

Natural Amenities Preference in Condominium Selection Based on Real Estate Agent's Perspective in Penang

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ABSTRACT

The literature often discusses natural amenities in the context of tourism and recreation. Still, it gives less attention to their importance in choosing a place to live, which is crucial for enhancing the quality of life. This study aims to prioritise the natural amenities in Penang that attract residents. The research considers the perspectives of experienced real estate agents with extensive local property knowledge. Using a quantitative method, the study filtered about 60 questionnaires to determine the Relative Importance Index (RII) of natural amenities from the real estate agent's perspective, as it heavily influences condominium selection in Penang. The results show that the beach or sea is the most preferred natural amenity for a condominium in Penang, followed by lakes, natural forests, mountains or hills, and rivers. Additionally, the study utilises inter-correlation analysis to understand the strengths and directions of each preference and comprehend the relationship between them. The practical implications of these findings are significant for policymakers, offering valuable insights for creating sustainable development guidelines and policies to ensure a balance of fulfilling urban needs and maintaining environmental quality. For individuals interested in sustainable living and urban development in Penang, these findings provide a roadmap for making residential choices that align with market preference and contribute to the overall sustainability of the region.

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INTRODUCTION

Natural amenities (NA) such as parks, green spaces, water bodies, and scenic views are conceived as place-based or natural resource attributes that are not merely aesthetic additions to urban environments but also provide local benefits to people or firms (Schaeffer & Dissart, 2018). Natural resources such as air, water, topography, soil, and forests are also part of natural amenities, which provide essential living qualities to improve microclimate, balancing biodiversity and health promotion (Cooper et al., 2024; Department of Conservation, 2015; Halkos et al., 2020; Stromberg et al., 2021). Importantly, these amenities also play a significant role in economic development, particularly in the selection of settlement locations, housing prices, and the marketing of recreational and tourism industries (Muslim et al., 2018; Sabaruddin et al., 2023). Research has consistently shown that access to natural amenities contributes to physical health by encouraging outdoor activities, reducing stress, and improving overall well-being (Halkos et al., 2020; Stromberg et al., 2021). Green spaces provide respite from the concrete jungle, offering residents a place to relax, exercise, and connect with nature, fostering mental and emotional health (Schaeffer & Dissart, 2018; Stromberg et al., 2021). Thus, sustaining natural resources as amenities for well-being is important.

Although natural amenities are essential, maintaining sustainable ones is quite challenging, especially in a place where they experience rapid development caused by urbanisation (John V & Yu, 2015). This happened worldwide due to the growth of demand and population (Chen & Wang, 2013; John V & Yu, 2015; Tuofu et al., 2022). A few studies evidenced that natural amenities do influence Malaysians' decision-making since they offer attraction and empowerment in many ways, such as in tourism industries, urban heritage, and social interaction studies (Connolly, 2022; Ellmy et al., 2023; Muslim et al., 2018; Mohamed et al., 2004). However, limited studies have been conducted in Malaysia regarding prioritizing natural amenities, especially those related to property demand in Malaysia's dense urban areas. Hence, this study tries to fill this gap by providing empirical results on natural amenities preferences among dwellers of Malaysia's urban areas.

In common practice, the buyer seeks and gains some advice from the real estate agent who helps other people find the property, whether on behalf of the buyer or the seller, to find a property that meets the requirements of a potential buyer's condominium preferences (Manaf et al., 2018). In Malaysia, a real estate agent acts for the vendor (or Landlord or Lessor) and the purchaser (or Tenant or Lessee) (BOVAEP, 2020). The Malaysian Institute of Estate Agents (MIEA) is the recognised body representing all Registered Estate Agents. An agent is more aware of the tastes and requirements of the buyer and has firsthand knowledge of competitive values. According to the Valuers, Appraisers And Estate Agents Act 1981 (2018), the law only allows registered estate agents, negotiators, and property owners to handle real estate transactions. Therefore, their perspective of natural amenities preferences can be seen as a collective opinion based on the market's trend.

This paper will assess the intensity and direction of linear relationships between variables associated with the rank of importance preference for natural amenities. This analysis will provide insights into the relationship between two continuous preferences for natural amenities. It is important to note that the characteristics of one preference may influence the other based on how people enjoy these amenities. A solid and positive relationship between two preferences might indicate a mutual relationship in enjoying the benefits based on the natural amenities offered.

