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EXPLORING ISSUES AND ENHANCING SUSTAINABILITY: AFFORDABLE HOUSING DYNAMICS IN MALAYSIA

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Abstract

This study delves into the issues of affordable housing and elements influencing the sustainability of affordable housing, with a specific focus on the Malaysian context. The primary objective is to identify the issues associated with affordable housing in Malaysia, as well as to determine the elements crucial for enhancing sustainability in the housing sector. A quantitative method using a questionnaire survey was conducted involving three groups of respondents: building designers, facility managers, and GBI facilitators. The research employed the Kruskal Wallis statistical analysis method and Importance Index Calculation as the key methodologies. Two significant findings emerged from the study. Firstly, the issues related to 'location and accessibility' and 'financing challenges' were identified as critically important, shedding light on the obstacles faced in these domains. Secondly, the elements of 'adaptability and upgradability' and 'location and accessibility' were highlighted as pivotal contributors to the sustainability of affordable housing in Malaysia. These findings provided valuable insights for policymakers, urban planners, and stakeholders in addressing key issues and promoting sustainable practices in the realm of affordable housing.

Keywords: Issues, Elements, Sustainability, Affordable Housing

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INTRODUCTION

Housing is a crucial aspect of modern life, not merely because of its cost but also because of its connection to various urban challenges. It helps residents maintain economic stability, cope with climate change, and address urban violence issues (Vale and Shamsuddin, 2014). Those with limited income often end up in poor housing, as claimed by Wahi et al. (2018) and Abdullahi & Aziz (2011). The Malaysian government is actively committed to low-income housing (Eng, 2023; Almeida & Cheah, 2017). In recent years, significant growth has been witnessed in affordable housing to meet the needs of the population, with units priced affordably to ensure accessibility for low-income individuals (Ling, 2017; Abdullahi & Aziz, 2011). Government initiatives support the efficient and widespread availability of housing for all citizens. According to Eng (2023) and Ling (2017), this reflects the increasing focus on sustainability in the Malaysian housing sector.

Affordable Housing in Malaysia

Affordable housing in Malaysia is designed for the lower-income population segments, including B40, M40, and T20 groups (Eng, 2023; Romeli, 2023). Romeli (2023) and KPKT (2022) asserted that within the B40 group, there are 3.16 million households earning less than RM5,250. To address housing needs, especially for the financially limited (B40), the Malaysian government has implemented various initiatives and programs outlined by KPKT (2022). These schemes are listed on the MyGov portal as of January 2:

a) Perumahan Penjawat Awam Malaysia (PPAM)
b) PR1MA
c) Federal Territory Malaysia Home/ RUMAWIP
d) MyHome
e) My Selangor Home

The 12th Malaysia Plan (12MP) oversees Malaysia's growth until 2025, prioritizing affordable and sustainable housing in the face of urbanization challenges. However, there are apprehensions over the equilibrium of economic, social, and environmental considerations in these undertakings. This research aims to understand and enhance the sustainability of affordable housing within the 12MP, providing practical suggestions for policymakers, planners, and communities.

LITERATURE REVIEW

This section explores the issues and factors that influence the sustainability of affordable housing.

Issues of Affordable Housing

In Malaysia, across many other nations, affordable housing encounters distinct obstacles shaped by the local context. Several challenges related to affordable housing encompass the following:

