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"Warning in Spaces: Blending Heritage, Nature and Design"

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Programme of Landscape Architecture, Department of Built Environment & Technology,
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User Perceptions Of Comfort And Ecological Value In An Urban Retention Pond Adapted As A Recreational Space: A Case Study Of Tasik Iskandar

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Abstract

Retention ponds are important for flood control, water storage and supporting nature also serving as recreational spaces. In Malaysia, many have been turned into recreational areas but face problems like poor thermal comfort, limited access, litter, low water quality and less biodiversity. These issues affect both the environment and how visitors feel about the space. Poor maintenance, lack of good design and low community awareness limit their long-term use. Climate change and rapid urban growth make these problems worse by increasing runoff, pollution and pressure on ecosystems. Without proper planning and management, retention ponds may lose their key roles and value as public spaces. This study aims to assess user perceptions of comfort and ecological value focusing on thermal comfort, accessibility, cleanliness, water quality and biodiversity at Tasik Iskandar, Perak. The objectives are to evaluate visitor perceptions of comfort in relation to thermal conditions, accessibility and cleanliness, to analyze variations in perceptions across different user groups and to identify the most frequently used areas while exploring the reasons behind users' preferences for these locations. The study will use a mix of methods, structured questionnaires to collect clear, measurable data, along with field observations. This combined method helps make the results reliable and easier to understand. The results will help improve the design of the area, protect the nature and guide better management so that retention ponds can become great green spaces for everyone to use.

Keywords: Retention ponds, Users Perception, Thermal comfort, Ecological Value, Biodiversity,

INTRODUCTION

Cities are increasingly recognizing the value of retention ponds, which help manage stormwater and enhance the environment. Originally constructed primarily to prevent flooding and provide barriers, today levees are perceived also as having an ecological function that benefits wildlife and balances the climate in local areas as well as serves recreational purposes (Wang et al., 2024). And the more urban a place is, the more crucial those green and blue spaces are to preserving nature and improving people's well-being. In Malaysia, several retention ponds have been converted for jogging, cycling and etc (Ismail et al., 2022). But such ponds are still experiencing problems, including heat stress, difficult accessibility, trash, poor water and a lack of flora and fauna at most of the sites. The vehicular and horticultural problems are both environmental in nature, as well as perception based on how comfortable and valuable visitors feel the ponds are (Tan et al., 2023). This research demonstrates that visible aspects of shade, cleanliness and attractive nature are crucial for explaining 'how happy' visitors feel about outdoor spaces (Nguyen et al., 2021; Chen et al., 2022). Despite retention ponds having various functions, little research has examined public perceptions of amenity and nature value in this area in Malaysia. This research is significant

because it investigates how design, accessibility and environmental factors influence visitor satisfaction. By turning to the thoughts of users, this research links how well the environment is performing with how people experience it and offers practical ideas for creating better green public spaces. Insights like these will help make retention ponds more adaptable, welcoming and meaningful for all of us.

While Tasik Iskandar and other retention ponds in Malaysia have been converted into recreational areas, they still facing thermal discomfort, limited access, littering, dirty water and loss of biodiversity. Apart from the impact on ecological health, these issues affect visitor satisfaction and environmental value. Their long-term sustainability is additionally curtailed due to their non-integrated design, lack of community participation and inefficient operation. Therefore, for the sustainable development and long-term success of these urban multi-purpose areas it is important to understand users' perception of comfort and environmental value.

This study seeks aims assess user perceptions of comfort and ecological value, on thermal comfort, accessibility, cleanliness, water quality and biodiversity at Tasik Iskandar, Perak. By analyzing differences among user groups and identifying the most frequently used areas, this study seeks to provide practical insights for improving the design, management and sustainability of retention ponds as multifunctional urban assets. The objectives of the study are threefold. Firstly, to evaluate how thermal conditions, accessibility and cleanliness influence visitor comfort. Secondly, to analyze differences in perceptions across user groups and third, to identify the most frequently used areas around the pond and explore the reasons behind these preferences.

