban futures. As cities expand, the need for sustainable residential

property development becomes increasingly critical. Integrating sustainability principles in property development is essential to address the environmental, social, and economic challenges accompanying urbanisation. Shah Alam is a significant focus of this research due to its strategic importance and rapid development. As the first planned city in Malaysia post-independence, it serves as a model for urban planning and development in the country (Urbanise Malaysia and MBSA, 2021). The city is known for its well-structured layout, substantial green spaces, and efforts to integrate modern infrastructure with environmental considerations. However, massive growth in the urban development and economy of Shah Alam during the past 40 years has transformed the city with the growing population and increased demand for residential properties (Abdullah et al., 2022). The city grew tremendously and was estimated to have 617,149 inhabitants in 2022 (Population Hub, 2022). Sustainable residential property development encompasses practices that minimize environmental impact, optimize resource use, and promote social well-being (Yigitcanlar et al., 2015).

In the context of Shah Alam, sustainability in property development is crucial not only for mitigating environmental degradation but also for enhancing the quality of life for its residents. The city's development policies and strategies must align with sustainability principles to ensure long-term urban resilience and livability (Tan, 2012). Despite the increasing recognition of sustainability's importance, several challenges impede the effective implementation of sustainable practices in residential property development. These challenges include regulatory barriers, financial limitations, and insufficient stakeholder engagement, which collectively impede the effective integration of Sustainable Development Goals (SDGs) in the city's development projects (Chan et al., 2018) (Ahmad et al., 2021). Regulatory frameworks often lack the flexibility and support necessary for innovative, sustainable practices, leading to delays and increased developer costs (Foo, 2018). Financial constraints further exacerbate the issue, as sustainable construction often requires higher upfront investments than traditional methods (Chong et al., 2017). Additionally, the engagement of stakeholders, including residents, developers, and government agencies, is crucial for the successful implementation of sustainable initiatives, yet it remains inadequate in many cases (Tan, 2019). Addressing these problems is essential for advancing Shah Alam's commitment to sustainability. Policymakers, developers, and stakeholders play a crucial role in formulating actionable strategies to overcome these challenges and achieve the targets set by the SDGs. This research is structured around two primary objectives: first, to explore the potential pathways of sustainable residential property development in Shah Alam through SDGs implementation, and second, to identify the challenges faced in sustainable residential property development in Shah Alam. By providing insights and recommendations, this study aims to assist these key players in fostering a more sustainable urban environment in Shah Alam.

2. LITERATURE REVIEW

2.1 Overview of Sustainability Property Development in Malaysia

The Real Estate and Housing Developers' Association of Malaysia (REHDA), also known as GreenRE, introduced housing green rating tools as a starting point for the Malaysian real estate sector. This initiative encourages Malaysian real estate developers to go green by implementing renewable energy technology into constructions, choosing passive design ideas, and improving building shading and positioning to reduce cooling costs. As a result, several buildings in Malaysia have adopted the concept of sustainable construction or green. These properties are, therefore, qualified for certification by one of various foreign rating systems or Malaysia's Green Building Index (GBI) system, GBI Malaysia. Furthermore, Malaysia introduced a National Green Technology Policy (NGTP) in 2009 to demonstrate the Malaysian Government's sincerity in adopting sustainable strategies. The NGTP provided several incentive schemes, including green technology research and innovation toward commercialization, renewable technology advancement and awareness campaigns, renewable energy and energy efficiency initiatives, and the use of the GBI. Furthermore, the 2009 National Policy on Climate Change solidified Malaysian sustainable development by promoting green buildings in the commercial sector (Razali & Mohd Adnan, 2015).

According to Sood et al. (2011), this was accomplished by incorporating low or zero-energy concepts into the design and construction of new buildings, refitting productive ventilation, cooling, and lighting systems, practising energy-saving properties, refitting existing structures with energy-efficiency and renewable energy fixtures and developing a GBI. Several developer companies focus on developing sustainable buildings, such as Binastra Land Sdn Bhd, a company recognized for its sustainable design and construction. It has completed various projects, including residential housing, commercial centres, high-end condominiums, industrial buildings, and hotels. Its latest development, Trion 2 @ KL, is an eco-friendly development that includes two towers with 600 serviced apartments, focusing on promoting a healthy and communal lifestyle. Ideal Property Group is another company that has made a name for itself in the Malaysian real estate industry and is known for developing high-quality, low-cost homes in Penang. In recent years, the company has expanded its operations to benefit local communities through eco-initiatives such as the "I Go Green" environmental program, which promotes reducing car dependency and ensuring daily necessities are within walking distance of its developments. The company also invested in cycling lanes and replanted trees and shrubs around each project. Putrajaya Holdings is a developer committed to sustainability, including solar farming initiatives, rainwater harvesting, and designs that harness airflow.

2.2 Sustainable Residential Property Development in Shah Alam

2.2.1 Project 1 – City of Elmina by Sime Darby Property Berhad

The City of Elmina is a sustainable residential project located in Shah Alam, Selangor, situated in a 5,000-acre integrated township along the rapidly developing Guthrie Corridor. The award-winning masterplan of this project promotes a healthy lifestyle surrounded by natural environments while still providing easy access to major highways such as the Kuala Lumpur-Kuala Selangor Expressway, the North-South Highway, and the Upcoming Damansara-Shah Alam Highway. The community is also safeguarded with 24-hour patrols to ensure the safety and privacy of residents. When entering the main entrance, residents will be greeted with a picturesque view of lush greenery and a 1.77-acre linear park leading to a beautiful feature lake. The development also provides a variety of amenities for residents to enjoy, such as jogging tracks, cycling tracks, tai chi courts, playgrounds, cross-system gyms, forest trail exercise stations, and picnic benches (Ghazali et al., 2020). The project has teamed up with various non-governmental organizations for a number of sustainability initiatives, such as the Elmina Rainforest Knowledge Centre (ERKC) and Endangered, Rare and Threatened (ERT) Native Tree Nursery, in collaboration with Tropical Rainforest Conservation and Research Centre (TRCRC) that will nurture up to 100,000 threatened species under the International Union for Conservation of Nature (IUCN) Red List. Additionally, the project has collaborated with TNBX Sdn Bhd, a subsidiary of Tenaga Nasional Berhad, to install PhotoVoltaic (PV) solar panels on Ilham Residence homes, where residents will be able to sell excess energy to TNB under the Net Energy Metering (NEM) scheme. It is estimated that a total of 1MW of green energy will be generated based on the solar panels on all Ilham Residence units, saving homeowners up to 50% for electricity bills of more than RM200.