Table 1: Issues of Affordable Housing

No.	Issues	Elaboration	Authors
1.	Location and Accessibility	Affordable housing projects are often located far from cities and jobs, making it hard for residents to find work and access essential services.	Romeli, 2023; Wahi et al., 2018; Almeida & Cheah, 2017; Ling, 2017; Bakhtyar et al., 2013; Sulaiman et al., 2016
2.	Urbanization and Land Costs	Increasing urbanization in Malaysia has raised land costs, making it hard to build affordable housing in desirable areas. Additionally, finding suitable land for affordable housing in cities is challenging.	Romeli, 2023; Wahi et al., 2018; Almeida & Cheah, 2017; Ling, 2017; Sulaiman et al., 2016; Vale et al., 2014
3.	Community Amenities	Lack of quality schools and healthcare affects residents' well-being. Inadequate parks and recreational areas also lower the quality of life in these communities.	Wahi et al., 2018; Sulaiman et al., 2016; Vale et al., 2014; Goh et al., 2013; Abdullahi et al., 2011
4.	Infrastructure and Utilities	Some affordable housing lacks proper roads, water, and sanitation, affecting living conditions. Utilities like electricity and water can also be inconsistent or insufficient.	Eng, 2023; Romeli, 2023; Wahi et al., 2018; Almeida & Cheah, 2017; Ling, 2017; Bakhtyar et al., 2013
5.	Construction and Quality Issues	Rising costs of materials and labor make affordable housing less affordable. Cost-cutting measures can also compromise construction quality, affecting the durability and safety of the units.	Romeli, 2023; Wahi et al., 2018; Bakhtyar et al., 2013; Sulaiman et al., 2016; Goh et al., 2013; Abdullahi et al., 2011
6.	Social Stigma	Affordable housing projects may face social stigma, influencing the community's perception and creating challenges for residents to integrate into society.	Xingrui & Ibrahim, 2024; Almeida & Cheah, 2017; Ling, 2017; Vale et al., 2014; Bakhtyar et al., 2013
7.	Financing Challenges	Low-income individuals may struggle to get loans or mortgages for affordable housing. Even with financing options, high interest rates can make homeownership difficult for them.	Eng, 2023; Romeli, 2023; Almeida & Cheah, 2017; Ling, 2017; Bakhtyar et al., 2013; Sulaiman et al., 2016
8.	Government Policies and Regulations	Strict zoning laws can hinder affordable housing development and limit construction. Approval delays and bureaucratic hurdles can also slow down these projects.	Romeli, 2023; Almeida & Cheah, 2017; Ling, 2017; Wahi et al., 2018; Sulaiman et al., 2016; Vale et al., 2014
9.	Supply and Demand Mismatch	The need for affordable housing may exceed what is available, causing a shortage. Also, the designs and types of	Almeida & Cheah, 2017; Ling, 2017; Sulaiman et al., 2016; Vale et al., 2014;

No.	Issues	Elaboration	Authors
		affordable housing may not always match what people need, leading to mismatches in supply and demand.	Bakhtyar et al., 2013; Goh et al., 2013; Abdullahi et al., 2011

Addressing these challenges in Malaysia requires a concerted effort from the government, private sector, and civil society to develop holistic and sustainable solutions for affordable housing. This may involve revising policies, fostering public-private partnerships, and implementing community development programs to enhance the overall quality of affordable housing.

Elements that contribute to the sustainability of affordable housing.

The concept of sustainable development in Malaysia is in its initial phases (Ramli, 2023; Zainol, 2023). Despite Malaysia initiating its environmental policy efforts ahead of many developing nations, the sustainability agenda is a relatively recent addition to the Malaysian policy framework (Ramli et al., 2019). Achieving sustainable development in affordable housing involves integrating social, economic, and environmental considerations, aligning with the principles of the Triple Bottom Line (TBL). The sustainability of affordable housing involves various elements that address economic, social, and environmental considerations. Here are crucial elements that contribute to the sustainability of affordable housing:

Table 2: Elements that contribute to the sustainability of affordable housing.

No.	Elements	Elaboration	Authors
Social			
1.	Community Infrastructure	Developing adequate roads, water supply, sanitation, and recreational spaces to enhance community well-being.	Jian and Huay Ying, 2021; Samsons, 2018; Au Yong et al., 2019; Ebekozien et al., 2018b
2.	Social Integration	Promoting a sense of community and inclusion within affordable housing projects to address social issues and improve residents' overall quality of life.	Xingrui & Ibrahim, 2024; Au-Yong et al., 2018; Noraziah et al., 2018; Ahmad Ezanee et al., 2015
3.	Mixed-Income Communities	Integrating diverse housing types to create economically mixed communities, reducing the concentration of poverty and fostering social diversity.	Jian and Huay Ying, 2021; Wan Sumayyah et al., 2018; Ahmad Ezanee et al., 2015; Rima & Davies, 2011
4.	Community Engagement	Encouraging the involvement of residents in the decision-making processes and community development initiatives to empower them and build a sense of ownership.	Olanrewaju et al., 2021; Olanrewaju et al., 2018; Rima & Davies, 2011