The result of this research utilises the Relative Importance Index (RII), an analytical tool, to identify and rank the natural amenities most valued by prospective condominium buyers. The RII allows for a systematic and quantitative assessment of preferences, providing clear insights into the relative importance of each amenity. The interplay between urban development and the preservation of natural spaces creates a dynamic environment where the importance of natural amenities cannot be overlooked. By examining

buyer preferences through the estate agents' lens of the RII, this study offers valuable perspectives that can guide future housing development schemes in ensuring they meet the needs and desires of the market.

Natural Amenities Preference

Natural amenities have significantly influenced people in many aspects, for instance, in tourism selection, social life interaction, and satisfaction posited to affect individual well-being (Chen & Wang, 2013; John V & Yu, 2015; Muslim et al., 2018). The natural amenities also contribute to house selection, especially in urban areas (Su et al., 2021; Tuofu et al., 2022).

Several studies in Malaysia have empirically proven that natural amenities do influence people in choosing a house (Salleh et al., 2015; Sohaimi et al., 2022; Samad et al., 2020; Zuroni et al., 2012). However, the pleasantness of natural amenities is majorly attributed to the increment in house prices (Fattah et al., 2018). People sometimes prioritise amenities based on cost savings when purchasing a house. An expensive condominium is almost unconditional in urban areas, where people can also experience multiple natural resources (e.g., beaches, natural forests, natural lakes, mountains or hills, rivers) together with urban amenities.

Penang Island has a bustling urban landscape where the choice of residential properties is heavily influenced by various factors such as fulfilling the living of urban life and maintaining living quality; thus, natural amenities play a significant role. Integrating natural amenities into residential planning is critical in maintaining the city's liveability and appeal. As critical residential spaces in this dense area, the demand for condominiums continues to rise, and understanding the preferences of potential condominium buyers becomes crucial for developers and urban planners. This study aims to delve into these preferences, explicitly focusing on the relationship between preferences and ranking types of natural amenities in decision-making among dwellers, especially in condominium selection in this vibrant city.

Beach, Coastline, and Seaview

Living on an island offers the advantage of being surrounded by natural water bodies. Ling (2022) revealed that living near these areas for easy access can significantly increase property premiums. Living near the beach can provide peaceful relaxation, even without social or recreational activities. The scenic beauty of water bodies and the tranquil atmosphere created by viewing the sunset or sunrise bring peace to the dwellers. However, there is still a risk of living near the coastline that might lead to disamenities value due to the risk of coastal erosion or flood (Catma, 2021).

Rivers

Urban rivers in densifying cities represent desirable urban development and/or redevelopment areas. It is generally agreed that recreational access (proximity) and pleasant visual exposure (visibility) to urban rivers can increase property prices as favourable environmental amenities. Unfortunately, Chen et al. (2019), found that urban rivers potentially bring amenities and disamenities values, ranging from -12.2% to 63.58% in house price premiums. The reason for disamenities might be the risk of floods or pollution (Li et al., 2020). The polluted urban rivers potentially create adverse environmental impacts, leading to property devaluation.

Natural Forest

According to Nor et al. (2021), the rapid expansion of urban areas worldwide has led to a substantial reduction in green spaces within cities. As urbanization advances, these green areas have become fragmented, less interconnected, and unequally distributed throughout the urban landscape. However, Samad et al. (2020) proved that a positive relationship occurred between house prices and natural urban forests. Thus, proximity to natural forests can be related to the house selection location.

Mountains or Hills

Salleh et al. (2015), mentioned that limited flat areas caused property developers in Malaysia to begin exploring and developing hillside areas. They also agreed that hillside property is popular among high-income people who value privacy and prestige, which significantly impacts the price of a house. It is essential to carefully consider the balance between meeting the current needs and desires of the occupants and ensuring the potential for future improvements. Thus, we investigated whether mountains or hills would rank well in the importance index according to the Penang property market.

Lakes

The lake provides nice and calm scenery for the dwellers. However, this might not be appreciated in some regions but treated differently in some other regions as shown by the western and eastern region of Great Lake, US (Colwell & Dehring, 2005; Stephens & Partridge, 2012). The lake amenities are likely to be preferred for short activities such as tourism or recreational activities rather than residential (Norhidayah et al., 2022). Hence, we will also explore the level of preference for the lake within the Timur Laut District residential preferences from the lens of estate agents.