This study also aligns with the Sustainable Development Goals (SDGs), particularly Goal 11 (Sustainable Cities and Communities), Goal 13 (Climate Action) and Goal 15 (Life on Land) by promoting environmentally responsible design and management of urban water bodies. Additionally, it supports the principles of Malaysia MADANI Policy which emphasizes sustainability, well-being and community inclusivity in urban development (Prime Minister's Department Malaysia, 2023). Furthermore, this research contributes to Environmental, Social and Governance (ESG) values by addressing environmental stewardship, enhancing social engagement through public space improvement and encouraging better governance in pond management practices.

LITERATURE REVIEW

Comfort in Recreational Environments

Outdoor recreation environments and comfort are complex and involve more than the absence of physical discomfort. It covers thermal factors and environment and space design. These factors interact and affect users of outdoor spaces. Current literature has shown that thermal comfort has an important influence on users' perception of usability of outdoor spaces. Vegetation and shade and proximity to water bodies have been shown to have a substantial cooling effect and thus have an influence on users' comfort (Li et al., 2025; Luyao et al., 2025).

The visual quality is also an important factor which affects recreational comfort. The presence of properly managed vegetation, spatial consistency, and aesthetic natural elements makes the landscape more

enjoyable and comfortable to the users (Adıgüzel & Batman, 2025). Besides, the design of the landscape to facilitate sitting and shade spaces, as well as the design of the pathways, improves functional comfort to facilitate different recreation activities like walking and jogging.

Perception of Ecological Value

Perceived ecological value is defined as users' interpretations of the quality of the environment, biodiversity, and naturalness of the recreational area. It has been discovered that visible ecological features, such as clean water, healthy vegetation, and the presence of wildlife, have a positive impact on users' perceptions and their emotional connections with the area (Siltanen & Puhakka, 2025). The presence of birds, fish, and aquatic plants not only serves as an aesthetic feature, but it also has an impact on users' perceptions of the environment.

Furthermore, studies have also indicated that those who view a higher level of ecological value are more supportive of conservation efforts and exhibit more pro-environmental behavior (Sharpe et al., 2021). In a recreational environment in urban settings, biodiversity not only enhances ecological sustainability but also enhances psychological well-being, emphasizing the importance of incorporating ecological function in the design of the recreational environment. This also suggests that ecological quality is a fundamental element of recreational planning rather than a supplementary one.

Retention Ponds as Multifunctional Spaces

Retention ponds are increasingly acknowledged to be multifaceted urban infrastructure systems, which provide both environmental and social benefits. Retention ponds, in addition to their role in the management of stormwater, can be utilized for water quality improvement, support the development of aquatic ecosystems, and even be used for recreation with proper landscape design. Studies verify the efficacy of retention ponds in reducing pollutants and sediments, hence improving the environment and user satisfaction (Nayebi Yazdi et al., 2021).

Moreover, research conducted in recreational water bodies suggests that ecological management principles play an important role in the sustainability and desirability of recreational environments (Hegedűs et al., 2026). Poor management, pollution, and neglect may lead to the loss of ecological integrity and recreational value. In contrast, the combination of ecological principles and people-centered planning improves the usability and functionality of the environment and encourages well-balanced human and environment interactions. This further emphasizes the importance of analyzing comfort and ecological perception in retention ponds like Tasik Iskandar..

Perception of Environmental

Perception of environmental quality is influenced by cleanliness, safety, accessibility, and visual integration of recreation environments. It has been found that users' perception of cleanliness and maintenance is an important factor in influencing users' intention to visit urban parks and aquatic recreation environments (Adıgüzel & Batman, 2025). Environments perceived as littered, lacking lighting, and having uneven paths may have low satisfaction scores irrespective of natural environment quality.