No.	Elements	Elaboration	Authors
5.	Supportive Services	Providing essential services like education, healthcare, and vocational training within or near affordable housing developments.	Jian and Huay Ying, 2021; Olanrewaju et al., 2021; Samsons, 2018; Au Yong et al., 2019; Ebekozien et al., 2018b
6.	Legal Security of Tenure	Ensuring residents have legal rights to their homes, providing security of tenure, and protecting against forced eviction.	Wan Sumayyah et al. 2018; Olanrewaju et al., 2021; Ahmad Ezanee et al., 2015
Economic			
1.	Affordability	Ensuring that the cost of acquiring and maintaining affordable housing remains within the financial means of the target population.	Noraziah et al., 2018; Zaid and Graham, 2017; Olanrewaju et al., 2018; REHDA report, 2016; Yap and Ng, 2018; Che Ani et al., 2011
2.	Financial Inclusion	Facilitating access to financial services and homeownership programs that empower low-income individuals to purchase and sustain their homes.	Olanrewaju et al., 2021; Noraziah et al., 2018; Yap and Ng, 2018; Au-Yong et al., 2018; Noraziah et al., 2018; Ahmad Ezanee et al., 2015
3.	Adaptability and Upgradability	Designing housing units that can be easily adapted or upgraded over time to meet changing needs and accommodate improvements in living standards.	Olanrewaju et al., 2021; Pleshivcev, 2019; Seshadhri and Kumar Paul, 2018; Fallahi, 2017; Chan and Adabre, 2019
4.	Government Policies and Support	Implementing supportive government policies and initiatives that encourage the development and sustainability of affordable housing.	Wan Sumayyah et al., 2018; Olanrewaju et al., 2018; REHDA Report, 2016
Environmental			
1.	Energy Efficiency	Incorporating energy-efficient design and technologies to reduce utility costs for residents and minimize the environmental impact of housing units.	Wan Sumayyah et al., 2018; Samsons, 2018; Seshadhri and Kumar Paul, 2018; Fallahi, 2017; Chan and Adabre, 2019
2.	Green Material and Practice	Using eco-friendly construction practices and materials to reduce the environmental footprints of affordable housing developments.	Zaid and Graham, 2017; Olanrewaju et al., 2018; REHDA Report, 2016; Yap and Ng, 2018; Che Ani et al., 2011
3.	Location and Accessibility	Strategic placing of affordable housing in accessible locations with proximity to employment opportunities, public transportation, and essential services to minimize environmental impact.	Jian and Huay Ying, 2021; Wan Sumayyah et al., 2018; Ahmad Ezanee et al., 2015; Rima & Davies, 2011; Che Ani et al., 2011

No.	Elements	Elaboration	Authors
4.	Quality of Construction	Ensuring that construction adheres to high-quality standards, providing durable and safe living spaces for occupants.	Jian and Huay Ying, 2021; Winkler et al., 2001; Olanrewaju et al., 2018; REHDA report, 2016; Ahmad Ezanee et al., 2015
5.	Technology and Innovation	Embracing technological advancements and innovative construction methods to enhance efficiency, reduce costs, and improve the overall sustainability of affordable housing.	Olanrewaju et al., 2021; Zaid and Graham, 2017

RESEARCH METHODOLOGY

The research methodology involved several processes, which consisted of a literature review, reliability test, and the main survey, as illustrated in Figure 1