2.2.2 Project 2 – Eco Ardence by Eco World Development Group Berhad

Eco Ardence is a gated and guarded eco-themed mixed-development town that spans a large area of 533 acres, located in Shah Alam, Selangor. It offers property options such as semi-detached houses, bungalows, link houses, terraces, and townhouses. The development has various amenities, including a clubhouse, linear park and lake parks, a grand entrance and 20ft backplane gardens between houses. The launch price starts from RM870,000. It is situated near the established town of Setia Alam, which has access to various amenities such as malls, banks, commercial areas, parks, department stores, and educational institutions. It also has easy access to major roads like the Setia Alam Highway, Guthrie Corridor Expressway (GCE), Shah Alam Expressway (KESAS) and New Klang Valley Expressway (NKVE), and the developer plans to create three entryways to the town in the future. The developments incorporate energy efficiency by using a mechanical appliance that uses less electricity, which helps to

reduce wastage and high electrical costs. The exterior of the houses was designed to maximise daylight penetration, which will decrease the use of lights during the day. Eco Ardence dedicated a large percentage of the development to greenery, such as gardens, and provided lakes for the occupants to provide an aesthetic and cooling environment. In development, it uses green and eco-labelled certified construction materials that are non-hazardous, non-toxic and harmless to the occupant and surrounding environment. Pedestrians will be able to walk leisurely as they install alternative connectivity modes to nearby amenities (Navaneethan, 2023).

2.2.3 Project 3 – KEN Rimba by KEN Holding Berhad

KEN Rimba is a sustainable, green township located in Shah Alam, known for its energy-efficient properties that incorporate sustainable living features such as wind-flow orientation and breathable roof systems. It is a mixed development situated in the established area of Shah Alam. Developed by Ken Rimba Sdn Bhd, a company known for its award-winning green developments, it comprises freehold shop offices, condominiums, and double-storey terrace link houses. The development is divided into two phases of terrace link houses known as Legian and Jimbaran, two phases of condominiums with a total of 240 units in phase 1, 679 units in phase 2, and 109 units of shop-offices. The houses within Ken Rimba typically have built-up sizes of 1,840 sf to 2,215 sf, including 4 bedrooms and 3 bathrooms. The development also includes 26 corner units that come with private pools. The shop offices have varying designs and layouts, with intermediate lots having a built-up of 1,800 sf, end lots 2,100 sf, and corner lots 2,800 sf. Ken Rimba is located near various amenities such as commercial centres, hypermarkets, and schools. It is also well-connected to major highways, making commuting easy for residents. Ken Rimba stands out as a development due to its eco-friendly design, which has earned it awards such as the BCA Green Mark Gold (Provisional) and Green Building Index Award. This places it above similar competitors, and it is speculated that developments with this type of eco-friendly design will hold a higher value in the future. The development also offers cost-saving benefits regarding energy usage, rainwater harvesting, and efficient water fittings. Additionally, the use of natural light, ventilation, landscaping, and heat-reflective paint contribute to a comfortable and peaceful living experience.

2.3 Government's Initiatives in Encouraging Sustainable Property Development

According to the UN Country Results Report (2021), governments are rapidly enacting and strengthening building and environmental legislation. The United Nations Sustainable Development Cooperation Framework 2021-2025 (UNSDCF) is set to be signed in Malaysia, reflecting the UN Development System's endorsement of Malaysia's strong commitment to achieving the 2030 Agenda for Sustainable Development and the SDGs. This commitment, along with Malaysia's aspirations to become a high-income, inclusive, environmentally sustainable, and developed democratic country, is attracting the attention of investment fund managers. The growing awareness of sustainable properties among prospective tenants is also creating a promising market for these investments (Komolafe et al., 2020). As mentioned in CBRE (2010), The Malaysian government provides financial incentives for GBI-certified buildings. For example, GBI-certified building owners are eligible for a tax exemption equal to 100% of the extra capital costs incurred to acquire the building. Next, buyers of GBI-certified buildings and residential properties are entitled to a stamp duty exemption on transfer of possession instruments for the certified buildings. Other advantages include significant energy savings of up to 50% (energy costs can account for up to 25% of a building's operating costs). Malaysia's government took the initiative to implement sustainable initiatives through the development of residential properties. The residential property landscape dominates property development in Malaysia. Malaysian housing development adheres to the Agenda 21 principle, which entails providing housing that improves the quality of life without negatively impacting the environment. To be considered "green," each stage of the building process (design, construction, and operation) must include environmental considerations such as energy and water efficiency, resource efficiency, indoor quality, waste and pollution control, house maintenance, and the overall impact of the house on the environment (Abidin et al., 2012).

Malaysia's government has demonstrated a strong commitment to addressing climate change and environmental concerns through sustainable and green development. This commitment is evident in a series of recent measures, such as the establishment of the Ministry of Energy, Green Technology, and Water (KeTTHA) in April 2009, tax incentives to encourage public and private sector investment in green technology, the launch of the NGTP in July 2009, and the formation of the National Green Technology Council, chaired by Malaysia's Prime Minister. The introduction of the Green Technology Finance Scheme to support companies that provide and use green technology further underscores the government's dedication to this cause (Razali & Mohd Adnan, 2015).

2.4 Shah Alam's City Governance and SDGs Framework

Shah Alam, located immediately west of Malaysia's capital city, Kuala Lumpur, is the country's sixth most populous city. It replaced Kuala Lumpur as the capital city of Selangor State in 1978, four years after Kuala Lumpur became a Federal Territory. In 1979, Shah Alam received municipality status and was granted city status in 2000. Shah Alam's administration is the City Council's mandate, which falls under the Selangor State Government. Shah Alam was Malaysia's first planned city after independence in 1957 (Elizabeth, 2023). Generally, Shah Alam can be divided into three parts: North, Central and South. There are 56 Sections in total – many of which are residential – and comprise 17 villages. North Shah Alam consists of 18 Sections, including Sections U1 and U2 and Kampung Melayu Subang. Shah Alam is administrated by Shah Alam City Council, an agency under the Selangor state government. It was founded as Shah Alam Municipal Council when Shah Alam was declared the capital city of Selangor. MBSA is responsible for public health, sanitation, waste removal and management, town planning, environmental protection and building control, social and economic development and general maintenance functions of urban infrastructure. In 2013, Shah Alam was awarded the Malaysia's Sustainable City Award.

The Shah Alam SDG Roadmap is the crucial document towards Shah Alam's approach towards its holistic sustainability action plans. The roadmap is a unique framework developed by Urbanice Malaysia that provides a lens through which to understand the dimensions of the city system and the SDGs that contribute to the dimensions. The initiative was modelled after the Voluntary National Review, which takes stock of the nation's progress towards achieving the SDGs. MBSA's vision is to use the VLR to set a leading example in integrating the SDGs and the New Urban Agenda in a systemic approach to sustainable and inclusive urban development. This roadmap supports Shah Alam's readiness to report on the progress of its SDGs via this VLR. Shah Alam is not just a city, but a community actively committed to sustainable and inclusive development. At the tenth World Urban Forum (WUF10), MBSA launched its Voluntary Local Review (VLR) commitment. The VLR aims to review and highlight Shah Alam's contribution to achieving the SDGs and implementing the New Urban Agenda and the Paris Agreement. In preparation for the VLR, an SDGs Report was drafted to serve as a roadmap for the City Council. The move towards sustainability in Shah Alam requires top-level commitment and a high level of engagement from all stakeholders. Its success depends on providing clear policy and adequate resources, strengthening the planning system and the capacity to make multi-sectoral and integrated decisions. Shah Alam, the first city in Malaysia to participate in the Malaysia SDG Cities network, is a pioneer in the country's sustainability efforts. The city's unique combination of challenges, opportunities, and strengths has provided a solid ground for participating in the Malaysia SDG Cities network (Urbanice, 2022). In line with the Malaysia SDG Cities Roadmap's framework, which has identified three critical outcomes for Malaysian cities, Shah Alam has achieved the promotion of environmental sustainability to mitigate climate change; this is reflected through its current efforts where policies, programs, and projects are way focused on. It has also contributed to ensuring inclusive growth and equitable development in Selangor through efforts to overcome urban poverty. Shah Alam's leadership in the Malaysia SDG Cities network is a testament to its commitment to sustainability and pioneering spirit in urban development.