METHOD AND MATERIAL

The methodology of this study is simplified, as shown in Fig. 1. It involved four (4) main stages, starting with a background review and pre-observation involving the identification of natural amenities preferences via visual observation of Timur Laut District in Penang Island.

Secondly, purposive sampling is used with a self-administered questionnaire for data collection. The questionnaires underwent a review by an academic expert specialising in urban economics. The respondents are chosen from the backgrounds of real estate agents, negotiators, or property marketers. The selected respondents had experience in Penang's condominium market over the past five (5) years and are assumed to understand potential buyers' or investors' current preferences and demands. Out of 74 surveys that were answered, 60 were selected for analysis because the respondents had the required experience. A set of quantitative questionnaires using a five-point Likert scale is employed in the survey for respondents to express their opinions on current market demand.

For the third phase, the data are analysed by checking the internal consistency using a reliability test for the developed items using Cronbach Alpha (Karakaya et al., 2022). This study used an inter-correlation analysis to describe the strength and direction of the linear relationships among variables. The analysis defines the relationship between variables and measures the degree of that relationship. Since the data is standardised, a parametric test was used to calculate and interpret a Pearson correlation coefficient (r) in the questionnaire design (Tholibon et al., 2021). This coefficient, which ranges from -1.0 to $+1.0$, indicates both the direction (positive and negative) and the strength of the relationships. In a positive correlation, all

the variables trend in the same direction, either increasing or decreasing together or vice versa. The indication of Pearson correlation results is shown in Table 1. This analysis was employed using Statistical Package for the Social Sciences (SPSS) Ver. 26 for descriptive analysis, Cronbach Alpha, and Pearson correlation coefficients. RII is carried out to analyse the preferences based on a weighting of each variable calculated from the scale data. Microsoft Excel is used for the RII determination.

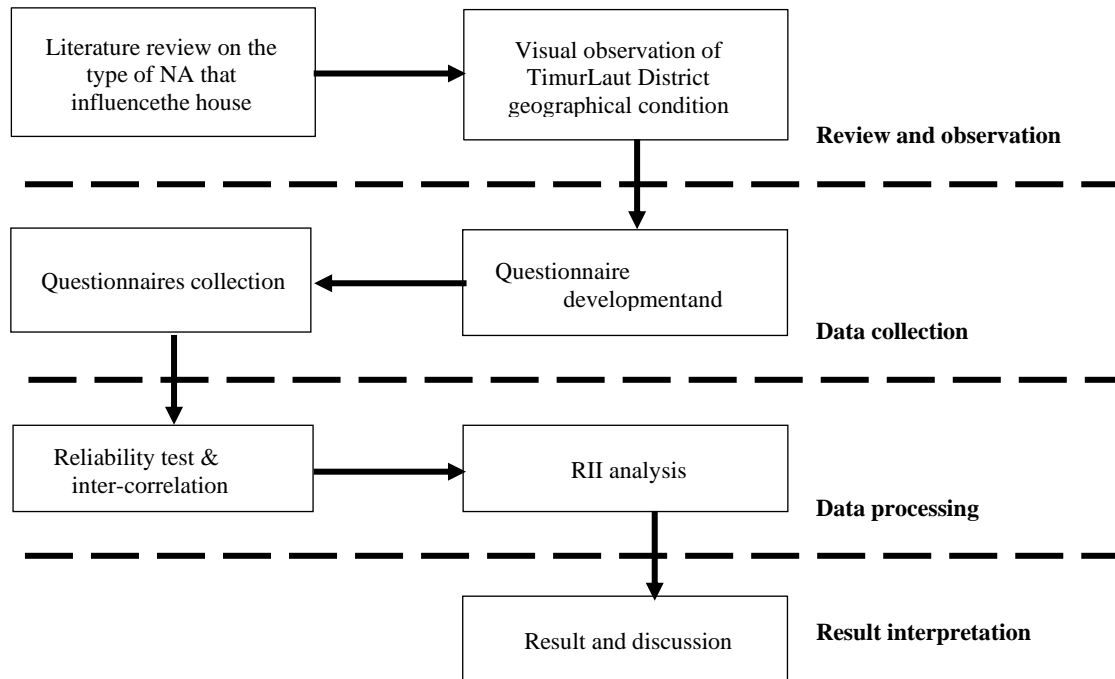


Fig. 1. Research methodology flowchart

Source: Authors (2024)

Table 1. Pearson Coefficients

Pearson Correlation Coefficients (r)	Value	Strength of Correlation
Between .10 and .29	Small	Poor relationship
Between .30 and .49	Medium	Medium relationship
Between .50 and 1.0	Large	Strong relationship

Source: Tholibon et al. (2021)

The correlation coefficient analysis represents the strength and direction of the relationship between each variable, which may also help other researchers from any region to expect the level of mutual statistical dependence between natural amenities preferences (Baak et al., 2020).