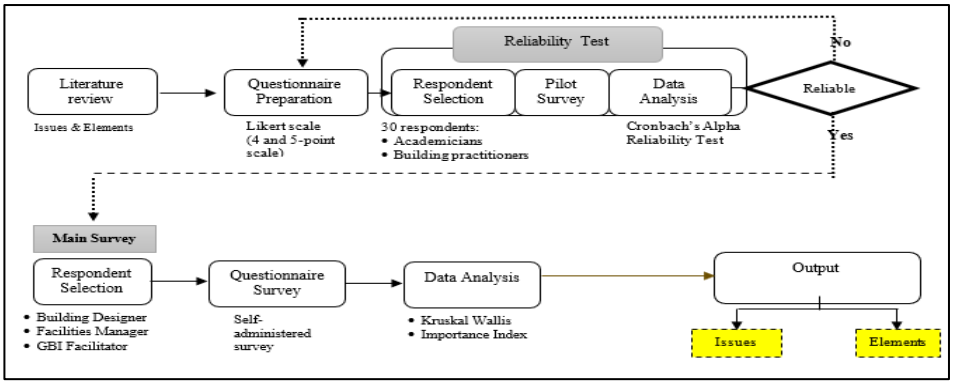

Figure 1: Research Diagram

Literature Review

A literature review is a detailed analysis of research on a topic involving reading the review of theses, books, journals, and other sources pertaining to the area of study. Researchers use it to learn about affordable housing issues in Malaysia and globally. The information provided enhances their comprehension of the issue, facilitates problem identification, aids solution discovery, and addresses research questions. Tables 1 and 2 outline the concerns and components associated with affordable housing.

Reliability Test

A pilot survey is preliminary research undertaken before the main survey to evaluate methods, data collection instruments, sample recruitment strategies, and other methodologies. It assists in identifying shortcomings and limitations in the selected research tools. Cronbach's alpha, frequently employed with Likert-type scales, was chosen to test the reliability in this study, as it is widely utilized in social science research to evaluate instrument reliability (Gliem & Gliem, 2003; Hassan, 2006).

Main Survey

The study collected data from three groups: Building Designers, Facilities Managers, and GBI Facilitators, to understand sustainability in affordable housing. These groups were selected for their roles in designing and maintaining buildings. Using Gill et al.'s (2010) formula with a 95% confidence level and 5% margin of error, respondents were contacted via telephone and email for their consent before receiving the questionnaires. The required sample sizes and response rates for each group are shown in Table 4.

Table 3: Total population from the three groups of respondents

No	Population Group	Total Population	Number of Samples	Approval Rate	Returned Questionnaire
1.	Building Designers (Registered with BAM)	2547	322	163	113
2.	Facilities Managers (Registered with MAFM)	30	30	27	21
3.	GBI Facilitators (GBI website)	932	260	122	94
	TOTAL	**3502**	**612**	**312**	**228**

RESULT ANALYSIS AND DISCUSSION

The analysis of the data addresses the significance of factors influencing sustainability in affordable housing and the degree to which these factors are implemented in the affordable housing project.

Reliability Test Cronbach Alpha

The Cronbach's Alpha reliability test was conducted to identify the reliability of the responses obtained for each of the issues and elements listed in the questionnaire. The result of the reliability test is shown in Table 5 and Table 6.

Table 4: Reliability statistics for the issues of affordable housing.

Cronbach's Alpha	N of Items
0.899	9

Table 5: Reliability statistics for the elements contributing to sustainability in affordable housing.

Cronbach's Alpha	N of Items
0.921	15

The Cronbach's Alpha Reliability Test shows that the scale is reliable, with an alpha value of more than 0.70. This suggests that all the issues and elements are statistically reliable, and the questionnaire can be used for the main data collection.

Kruskal Wallis Nonparametric Test

The Kruskal Wallis Nonparametric test was performed to identify the difference of opinions among the three groups of respondents (building designer, facilities manager, GBI facilitator) on issues and elements contributing to sustainability in affordable housing. The results of the Kruskal Wallis Nonparametric test are shown in Table 7 and Table 8.

Table 6: Kruskal Wallis nonparametric test (Issues of affordable Housing)

No.	Issues	Asymp. Sig.
1.	Location and Accessibility	0.312
2.	Urbanization and Land Costs	0.114
3.	Community Amenities	0.434
4.	Infrastructure and Utilities	0.296
5.	Construction and Quality Issues	0.298
6.	Social Stigma	0.134
7.	Financing Challenges	0.400
8.	Government Policies and Regulations	0.213
9.	Supply and Demand Mismatch	0.277

Table 7: Kruskal Wallis nonparametric test (elements contributing to sustainability in affordable housing)

No.	Elements	Asymp. Sig.
1.	Community Infrastructure	0.175
2.	Social Integration	0.109
3.	Mixed-Income Communities	0.221
4.	Community Engagement	0.298
5.	Supportive Services	0.271
6.	Legal Security of Tenure	0.313
7.	Affordability	0.113
8.	Financial Inclusion	0.245
9.	Adaptability and Upgradability	0.362
10.	Government Policies and Support	0.105

No.	Elements	Asymp. Sig.
11.	Energy Efficiency	0.323
12.	Green Material and Practice	0.412
13.	Location and Accessibility	0.211
14.	Quality of Construction	0.453
15.	Technology and Innovation	0.324

The result of the Kruskal Wallis Nonparametric test showed no significant difference in mean ranking based on the *p*-value being less than 0.05. This indicates that there is no significant difference of opinion among the three groups of respondents on all issues pertaining to affordable housing in Malaysia and elements contributing to sustainability in affordable housing in Malaysia.