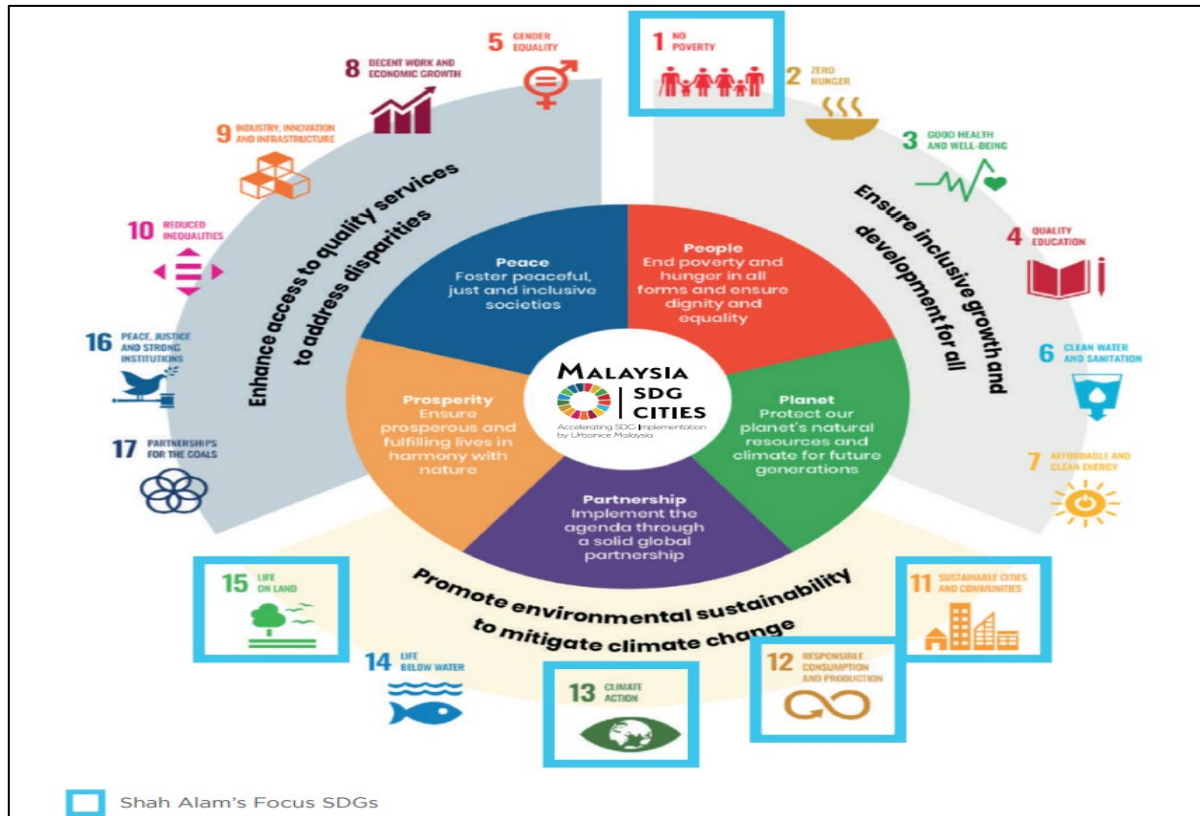


Figure 1: Shah Alam SDG's Framework

Source: Shah Alam SDG Roadmap 2020, Urbanise Malaysia and MBSA, (2020)

2.5 Potential Pathway to Implementing SDGs

Implementing Sustainable Development Goals (SDGs) in sustainable residential property development involves several potential pathways aligning with global sustainability frameworks and local urban development needs. These pathways are crucial for fostering environmentally sustainable, socially inclusive, and economically viable communities.

One of the primary pathways is adopting green building practices, including energy-efficient designs and integrating renewable energy sources such as solar power. Incorporating these practices reduces carbon footprints and operational costs, contributing to the sustainability of residential properties. According to Sharma (2024), integrating renewable energy with an energy-efficient approach is crucial in transitioning to sustainable homes. For example, homes can significantly reduce their reliance on non-renewable energy by integrating renewable energy sources like solar panels, wind turbines, and geothermal systems with green building practices. The green building practice optimises energy usage by controlling heating, cooling, lighting, and other systems, ensuring minimal energy waste. This contributes directly to SDG 7 by increasing the share of renewable energy in the energy mix and improving energy efficiency.

One way to advance the SDGs is by focusing on sustainable urban planning and infrastructure. Sustainable urban planning, which encourages smart growth through mixed-use developments, walkable neighbourhoods, and the preservation of green spaces, can significantly contribute to SDG 11. These strategies promote efficient land use, reduce urban sprawl, and improve the quality of life for residents (Kiriveldeniya et al., 2024). Furthermore, improving public transportation networks and integrating new developments with these systems plays a crucial role in supporting SDG 9 (Industry, Innovation, and Infrastructure) and SDG 13 (Climate Action) by decreasing reliance on private vehicles and reducing greenhouse gas emissions, empowering us to take responsibility for our environment.

In addition to the above strategies, infusing the SDGs pathway will enhance the sustainable residential property development's water and waste management system. For example, implementing water-saving technologies, such as rainwater harvesting (collecting rainwater for non-potable uses like irrigation and toilet flushing) and greywater recycling (treating and reusing water from sinks, showers, and washing machines), is vital for sustainable residential development. This contributes to SDG 6 (Clean Water and Sanitation) by ensuring efficient water use and reducing water scarcity risks (Amos, 2020). Additionally, implementing effective waste management systems prioritising waste reduction, recycling, and reusing aligns with SDG 12 (Responsible Consumption and Production). Proper waste management helps decrease landfill use and encourages a circular economy within the residential sector.

Therefore, embracing these pathways necessitates a collective effort involving developers, local authorities, residents, and other stakeholders. By integrating these strategies, sustainable residential property areas, specifically Shah Alam, can significantly progress towards attaining the SDGs, particularly within the realm of sustainable residential property development. This approach not only supports multiple SDGs but also promotes economic, environmental, and social sustainability and enduring sustainability for future generations.