Study Area

Penang Island's dwellers might experience the surrounding environment through natural forests, sea or beaches, lakes, rivers, and mountains or hills. Timur Laut District is depicted as a vibrant urban area offering

numerous natural amenities options. This district consists of six (6) mukims (Mukim 13, 14, 15, 16, 17, and 18) and nine (9) cities (Ayer Hitam, Batu Ferringhi, Bukit Bendera, Gelugor, George Town, Jelutong, Tanjung Bungah, Tanjung Tokong and Tanjung Pinang). In the second half of 2023, it is shown that 13.5% of the transacted house units involved a price of more than a million ringgit per unit, which recorded about 48% of the total residential transaction ringgit in the Timur Laut district (RM 997.35 million out of RM 2.05 billion of total residential transactions) (NAPIC, 2023). This generally portrays how expensive the houses are in this urban area of Timur Laut District, Penang Island. Fig. 2 shows the map of Timur Laut District, Penang, Malaysia.

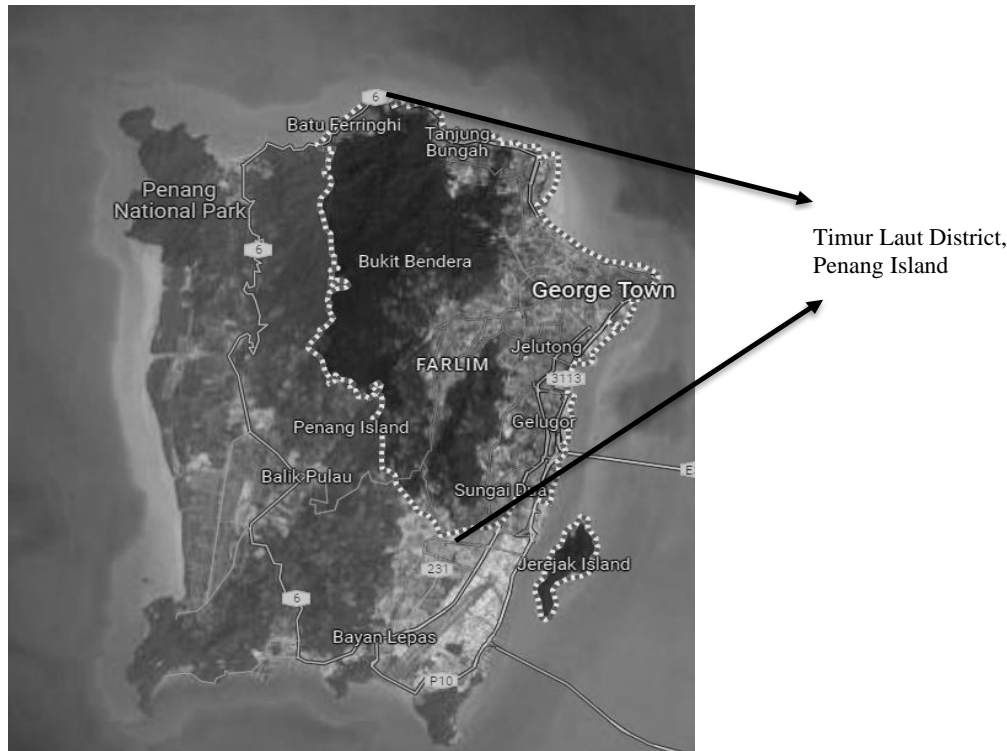


Fig. 2. Timur Laut District in Penang Island

Source: Google Earth (2024)

Questionnaire Development

A self-administered questionnaire has been developed, consisting of four (4) sections. Section A focuses on capturing the respondents' demographic information, while Sections B and C focus on structural and neighbourhood preferences, respectively. Section D focused on natural amenities values. Twenty (20), eighteen (18), and five (5) attributes have been selected to measure structural, neighbourhood, and natural amenities preferences, respectively. However, only Sections A and D will be discussed, which are only related to the purpose of this article. The respondents were asked to assess the importance level using a five-point Likert scale, reflecting the typical feedback the respective property agents received when engaging with potential condominium buyers in the Penang condominium market.