Moreover, the thermal environment/microclimate also affects the use of outdoor spaces. Literature on the thermal environment has found that the use of shade, vegetation density, and water features can reduce the effects of heat stress and increase comfort levels in outdoor recreation spaces (Yonzan et al., 2025). With regard to the case of Tasik Iskandar, an understanding of the perception of environmental quality by the users is vital in determining the future course of improvements and sustainable management of the site.

METHODOLOGY

This study uses a mixed-method approach at Tasik Iskandar, Perak. A structured questionnaire was used to collect numbers-based data about how users feel about comfort and ecological value. At the same time, on-site observations gave extra detailed information. The number data was analyzed with basic statistics to find overall trends and differences between groups. The detailed information helped to explain and confirm the results.

Study Location

The research was carried out at Tasik Iskandar in Perak, Malaysia. A popular recreational location, the reservoir is frequently visited by locals and students for recreation, jogging and group activities. It is suitable for assessing ecological value (water quality and biodiversity) as well as comfort (thermal, accessibility and cleanliness) due to its setting, which combines natural and built environments. Exploring user perceptions in relation to recreational experiences is made relevant by the site's popularity and diverse user base.

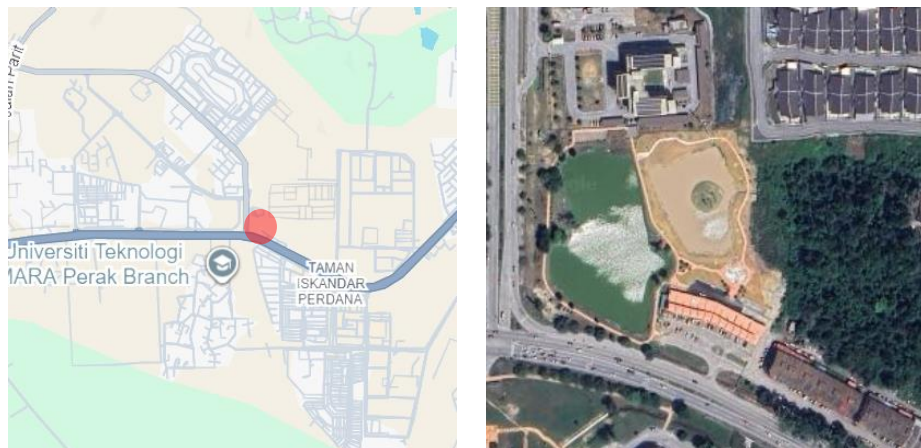


Figure 1. Location plan (left) and key plan (right) of Tasik Iskandar, Perak
(Source: Google Earth, satellite image, 2025)

Population and Sampling

The population for this study was the users of Tasik Iskandar. Since it was not possible to reach all users, a convenience sampling method was used where respondents were selected from those who were present during the survey period. The study aimed to collect responses from about 100 participants covering

different age groups, genders and visit frequencies.

Data Collection Methods

1. Questionnaire Survey

A questionnaire survey was employed as the primary data collection method to obtain users' perceptions of Tasik Iskandar. The survey was administered through both online platforms (Google Forms) and on-site distribution using printed questionnaires to ensure wider participation and inclusivity among different user groups. The questionnaire was specifically designed to assess visitors' perceptions of comfort and ecological value within the study area.

The questionnaire comprised four main sections. The first section gathered demographic information, including respondents' age, gender, and frequency of visits, to understand the profile of park users. The second section focused on comfort dimensions, evaluating users' perceptions of thermal comfort, accessibility, and cleanliness within the site. The third section assessed ecological value dimensions, particularly respondents' perceptions of water quality and biodiversity. The final section examined usage patterns by identifying the most frequently visited areas around the lake and exploring the reasons for users' preferences.

All perception-based responses were measured using a 5-point Likert scale, ranging from 1 (strongly disagree/very poor) to 5 (strongly agree/very excellent), allowing for systematic quantitative analysis of user perceptions.

2. Observation

Observations were carried out around the pond to record patterns of use, crowd distribution and environmental conditions such as shaded areas, cleanliness and water clarity. This helped to support and cross-check the questionnaire results.