2.6 Challenges in Developing Sustainable Residential Property

According to Abidin et al. (2013), several factors contribute to the challenges facing implementing sustainable housing development. One of the main challenges is the need for more awareness and interest from potential buyers, which leads to a lack of priority for sustainable housing projects among real estate developers. However, developers play a crucial role in shaping the future of sustainable housing. Their decisions and actions can influence the market trend and potential buyers' interest levels. Developers often avoid these projects due to the high costs associated with new technologies and the need to adapt to new construction methods. However, as the market trend shifts towards sustainable development, developers recognise the need to adapt to remain competitive and attract potential buyers interested in green and sustainable houses.

Another challenge facing sustainable housing is the limited time available for construction. Time management is critical in construction projects, and sustainable housing projects may require changes to the construction process that could affect the delivery of projects on time. This could also lead to issues with the quality of work as delays in decision-making and approvals from project consultants can occur (Osaily, 2018). Government support is also a critical factor in the success of sustainable housing projects. A study published in 2014 found that developers are more likely to participate in sustainable housing projects when the government provides firm support. However, the indistinct procedures, bureaucracy, and ambiguous application process can make it difficult for developers to understand the government's initiatives and discourage them from participating (Ibrahim et al., 2014).

A lack of professional workers with knowledge and expertise in sustainable construction is another challenge facing sustainable housing development. New technologies and materials are used in sustainable construction, and not all developers have the knowledge and expertise to implement these projects (Williams & Dair, 2007). Finally, sustainable construction requires a long-term perspective, considering the structure's initial capital and operating costs. However, due to the highly competitive real estate market, developers often believe that the short-term costs of sustainable construction are not worth it. Additionally, the need for more transparency in the cost of sustainable construction and the high costs associated with importing green materials can further discourage developers from implementing sustainable housing projects (Halliday, 2008).

3. RESEARCH METHODOLOGY

An empirical study based on the qualitative approach is employed to achieve two objectives. The first objective is achieved by adopting a content analysis approach towards a relatable report: Shah Alam

Implementing the 2030 Agenda-Voluntary Local Review Report 2021, Sustainable Development Goals 2030 Report, and other relevant literature resources from the journal article. The second objective is achieved by conducting a semi-structured interview. Purposive sampling was used to select the key informants from real practitioners comprising developers involved in sustainable residential development in Shah Alam. Purposive sampling enables the researcher to gather detailed and in-depth information from key informants who are most knowledgeable and experienced in the area of study (Nyimbili & Nyimbili, 2024). It avoids the inclusion of participants who may not have relevant experience or knowledge, thereby enhancing the quality of the data (Cohen et.al, 2018). Real practitioners, such as developers, are chosen as the key informants because they play a direct role in the planning, design, and execution of sustainable residential projects in Shah Alam and possess firsthand experience and knowledge about the actual implementation processes, challenges, and best practices in the study context. The literature content gathered was analysed qualitatively, and the interview transcription was analysed where descriptive narrative strategies were employed. By employing these methods, the study aims to provide comprehensive insights into the sustainable residential property development landscape in Shah Alam, highlighting both potential pathways and challenges. Table 1 below shows the background of the key respondents of this study:

Table 1: Key Respondent's Background

Code Respondent	Company	Position	Year of Experience
RP1	Sime Darby Property Berhad	Project Manager	12 years
RP2	UEM Sunrise Berhad	Project Development Executive	5 years
RP3	Gamuda Land	Manager	8 years




4. RESULTS AND DISCUSSION

The findings in this section show the content analysis of the potential pathways of sustainable residential property development in Shah Alam through SDGs implementation and the narrative descriptive analysis of the challenges faced in sustainable residential property development in Shah Alam by three key informants.

4.1 Analysis of the Potential Pathways of Sustainable Residential Property Development in Shah Alam Through SDGs Implementation

Below is a summary of the analysis of the potential pathways of sustainable residential property development in Shah Alam through SDGs implementation, as presented in Table 2.

Table 2. Summary Analysis of the potential pathways of sustainable residential property development in Shah Alam through SDGs implementation

SDG	Goal	Analysis of Potential Pathway Interpretation	Example
SDG 1: No Poverty 	End poverty in all its forms everywhere.	Sustainable residential projects in Shah Alam should include affordable housing components to address poverty. By leveraging public-private partnerships and government subsidies, developers can create mixed-income communities that provide affordable options without compromising on sustainability. Additionally, integrating job creation and skill development programs within these projects can help lift residents out of poverty.	The Rumah Selangorku initiative, which aims to provide affordable housing for low- and middle-income groups in Selangor, can be expanded and enhanced with sustainable building practices to ensure affordability and environmental responsibility (Besar, 2018).
SDG 11: Sustainable Cities and Communities 	Make cities and human settlements inclusive, safe, resilient, and sustainable.	Comprehensive urban planning that includes green building standards, efficient public transportation systems, and inclusive community spaces can help Shah Alam become a model of sustainable urban living. Policies that incentivize green construction and retrofit existing buildings with energy-efficient technologies will be crucial.	Implementing the Green Building Index (GBI) standards in all new residential developments can promote sustainability (Algburi & Faeza, 2016). Additionally, expanding the public transit network to connect residential areas with commercial and recreational zones can reduce reliance on private vehicles (Sukereman et al., 2024).
SDG 12: Responsible Consumption and Production 	Ensure sustainable consumption and production patterns.	Encouraging the use of recycled and locally sourced materials in construction and promoting waste reduction and management practices can enhance sustainability. Implementing building codes that require resource-efficient designs and operations is critical.	Mandating the use of sustainable materials and construction waste recycling in all new residential projects can significantly reduce environmental impact. Additionally, educating residents on sustainable living practices can foster a culture of responsible consumption (Hamid et al., 2020).



SDG	Goal	Analysis of Potential Pathway Interpretation	Example
SDG 13: Climate Action 	Take urgent action to combat climate change and its impacts.	Promoting energy-efficient building designs, renewable energy integration, and sustainable construction materials are essential steps. Implementing policies that mandate carbon footprint assessments for new developments and retrofitting older buildings can significantly reduce greenhouse gas emissions.	Encouraging the use of solar panels, green roofs, and energy-efficient appliances in residential properties can help reduce the overall carbon footprint. Local authorities can provide incentives such as tax breaks or grants to homeowners and developers who adopt these technologies (Tang et al., 2023).
SDG 15: Life on Land 	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	Protecting and restoring natural habitats within urban areas, integrating green spaces into residential developments, and promoting biodiversity-friendly practices are essential for sustainable urban growth. Policies that enforce environmental impact assessments and habitat preservation are crucial.	Developing urban parks and green corridors that connect different parts of the city can enhance biodiversity and provide recreational spaces for residents. Implementing green building practices that include rooftop gardens and native plant landscaping can further support local ecosystems (Rasli & Kanniah, 2018).