The five (5) natural amenities preferences that were measured for Timur Laut District are:

- (i) Beach or Sea
- (ii) River
- (iii) Natural forest
- (iv) Mountain or Hill
- (v) Lake

The questionnaires were designed using online (Google form) and paper form and distributed to the targeted respondents in the random property agent offices in Penang Island using emails, dropped QR code leaflets, phone calls, and manual forms during personal visits.

Relative Importance Index (RII)

The quantitative data underwent statistical techniques. Descriptive analysis was employed to ascertain the percentage of respondent distribution, while the instrument's reliability was evaluated using Cronbach's Alpha in SPSS. The relative importance index (RII) was calculated using Microsoft Excel with the formula below.

$$\frac{\sum w}{AN} = \frac{5_{n5} + 4_{n4} + 3_{n3} + 2_{n2} + 1_{n1}}{5n}$$

Where, w is the respondent weighting of each factor, which ranges from one (1) to five (5); for instance, n1 represents “not important,” n2 represents “slightly important,” n3 represents “moderately important,” n4 represents “very important,” and n5 represents “extremely important.” A is the highest weight (five (5), in this case), and N is the total number of respondents. The result of RII ranges from zero (0) to one (1). The importance rank is indicated by the closest value to one (1).

RESULTS AND DISCUSSION

Descriptive Analysis, Cronbach Alpha and Pearson Correlation and Coefficient

The respondents' demographic data includes information on gender, education level, and work experience. In this study, 14 samples were filtered out from the initial 74, as they had less than five years of experience in Penang's property market. The filtered samples consist of experienced property agents, sellers, and negotiators. Therefore, the data analysis was conducted using only 60 samples.

The reliability analysis produced a score of 0.874 for the items in natural amenities preferences, which is appropriately acceptable in the study (Karakaya et al., 2022). Table 2 shows the demographic data of the 60 respondents involved in this study.

Table 2. Respondent's demographic data

No	Respondent Background	Category	Percent (%)
1	Gender	Male	43.3
		Female	56.7
2	Age	Below 35	23.3
		Above 35	76.7
3	Education's Level	Certificate	6.7
		Diploma	33.3
		Bachelor's degree	56.7
		Master's degree	3.3
		PhD	0

Source: Authors (2024)

The questionnaire's Cronbach Alpha was 0.874 for five (5) tested natural amenities preferences, indicating appropriate internal consistency of the items. The Pearson correlation coefficient result is tabulated in Table 3. It shows the inter-correlation between five (5) natural amenities domains: beach or sea, river, natural forest, mountain or hill, and lake. All coefficient values are significant at the 0.01 level. The correlation analysis reveals that most pairs of variables show a coefficient above 0.50, indicating a strong and positive relationship between the pairs. Notably, "lake" and "beach or sea" exhibit the most vital positive relationship, suggesting that from the perspective of property agents, the residents who enjoy the beach or sea are likely to enjoy the lake. This association can be attributed to the similar appeal of both water bodies, as they provide beautiful, calming, and refreshing scenery. Medium and positive relationships are found between the "beach or sea" versus "river" and "river" versus "mountain or hill." People's reactions while enjoying a river differ from when on a beach or by the sea. The river provides a long but narrow view, while the beach and sea offer a vast and open view. Thus, the social activities that can be done can vary, contributing to the medium relationship between both.

Table 3. Inter-correlation between five natural amenities preferences

Domains	Beach or Sea	River	Natural Forest	Mountain or Hill	Lake
Beach/Sea	1	.384	.512	.657	.802
River	.384	1	.440	.736	.627
Natural Forest	.512	.440	1	.706	.363
Mountain/Hill	.657	.736	.706	1	.698
Lake	.802	.627	.363	.698	1

Source: Authors (2024)

Natural Amenities' Relative Importance Index

Table 4. Relative Importance Index for Natural Amenities

No	Natural Amenities Attribute	Mean	RII	Rank
1	Beach/ Sea	4.1	0.82	1

2	River	2.8	0.56	5
3	Natural forest	3.12	0.63	3
4	Mountain / Hill	3.0	0.60	4
5	Lake	3.4	0.68	2

Source: Authors (2024)