Data Analysis

The data collected from the questionnaires were analysed using descriptive statistics such as mean, frequency and percentage to explain the overall perceptions of users. To explore differences between groups. For example, male and female users or different age groups. Basic comparison tests were applied. In addition, mapping was used to identify the most visited areas around the lake, highlighting the main hotspots and the reasons why these areas were preferred by users.

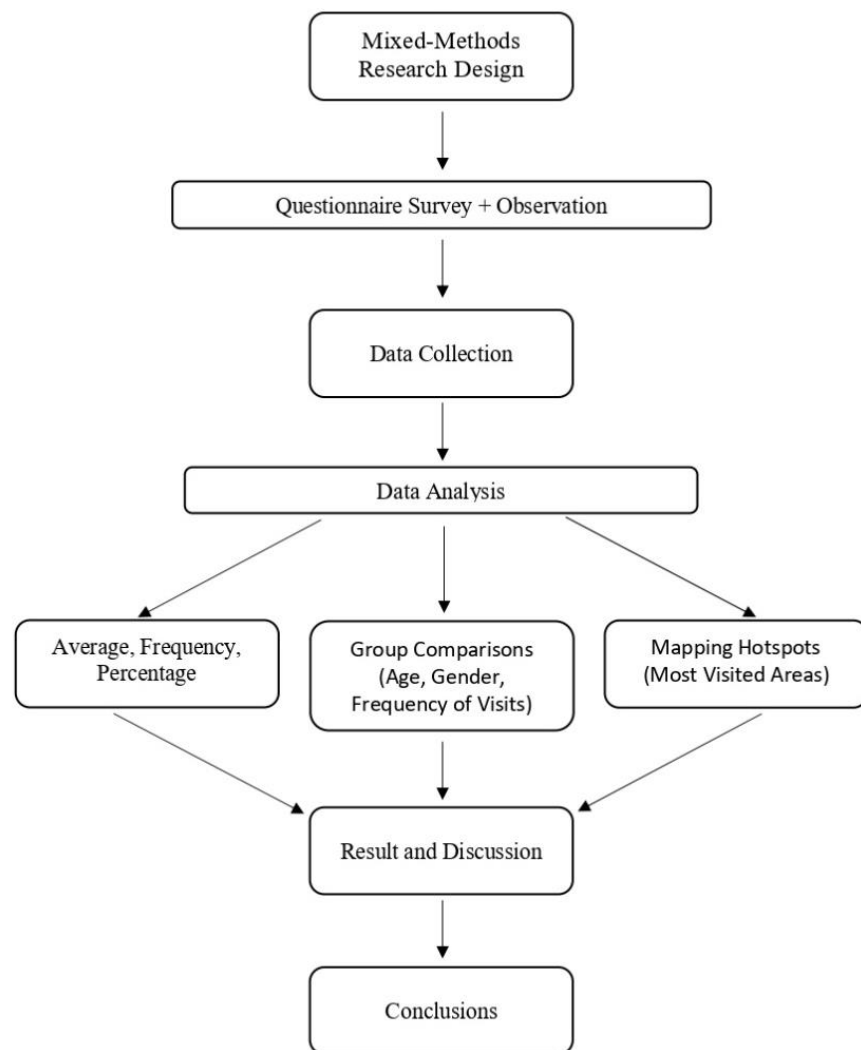


Figure 2. above showcases the research methodology employed and the flow of processes involved. (Source: Adapted from Zikril Ikhwan Zakrullah, 2023)

FINDING AND DISCUSSION

Users Perceptions of Comfort, Accessibility and Cleanliness

The results indicate that users generally perceive Tasik Iskandar as a comfortable and well-maintained recreational space. Among the three assessed aspects, cleanliness recorded the highest mean score highlighting the importance of effective maintenance, waste management, and overall site management in shaping positive user experience. A clean environment enhances visual quality and contributes to users' sense of comfort and satisfaction during recreational activities. Accessibility also received a high mean value, suggesting that the existing pathway network, circulation layout, and connectivity around the lake adequately support movement for most users. Well-defined pedestrian routes and continuous walkways appear to encourage active uses such as walking and jogging, particularly among younger visitors. Although thermal comfort scored slightly lower than cleanliness and accessibility, it still reflects a positive perception. This suggests that the combination of water bodies, existing tree canopy and shaded seating areas helps moderate the microclimate and reduce heat exposure. However, the lower score indicates that

certain areas may lack sufficient shade, especially during peak daytime hours.