Table 2 shows the potential pathways of sustainable residential property development in Shah Alam through five SDGs focused on in the Shah Alam VLR Report, which are SDG1, SDG11, SDG12, SDG13, and SDG15. For the SDG 1 pathway, sustainable residential property development can play a pivotal role in alleviating poverty by providing affordable and decent housing options for low-income families. In Shah Alam, integrating affordable housing into sustainable residential projects ensures all community members can access safe and adequate housing. This contributes to social equity and economic stability. Based on a survey conducted in 2019, Selangor's average PLI is at RM 2,022 a month per household. Poverty in Selangor is being effectively eradicated, and the rural-urban income gap is being decisively overcome. The median income of rural households showed a dramatic improvement, with an annual growth rate of 12.3%, while urban households grew at 6.9% per annum. For the state, the median income in Selangor grew by 7.5% per annum from RM6,214 in 2014 to RM7,225 in 2016. Shah Alam is Selangor's fastest-growing economic centre. In 2019, the city was host to approximately 74.2% of the labour force of its total population (497,062 people out of 669,895), and the number has been growing ever since.

Sustainable residential property development directly supports the SDG 11 pathway by promoting practices that enhance the liveability and sustainability of urban environments. In Shah Alam, this involves adopting green building standards, integrating public transportation options, and developing affordable housing that meets environmental standards. Shah Alam has also been prioritising its green agenda via high-impact investments, spearheading green technologies to cut the city's carbon footprint. MBSA's initiative also includes education and awareness programmes, all streamlined to reflect the city's vision towards the green city concept. Meanwhile, for the SDG12 pathway, sustainable residential developments promote the efficient use of resources and encourage responsible consumption patterns. This includes reducing waste, optimising water and energy use, and selecting sustainable building materials. In Shah Alam, educating stakeholders about the benefits of sustainable practices and implementing strict waste management regulations are necessary steps. Shah Alam City Council is developing the Shah Alam Solid Waste Master Plan 2019 – 2023, which will govern solid waste management for Shah Alam within five years.

For the SDG13 pathway, the construction and operation of residential buildings significantly contribute to greenhouse gas emissions. However, sustainable residential developments in Shah Alam have the potential to mitigate these impacts through energy-efficient designs, renewable energy sources, and sustainable construction materials. The city's commitment to promoting such practices is a crucial step towards reducing its carbon footprint. Despite the challenges posed by rapid urbanisation and climate change, Shah Alam's potential to ensure that its future developments are low-carbon and sustainable is inspiring. The city's aim to reduce carbon emissions by 45% in 2030 compared to its 2015 levels is a testament to this commitment.

Lastly, for the SDG15 pathway, sustainable residential property development must consider the impact on local ecosystems and biodiversity. In Shah Alam, this involves careful planning to preserve green spaces, avoid deforestation, and minimise land degradation. Nine flooding incidents occurred in several locations within Shah Alam from 2009 to 2017. In 2006, one of the most extreme flash flood cases in Section 13, which inundated approximately 3,000 houses and forced about 11,000 people to vacate the area, happened over a 2-hour downpour. The causes of floods are mainly rapid development, land clearing and unplanned development, clogged drainage systems, soil erosion and sedimentation, which have contributed to river shallowing. Thus, the use of native plants in landscaping, the protection of existing natural habitats, and the implementation of green roofs and walls can help mitigate the environmental impact of new developments.

4.2 Analysis of the Challenges Faced in Sustainable Residential Property Development in Shah Alam

Below is a summary of the analysis challenges faced in sustainable residential property development in Shah Alam, as presented in Table 3, based on the perspectives of the identified key informants.

Table 3. Qualitative Summary Analysis of the challenges faced in sustainable residential property development in Shah Alam

Challenge	Informant Code	Statement	Challenge Point of View	Keypoint to overcome the challenge	Code
Lack of awareness and interest from potential buyers	RP1	“True, lack of awareness is something for developers to work on. At Sime Darby Property, we get the word out to the public that we are working on a sustainable development project. We not only give awareness, but we also walk the talk. The developer needs to organize an event and explain the concept of sustainability during the project's launch. Advertisements, media and events play an important role in spreading awareness as implementing sustainability concepts has always been a challenge. ”	<ul style="list-style-type: none"> • Lack of awareness is something for developers to work on. • Advertisements, media and events play an important role in spreading awareness. 	<ul style="list-style-type: none"> • Proactive Communication • Practical Implementation • Significant in Role of Events • Importance of Media and Advertising 	1A
	RP2	“No, awareness has been introduced through marketing campaigns and even now, people prefer to opt for sustainable residential. Most of the Banks in Malaysia also impose a requirement to be ‘sustainable’ enough for the future.”	<ul style="list-style-type: none"> • Awareness has been introduced through the marketing campaign. • Banks in Malaysia also impose a requirement to be ‘sustainable’ 	<ul style="list-style-type: none"> • Increased Awareness • Growing Consumer Preference • Banking Requirements update. 	2A
	RP3	“No. When buying a house, customers dream of a lifestyle that they have always wanted. They become really picky and look at the surroundings and amenities. The interest in green products has always been there, but whether they know about the green certificate is unsure. ”	<ul style="list-style-type: none"> • Interest in green products has always existed, but they are unsure whether they know about the green certificate. 	<ul style="list-style-type: none"> • Lifestyle Aspirations • Selective Decision-Making • Prioritise the Interest in Green Products • Consideration of Uncertainty About Certification 	3A

Challenge	Informant Code	Statement	Challenge Point of View	Keypoint to overcome the challenge	Code
High cost due to adapting to new technologies and construction Methods	RP1	“Yes, because to build sustainable houses, developers need to spend more money, and it is an issue for the developers to implement this construction with sustainable materials. The cost is more expensive, and developers have to increase the price of the house to make a profit. The sustainable materials are limited, making them more expensive to acquire. ”	<ul style="list-style-type: none"> • Due to the high cost of sustainable materials and construction methods, developers had to increase the house price. 	<ul style="list-style-type: none"> • Strategic Financial Planning • Collaboration with Suppliers • Value-Added Pricing • Innovation in Material Sourcing 	1B
	RP2	“Yes, the new technologies are expensive, but they will benefit the residents and the environment in the long run. The construction method will not have a greater impact as there will usually be a set of templates to follow. ”	<ul style="list-style-type: none"> • High cost for the new technologies, but in the long run, will be beneficial to the residence and environment 	<ul style="list-style-type: none"> • Long-Term Investment in Technology • Standardized Construction Methods 	2B
	RP3	“No, cost has always been a challenge in a development project. Green projects do not necessarily cost more. A good project manager would try to evaluate good points and bad points. In fact, some projects that are entitled to green tax can use it to cut tax costs when adapting new technologies.	<ul style="list-style-type: none"> • Effective cost management in green projects can be achieved through skilled project management and leveraging tax incentives, demonstrating that sustainability does not necessarily increase development costs. 	<ul style="list-style-type: none"> • Cost Management in Development • Role of Project Managers • Tax Incentives 	3B
Limited construction time	RP1	“No. The sustainable materials used actually speed up the development process. Developers are trying to adopt this modern sustainable construction method to save time. The faster the project is finished, the faster the developer can sell the units to make money. Therefore, construction time is not a challenge for developers.”	<ul style="list-style-type: none"> • Adopting sustainable materials can accelerate the development process, allowing developers to complete projects more quickly and sell units faster, making construction time a non-issue in sustainable development. 	<ul style="list-style-type: none"> • Acceleration of Development Through Sustainable Materials • Adoption of Modern Methods • Financial Incentive 	1C