Importance Index Calculation

The importance index calculation was conducted using the important index formula, which provides the important value for each of the issues and elements of sustainability in affordable housing. However, the importance index value (I.I. Value) should be weighed against the value of standard deviation (SD) to identify the level of importance of each issue and element. According to Zainol (2016), the level of importance can be separated into four categories: very important, important, somewhat necessary, and least important. Table 9 presents the indicators of the types of relevance.

Table 8: Importance Level Categories (Source: Zainol, 2016)

Category	Indicator
Very Important	I. I. Value more than one SD above the mean
Important	I.I. Value is between the mean and the one SD above the mean
Somewhat Important	I.I. Value is between the mean and the one SD below the mean
Least Important	I.I. Value less than one SD below the mean

The results of the importance index calculation for issues of affordable housing are presented in Table 10 below.

Table 9: Importance index calculation for issues of affordable housing.

No.	Issues of affordable housing	Importance Index Value (I.I Value)	Level of Importance
1.	Location and Accessibility	1.021	Very Important
2.	Urbanization and Land Costs	0.827	Somewhat Important
3.	Community Amenities	0.832	Somewhat Important
4.	Infrastructure and Utilities	0.851	Somewhat Important
5.	Construction and Quality Issues	0.792	Somewhat Important

No.	Issues of affordable housing	Importance Index Value (I.I Value)	Level of Importance
6.	Social Stigma	0.693	Least Important
7.	Financing Challenges	1.103	Very Important
8.	Government Policies and Regulations	0.989	Important
9.	Supply and Demand Mismatch	0.774	Somewhat Important
	Mean Importance Index	= 0.876	
	Standard Deviation	= 0.132 (1SD below Mean=0.744, 1SD above Mean=1.008)	

Financing Challenges

Addressing financing challenges in affordable housing is crucial because low-income individuals face significant obstacles in securing stable housing. These challenges include difficulties in obtaining loans due to strict criteria set by financial institutions, as highlighted by Eng (2023). Many low-income families could not meet the high credit score requirements, forcing them into less favorable options like subprime loans with higher interest rates (Eng, 2023). Romeli (2023) indicated that, notwithstanding financing, elevated interest rates augment monthly payments, complicating stability for low-income homes. This frequently results in elevated fail-to-pay rates, perpetuating a cycle of indebtedness.

Furthermore, the lack of affordable financing options forces low-income families into substandard housing (Almeida and Cheah, 2017). Ling (2017) argued that limited access to housing financing prevents low-income families from accumulating assets, perpetuating poverty and limiting social mobility. Policy interventions can facilitate the low-income group by introducing inclusive lending practices and government-backed loan guarantees. Strengthening tenant protections and increasing affordable rental options are also crucial. Overall, addressing financing challenges is essential for equitable access to housing (Eng, 2023; Romeli,2023; Almeida and Cheah (2017); and Ling (2017).

Location and Accessibility

Addressing location and accessibility issues in affordable housing is crucial because placing such housing in remote or poorly connected areas poses significant challenges to the residents. This situation can perpetuate poverty and social exclusion among low-income individuals.

One major problem with locating affordable housing in remote areas is that it creates limited access to job opportunities, as highlighted by Romeli (2023). Long commutes consume time and money, reducing time for family, education, and community activities. It also adds financial strain to low-income families. Moreover, being far from urban amenities like healthcare and education

services can negatively impact residents' quality of life (Wahi et al., 2018). This can lead to poorer health and educational outcomes.