Table 4 shows that the most important influence on residents' decisions to settle down in Penang Island is the value of the beach's amenities. As an island, the Timur Laut District is surrounded by the sea, and there are a few famous beaches to visit, such as Batu Feringhi and Tanjung Bungah. The beach provides a calming sea view and social activities such as recreation and watching the sunset, creating a peaceful environment for the dwellers. The scenery of the sea can also be enjoyed by dwellers in the central city, George Town, where well-maintained coastal armour has been constructed on the coastline. The beautiful scenery and windy conditions can be more pleasant, especially to the high-rise condominiums. Kim et al. (2020) evidenced that the beach also significantly contributed to the heterogeneity spatial pattern in Florida.

The second important natural amenities attribute is the lake. The famous lake view in the Timur Laut District area is Air Itam Dam. This is not purely natural; it has been constructed and maintained to reserve water for Penang's residents. The location of this lake is very lovely; George Town can be seen from its peak. Colwell & Dehring (2005) had also shown that lakefront property values significantly increase due to the scenic resources.

The third important natural amenity in Timur Laut District is the Natural Forest. Nestled at the edge of a breathtaking rainforest, The Habitat Penang Hill is a top-notch rainforest discovery centre within the bustling metropolis of Penang. Dwellers can access this remarkable attraction from Ayer Itam using the historic funicular railway, immersing themselves in an unforgettable journey through the lush rainforest. Living in an urban area while still enjoying the green scenery would provide good air and a calming environment, thus increasing good health (Connolly, 2022; Ellmy et al., 2023).

The fourth natural amenities are related to topography. The reason for having mountain or hill scenery might also be the green environment since the famous hill named Bukit Bendera is still protected by greenery today. The benefits of mountains or hills and natural forests are similar since both can provide greenery and refreshing air quality. Penang Hill covers several hills, with the highest point at Western Hill, 833meters (2,733 ft) above sea level. The added value to this attraction is its accessibility, where Penang Hill also accommodates the attraction of funicular services.

The rivers in Penang's Timur Laut District, particularly Air Itam and Pinang River, are often disregarded by the locals as enjoyable environments. This sentiment may stem from the prevalent issue of river pollution (Hui Lai et al., 2018) or flash floods, which dissuade people from spending time near the riverbanks.

CONCLUSION

This comprehensive study investigates urban residents' specific natural environmental preferences as residential area choices. The research shows how natural features like water bodies and forests or intangible elements, like scenic views, affect property preferences. Based on the perspective of real estate agents in Timur Laut District, Penang, most clients prefer amenities provided by the sea or beach. As an island, Penang offers beautiful scenic sea views, which condominium residents especially enjoy. Even if the sea

or beach is inaccessible, a high-rise unit may offer a tranquil and peaceful view of the sea, including the nice air breeze, not too close to the road. The second significant preference is the lake, which highlights the importance of an open view of water bodies to potential residents. However, the rivers are not perceived with the same preferences as the beach and lake, where it has been in the last rank of RII. Sungai Pinang is one of the rivers that run through George Town, Penang's central city and had once been regarded as the filthiest river in Malaysia (Ibrahim, 2024). Currently, the Penang State Authority has actively initiated a strategy to clean and deepen the river to improve its water quality. Hence, the preference for natural amenities for the river can be remeasured in the future to recognise the effectiveness of the current river cleaning initiative.

On the other hand, green amenities such as natural forests and hills are ranked third and fourth in the RII preferences. Even though green amenities can provide an excellent ecosystem stabiliser for the environment, in terms of providing quality human life and wildlife, the island residents may prefer to have sea and lake rather than green amenities from the perspective of real estate agents. This study emphasises the urgent need to prioritise environmental protection and incorporate it into urban development strategies. Ultimately, the findings provide valuable insights for policymakers seeking to create sustainable development guidelines and policies.

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CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial, or financial conflicts and declare the absence of any conflicting interests.

AUTHORS' CONTRIBUTIONS

Siti Maryam designed the questionnaire, conducted the survey, and wrote the article. Ernieza Suhana reviewed the article to ensure that the research elements were adequately addressed. Mohd Hasrol Haffiz developed the research framework and reviewed the research methodology. Noradila wrote the conclusion of the article. Nur Fatin reviewed the sample of respondents. Both Ernieza Suhana and Mohd Hasrol Haffiz facilitated the review and revisions process and approved the article for submission.

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