Challenge	Informant Code	Statement	Challenge Point of View	Keypoint to overcome the challenge	Code
	RP2	“No, sustainability has been one of the requirements to follow. Therefore, limited construction time cannot be considered a challenge, as developers won’t be able to avoid implementing sustainable concepts in their upcoming projects.”	<ul style="list-style-type: none"> • Sustainability has been one of the requirements to follow. 	<ul style="list-style-type: none"> • Mandatory Sustainability Compliance 	2C
	RP3	“No, the time of construction is for a sustainable development project is similar to another development project. ”	<ul style="list-style-type: none"> • The time of construction for sustainable development projects is similar. 	<ul style="list-style-type: none"> • Comparable Construction Timelines 	3C
Insufficient of Government support	RP1	“True. The government should support developers by giving them incentives, tax incentives, and subsidies on every green material and encourage green construction methods such as Prefabricated, Prefinished Volumetric Construction (PPVC) and Industrialised building systems (IBS). If the government imposes this construction method, the supplier will start to supply more materials, and it will become a norm.”	<ul style="list-style-type: none"> • The government should give developers incentives, tax incentives, and subsidies while encouraging the construction of green methods. 	<ul style="list-style-type: none"> • Government Support and Incentives • Encourage the adoption of sustainable construction methods 	1D
	RP2	“Yes, the government should provide more subsidies to developers that impose such things. The support from the government is limited, and they are not giving full attention to this topic. Even though sustainability is a requirement in all upcoming development, the government did not fully inspect all projects to ensure cooperation from developers. ”	<ul style="list-style-type: none"> • The government should increase subsidies and provide more robust support to developers who implement sustainable practices, as current attention and enforcement are limited, leading to insufficient compliance despite sustainability being a requirement in all new developments. 	<ul style="list-style-type: none"> • Strengthening Government Support and Enforcement 	2D

Challenge	Informant Code	Statement	Challenge Point of View	Keypoint to overcome the challenge	Code
	RP3	“Yes, government support is very important. Developers still require fiscal support to reduce taxes and help market the project . It adds an additional value that developers need to create a successful project. Apart from that, the government can also help people to buy sustainable houses, especially those customers who really need to live in a healthy and green environment.”	<ul style="list-style-type: none"> • Fiscal support in reducing tax to help market the project. • Help people to buy sustainable houses. 	<ul style="list-style-type: none"> • Enhanced Fiscal and Market Support 	3D
Lack of professional workers with knowledge and expertise	RP1	“No. Green concept development is not that hard to learn . It is not a big issue; everyone knows green construction and materials. Expertise is not a problem, as you don’t need to be a specialist in green building to implement it.”	<ul style="list-style-type: none"> • Green concept development is not that hard to learn. 	<ul style="list-style-type: none"> • Accessibility and Ease of Green Concepts • Widespread awareness of green construction 	1E
	RP2	“At the moment, yes. The number of workers with skills and knowledge in sustainable concepts in property development is limited, and it will take time to nurture the expertise needed. However, as the sustainability sector develops rapidly, there will soon be enough expertise”.	<ul style="list-style-type: none"> • The number of professionals with skills and knowledge is limited at the time. 	<ul style="list-style-type: none"> • Building Expertise in Sustainable Development 	2E
	RP3	“No. The industry is not lacking in professional workers and people with knowledge. It's more like we lack more professionals who want to adopt this. Older professionals often consider doing green projects troublesome and consider them an additional task.”	<ul style="list-style-type: none"> • Lack of professionals who are reluctant to embrace green projects, viewing them as troublesome or as additional tasks. 	<ul style="list-style-type: none"> • Leverage Existing Expertise • Develop strategies to overcome the reluctance of older professionals 	3E

Challenge	Informant Code	Statement	Challenge Point of View	Keypoint to overcome the challenge	Code
Other challenges faced in implementing sustainable residential property	RP1	“Other than cost, lack of awareness, and government support, there are not really other noteworthy challenges. Cost is the biggest challenge to the developers' implementation.”	<ul style="list-style-type: none"> • The primary challenges in implementing sustainability are the high costs, lack of awareness, and insufficient government support, with few other notable issues affecting developers. • Cost is the biggest challenge for the developers to implement. 	<ul style="list-style-type: none"> • Explore cost-saving measures, financial incentives, and green financing options • Advocate for Government Support 	1F
	RP2	“ Strict and profound guidelines to follow on as sustainable building will be assessed by Green governing body such as GreenRE. It discourages the developers from trying to involve themselves in developing sustainable buildings as they may fail the assessment.”	<ul style="list-style-type: none"> • Strict and profound guidelines discourage developers from developing sustainable property. 	<ul style="list-style-type: none"> • Supportive Assessment Process • Offer Guidance and Training • Promote Incremental Adoption 	2F
	RP3	“ Procurement of the sustainable material may take a while as it is not widely produced. Other than that, some developers only focus on achieving the green certificate when they should be producing the best product for the particular community.	<ul style="list-style-type: none"> • Procurement of the sustainable material. • Only focusing on achieving the green certificate 	<ul style="list-style-type: none"> • Streamline Material Procurement • Focus Beyond Certification • Enhance Material Availability 	3F

Table 3 shows the challenges in developing sustainable residential property in Shah Alam. It highlights all the respondents' insights regarding the issues. Due to the lack of awareness and interest from potential buyers, respondent 1 agreed on the challenge and stated that lack of awareness is something for developers to work on (1A), and it has always been a challenge in implementing sustainability concepts. Thus, advertisements, media and events are essential in spreading awareness (1A). It aligned with Abidin et al. (2013), who stated that lack of awareness and interest from buyers leads to a lack of priority for sustainable housing projects. Respondents 2 and 3 shared the same view and contradicted Respondent 1's opinion. Respondent 2 stated that awareness has been introduced through a marketing campaign (2A), and banks in Malaysia also impose a requirement to be 'sustainable' (2A). In addition, the interest in green products has always been there, but whether they are aware of the green certificate is still being determined, as respondent 3 (3A) stated.

Meanwhile, the issue of high cost due to adapting to new technologies and construction methods is agreed by both respondents 1 and 2, in which they stated that the cost is more expensive, and developers had to increase the price of the house to make a profit. The limited sustainable materials make acquiring it more expensive (1B). Moreover, the cost of new technologies is high, but it will benefit the residents and the environment (2B). The same challenge was mentioned in previous research; developers often need to pay more attention to these projects due to the high costs associated with new technologies and the need to adapt to new construction methods (Abidin et al., 2013). Respondent 3, however, contradicted this view and shared that green projects do not necessarily cost more (3B), but the procurement of sustainable material may take a while as it is not widely produced (3F), and some developers only focus on achieving the green certificate when delivering the best product (3F).