According to Ling (2017), the location of affordable housing also affects social inclusion and community engagement, Remote locations can lead to social isolation, diminishing the sense of community and belonging. Furthermore, placing affordable housing in less desirable areas can reinforce negative stereotypes and stigmatization of low-income individuals, creating further barriers between socio-economic groups. Strategically locating affordable housing near urban centers can mitigate these issues by providing easier access to jobs and urban amenities, improving residents' economic prospects and overall quality of life.

In conclusion, addressing location and accessibility issues in affordable housing is essential for fostering social and economic inclusivity. Research conducted by Romeli (2023), Wahi et al. (2018), and Ling (2017) underscored the importance of strategic placement in creating equitable communities.

Table 10: Importance index calculation for elements that contribute to sustainability through housing

No.	Elements that contribute to sustainability through affordable housing	Importance Index Value (I.I Value)	Level of Importance
1.	Community Infrastructure	0.875	Somewhat Important
2.	Social Integration	0.809	Somewhat Important
3.	Mixed-Income Communities	0.721	Least Important
4.	Community Engagement	0.798	Somewhat Important
5.	Supportive Services	0.871	Somewhat Important
6.	Legal Security of Tenure	0.803	Somewhat Important
7.	Affordability	0.913	Somewhat Important
8.	Financial Inclusion	0.945	Important
9.	Adaptability and Upgradability	1.062	Very Important
10.	Government Policies and Support	0.905	Somewhat Important
11.	Energy Efficiency	0.923	Important
12.	Green Material and Practice	1.012	Important
13.	Location and Accessibility	1.211	Very Important
14.	Quality of Construction	0.953	Important
15.	Technology and Innovation	0.924	Important
	Mean Importance Index	= 0.915	
	Standard Deviation	= 0.119 (1SD below Mean =0.796; 1SD above Mean =1.034)	

Incorporating adaptability and upgradability into affordable housing design is crucial for long-term sustainability and resilience. Adaptability allows housing units to easily adjust to changing needs, like family growth or lifestyle shifts. Flexible floor plans and movable partitions can enhance the functional lifespan of housing (Samsons, 2018). This approach supports varied family

structures and evolving lifestyle requirements, such as remote work or multi-generational living (Seshadhri & Kumar Paul, 2018). Designing homes with adaptability ensures they remain relevant and useful, promoting social sustainability. Upgradability focuses on integrating new technologies and meeting updated safety, efficiency, and environmental standards. Housing that can incorporate new systems like energy-efficient heating or smart home technologies, as noted by Pleshivcev (2019) and Fallahi (2017), extends its operational life and reduces environmental impact. By considering adaptability and upgradability, affordable housing can create resilient communities that thrive in changing conditions.

Seshadhri and Kumar Paul (2018) argued that integrating affordable housing into well-connected urban areas supports the creation of inclusive communities, enhancing social integration and unity. Hence, it is imperative to ensure that the sustainability of affordable housing is closely linked to location and accessibility. Placing housing projects near urban centers and essential services is crucial for several reasons. Proximity to job markets and amenities like healthcare and education makes it easier for residents to access employment opportunities and necessary services, reducing the financial burden on low-income households (Chan and Adabre, 2019). Moreover, strategically located housing minimizes transportation-related impacts by reducing the need for long travels, lowering greenhouse gas emissions, and promoting sustainable transportation options like public transit, walking, and cycling, as highlighted by Samsons (2018). Focusing on location and accessibility ensures that affordable housing contributes to economic viability, social inclusion, and environmental sustainability, creating resilient communities for the future.

CONCLUSION

In conclusion, the sustainability of affordable housing is intricately tied to various issues, and key elements should be incorporated into the design and implementation of such projects. Financing challenges, adaptability, upgradability, and the strategic consideration of location and accessibility are paramount factors influencing the long-term viability of affordable housing solutions. By tackling financing obstacles, we pave the way for increased accessibility and affordability, making homeownership a reality for low-income individuals. Moreover, designing housing units with adaptability and upgradability ensures that they remain relevant and meet evolving needs over time. Finally, the strategic choice of location, emphasizing accessibility to urban centers and services, not only enhances the quality of life for residents but also contributes to the overall sustainability of affordable housing by fostering social inclusion and minimizing environmental impacts. A holistic approach that addresses these multifaceted issues and elements is essential for creating resilient, inclusive, and sustainable affordable housing solutions that stand the test of time.

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