The next challenge is limited construction time. All respondents agree that limited construction time is relatively easy when implementing sustainable residential property development. Respondent 1 stated that developers are trying to adopt the sustainable construction method, which is faster than the conventional method (1C), offering a potential solution to this challenge. On the other hand, respondent 2 shared that it cannot be considered a challenge due to sustainability has been one of the requirements for developers to follow (2C), indicating a positive shift in the industry. Furthermore, the construction time for sustainable development projects is similar (3C) as shared by respondent 3. This view contradicts Osaily (2018), who states that time management is critical in construction projects, and sustainable housing projects may require changes to the construction process that could affect the delivery of projects on time. However, the potential benefits of sustainable construction methods could outweigh these challenges in the long run.

All of the respondents agreed on this issue for government support. The government should give developers incentives, tax incentives, and subsidies while encouraging green method construction (1D), as shared by respondent 1. Respondent 2 stated that the government should provide more subsidies and inspect upcoming projects to ensure cooperation from developers (2D). Respondent 3 mentioned that the developers require fiscal support in reducing taxes to help market the project (3D) and that the government should help people buy sustainable houses. This finding is aligned with the previous study that stated developers are more likely to participate in sustainable housing projects when the government provides substantial support (Ibrahim et al., 2014).

Next is the need for more professional workers with knowledge and expertise. Respondents 1 and 3 share the same view and mention that it is not a challenge. Respondent 1 stated that green concept development is relatively easy to learn (1E). However, the industry needs more professional workers and people with knowledge, and this need should not be underestimated, as respondent 3 (3E) emphasised. Respondent 2 agreed that it is a challenge and shared that the number of professionals with skill and knowledge is limited at the time (2E). The same challenge was shared by Williams & Dair (2007), who stated that due to new technologies and materials being used in sustainable construction, not all developers have the necessary knowledge and expertise to implement these projects.

Lastly, other challenges in implementing sustainable residential property are explored. Respondent 1 shared that cost is the biggest challenge for the developers to implement (1F). However, potential solutions exist, such as cost-effective sustainable materials and efficient construction methods. While respondent 2 stated that strict and profound guidelines discourage developers from developing sustainable property (2F), there are ways to streamline these guidelines and make them more accessible. This response is aligned with the study by Ibrahim et al. (2014), who found that indistinct procedures, bureaucracy, and ambiguous application processes can make it difficult for developers to understand the government's initiatives and discourage them from participating. In addition, procurement of sustainable material may take a while as it is not widely produced (3F), but with increased demand and technological advancements, this could change in the future. Some developers only focus on achieving the green certificate when delivering the best product (3F), but a shift in focus towards overall sustainability could inspire more comprehensive solutions.

5. CONCLUSION

This study aims to provide insights into the property development landscape in Shah Alam, highlighting potential pathways for sustainable residential development through implementing SDGs and identifying the challenges faced in this process. The analysis undertaken here has extended the knowledge of the importance of interpreting identical opinions across different expert participants so that views on issues and challenges relating to the significance of developing sustainable property development in Shah Alam can be examined in detail and depth. In conclusion, the finding from this study reveals seven significant challenges in implementing sustainable residential property development in Shah Alam: lack of awareness and interest from potential buyers, high cost due to adapting to new technologies and construction methods, insufficient government support, lack of professional workers with knowledge and expertise, strict and profound guidelines, longer time for procurement of sustainable material and developers focusing only on achieving green certificate. However, these challenges also present opportunities for strategic pathways toward SDG implementation. The findings indicate that sustainable residential property development in Shah Alam plays a crucial role in alleviating poverty, enhancing urban sustainability, promoting efficient resource use, combating climate change, and protecting local ecosystems, thereby aligning with crucial Sustainable Development Goals (SDGs) to ensure long-term environmental, social, and economic benefits for the community. The significance of this study lies in its ability to provide a comprehensive understanding of the obstacles and opportunities in achieving sustainable residential development in Shah Alam. By identifying critical areas for improvement and offering actionable solutions, this research serves as a valuable resource for policymakers, developers, and other stakeholders, highlighting their integral role in achieving sustainable development. It emphasises the importance of aligning development practices with SDGs, particularly in alleviating poverty (SDG1), enhancing urban sustainability (SDG11), promoting responsible resource use (SDG12), combating climate change (SDG13), and protecting ecosystems (SDG15). Besides, this alignment not only enhances the quality of life for residents but also contributes to the long-term resilience and sustainability of Shah Alam. By addressing these challenges and following these pathways, Shah Alam can progress toward sustainable residential property development, emphasising that sustainable development in Shah Alam is not just about building homes but about creating a future that is equitable, liveable, and environmentally responsible.

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REFERENCES

1. Abidin, N. Z., Yusof, N., & Othman, A. A. E. (2013). Enablers and challenges of a sustainable housing industry in Malaysia. *Construction Innovation*, 13(1), 10–25. <https://doi.org/10.1108/14714171311296039>
2. Abdullah, Y. A., Jamaluddin, N. B., Yakob, H., Hassan, M. A., Yusup, M., Zaki, Z. A., & Zanudin, K. (2022). Urban Governance Approaches for Low Carbon Cities. The Case of Shah Alam Local Government, Malaysia. *Planning Malaysia*, 20. <https://doi.org/10.21837/pm.v20i23.1169>
3. Ahmad, M., Abdul-Rahman, H., & Chen, W. (2021). Barriers to Sustainable Construction in Malaysia. *Journal of Construction Engineering and Management*, 147(3), 05021001.
4. Algburi, S. M., Faieza, A. A., & Baharudin, B. T. H. T. (2016). Review of green building index in Malaysia; existing work and challenges. *International Journal of Applied Engineering Research*, 11(5), 3160-3167. https://www.researchgate.net/profile/Saleh-Hussein/publication/328556644_Review_of_Green_Building_Index_in_Malaysia_Existing_Work_and_Challenges/links/5bd462a2a6fdcc3a8da99bb4/Review-of-Green-Building-Index-in-Malaysia-Existing-Work-and-Challenges.pdf
5. Amos, C. C., Rahman, A., Gathenya, J. M., Friedler, E., Karim, F., & Renzaho, A. (2020). Roof-harvested rainwater use in household agriculture: Contributions to the sustainable development goals. *Water*, 12(2), 332.
6. Besar, J. A. (2018). Analisis perkembangan pembangunan perumahan awam di Selangor (Analysis of public housing development in Selangor). *Geografia*, 14(1). <https://journalarticle.ukm.my/12584/1/23660-69403-1-PB.pdf>
7. CBRE (2010) Going Green Malaysia. CB Richard Ellis Malaysia Special Report, Retrieve by July 02, 2024, from: www.cbre.com.my
8. Chan, E. H. W., Darko, A., Ameyaw, E. E., & Owusu-Manu, D. (2018). Barriers affecting the adoption of sustainable construction practices in developing countries: A review. *Journal of Management in Engineering*, 34(6), 04018045.
9. Chong, H.-Y., Lee, C.-Y., & Wang, X. (2017). A qualitative exploration of perceived barriers to building information modeling (BIM) implementation. *Journal of Engineering, Design and Technology*, 15(6), 732-743.
10. Cohen, L. Manion, L and Morrison, K. (2018). *Research Methods in Education*. (8 ed.). Routledge: New York.
11. Elizabeth Cordosa. (2023). Shah Alam - Selangor's Capital City. Retrieve by July 02, 2024, from: <https://www.bfm.my/podcast/night-shift/i-love-kl/shah-alam-selangors-capital-city>
12. Foo, K. (2018). Environmental sustainability: Practical solutions to complex issues. *Sustainability*, 10(1), 15.
13. Ghazali, E. M., Ngiam, E. Y. L., & Mutum, D. S. (2020). Elucidating the drivers of residential mobility and housing choice behaviour in a suburban township via push–pull–mooring framework. *Journal of Housing and the Built Environment*, 35, 633-659. <https://doi.org/10.1007/s10901-019-09705-8>

14. Hamid, S., Mat Isa, C. M., N Felix, S., & Mustaffa, N. K. (2020). Sustainable management using recycle and reuse of construction waste materials in Malaysia. *ESTEEM Academic Journal*, 16, 47-58. <https://ir.uitm.edu.my/id/eprint/33244/>
15. Ibrahim, F. A., Mohd Shafiei, M. W., Ismail, R., & Said, I. (2014). Green homes development: Factors affecting housing developers' readiness. *ARNP Journal of Engineering and Applied Sciences*, 9(6), 971-980. https://www.researchgate.net/publication/278938413_Green_homes_development_Factors_affecting_housing_developers'_readiness#fullTextFileContent
16. Klarin, T. (2018). The Concept of Sustainable Development: From its Beginning to the Contemporary Issues. *Zagreb International Review of Economics and Business*, 21(1), 67-94. <https://doi.org/10.2478/zireb-2018-0005>
17. [Kiriveldeniya, K., Adikaram, W. A. M. K., Hansika, S., Malkanthi, S., & Sivashankar, P. \(2024\). Nexus of sustainable development goals and environmental sustainability in achieving climate resilient Kiriveldeniya sustainable development: Perspectives from the developing world. YSF Thematic Publication 2024, 326.](#)
18. [Komolafe, M. O., Oyewole, M. O., & Gbadegesin, J. T. \(2020\). Stakeholders' relevance in sustainable residential property development. Smart and Sustainable Built Environment, 9\(2\), 112-129. https://doi.org/10.1108/SASBE-07-2019-0094](#)
19. Navaneethan, P. (2023). *The factors influencing homebuyers' perspectives towards eco-friendly housing* (Doctoral dissertation, UTAR). http://eprints.utar.edu.my/6243/1/UKMZ3036_FYPReport_NAVANEETHAN.pdf
20. [Nyimbili, F., & Nyimbili, L. \(2024\). Types of Purposive Sampling Techniques with Their Examples and Application in Qualitative Research Studies. British Journal of Multidisciplinary and Advanced Studies, 5\(1\), 90-99. https://doi.org/10.37745/bjmas.2022.0419](#)
21. Osaily, N. (2018). The key Barriers to Implementing Sustainable Construction in West Bank - Palestine Submitted in Fulfillment. December. <https://doi.org/10.13140/RG.2.2.14078.43847>
22. Population Hub (2022) Population of Shah Alam. Retrieved July 02, 2024, from: <https://populationhub.com/en/my/population-of-shah-alam-6888.html>
23. Rasli, F. N., & Kanniah, K. D. (2018). Green corridors for liveable and walkable city: a case of Kuala Lumpur. *Chemical Engineering Transactions*, 63, 391-396.
24. Razali, M. N., Md. Yunus, N., Zainudin, A. Z., & Lee Yim Mei, J. (2017). Sustainable property development by Southeast Asian property companies. *Property Management*, 35(1), 109-126. <https://doi.org/10.1108/PM-01-2015-0004>
25. Sood, S.M., Chua, K.H. and Peng, L.W. (2011), "Sustainable development in the building sector: green building framework in Malaysia", Proceeding 15th International Conference on ISO and TQM, UNITEN Kajang, Kajang, 26-28 July, available at: Retrieve by July 02, 2024, from: www.uniten.edu.my/newhome/uploaded/admin/research/centres/iepre/papers/Sustainable%20Development%20in%20the%20Building%20Sector%20Green%20Building%20Framework%20in%20Malaysia.pdf
26. [Sharma, V. \(2024\). Integrating renewable energy with building management systems: Pathways to sustainable infrastructure. Journal of Waste Management & Recycling Technology, 2\(1\).](#)

27. Sukereman, A. S., Saidi, S. Y. N., Sulaiman, M. A., Azmi, N. A., & Zainol, N. N. (2024). The Significance of Transit-Oriented Development (TOD) Towards The Enhancement Of Public Transportation Ridership. *Planning Malaysia*, 22. <https://planningmalaysia.org/index.php/pmj/article/view/1466>
28. Tan, Y. (2019). Public Participation in Sustainable Urban Planning: Lessons from Singapore and Malaysia. *Journal of Urban Planning and Development*, 145(4), 04019023.
29. Tang, Y. Y., Slimani, Y., Al-Ghazal, M. A., Talukdar, G., & Maharjan, A. K. (2023). Sustainable Urban Development in Malaysia: Enhancing Green Roofs with Integrated Technologies. *Civil and Sustainable Urban Engineering*, 3(2), 148-162. <https://tecnoscientifica.com/journal/csue/article/view/335>
30. Urbanice Malaysia and MBSA (2021). Voluntary Local Review 2021 – The implementation of 2030 Agenda for Sustainable Development in Shah Alam City. Retrieved July 02, 2024, from: https://sdgs.un.org/sites/default/files/202106/Shah_Alam_SDG_VLR2021_Final_0.pdf
31. Urbanice (2022). Malaysia SDG Cities. Retrieve July 05, 2024 from: https://unhabitat.org/sites/default/files/2021/07/malaysia_sdg_cities_booklet-2.pdf
32. Williams, K., & Dair, C. (2007). What is stopping sustainable building in England? Barriers experienced by stakeholders in delivering sustainable developments. *Sustainable Development*, 15(3), 135–147. <https://doi.org/https://doi.org/10.1002/sd.308>
33. World Commission on Environment and Development (WCED) (1987). *Our Common Future*. Oxford: Oxford University Press in Mazijn, B. (2024). Policy implications. In *Handbook on Life Cycle Sustainability Assessment* (pp. 327-342). Edward Elgar Publishing.
34. Yigitcanlar, T., Dizdaroglu, D., & Kamruzzaman, M. (2015). Planning for sustainable urban futures in the Asia-Pacific. *City, Culture and Society*, 6(2), 56-72.