Age-based analysis shows that younger users (18-25 years) reported higher comfort levels across all aspects. This group is more actively engaged in physical activities and benefits from shaded walkways and accessible paths. In contrast, older users expressed more moderate perceptions, particularly regarding thermal comfort and accessibility. This indicates a greater sensitivity to factors such as seating availability, shade continuity, and ease of movement, highlighting the need for more age-inclusive design interventions. Overall, the findings show that Tasik Iskandar performs as well as a recreational space improvements in shaded areas, seating and universal accessibility could further enhance comfort for users across different age groups.

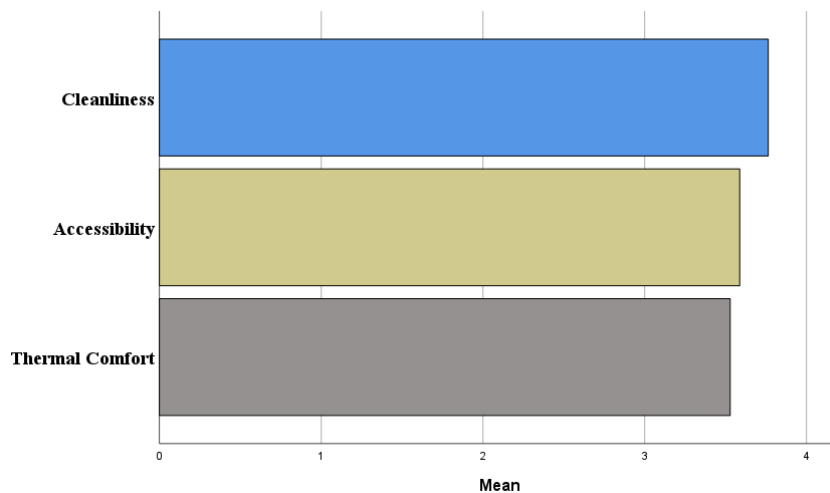


Figure 3. Comparison of mean visitor perception scores for thermal comfort, accessibility, and cleanliness at Tasik Iskandar.

(Source: Author, 2025)

Variations in Perception Across User Groups

The analysis reveals clear variations in perceptions of comfort and ecological value across different age groups at Tasik Iskandar. Respondents aged 18-25 years represent the largest proportion of users and consistently report higher satisfaction levels across most indicators, including thermal comfort, cleanliness, accessibility, and ecological attributes. This group frequently engages in active recreational activities such as jogging and walking, making them more responsive to well-maintained pathways, shaded circulation routes, and visually appealing environments. The high mean scores for cleanliness and flora and fauna among this age group suggest that a clean setting and visible natural elements enhance their overall recreational experience.

Users aged 26–35 and 36-45 years show moderately positive perceptions, particularly regarding accessibility and environmental quality. These users tend to combine active and passive activities, such as walking, resting, and social interaction. Their responses indicate greater awareness of functional design

elements, including seating availability, pathway continuity, and ease of movement. While satisfaction remains generally high, slightly lower ratings for thermal comfort suggest increased sensitivity to heat exposure, especially in areas with limited shade.

In contrast, respondents aged 46 years and above exhibit more neutral perceptions across several aspects. This group places greater emphasis on comfort-related features such as seating, shade coverage, and barrier-free access. The lower response frequency and moderate satisfaction levels indicate that existing design elements may not fully address the needs of older users, particularly in terms of universal accessibility and thermal protection.

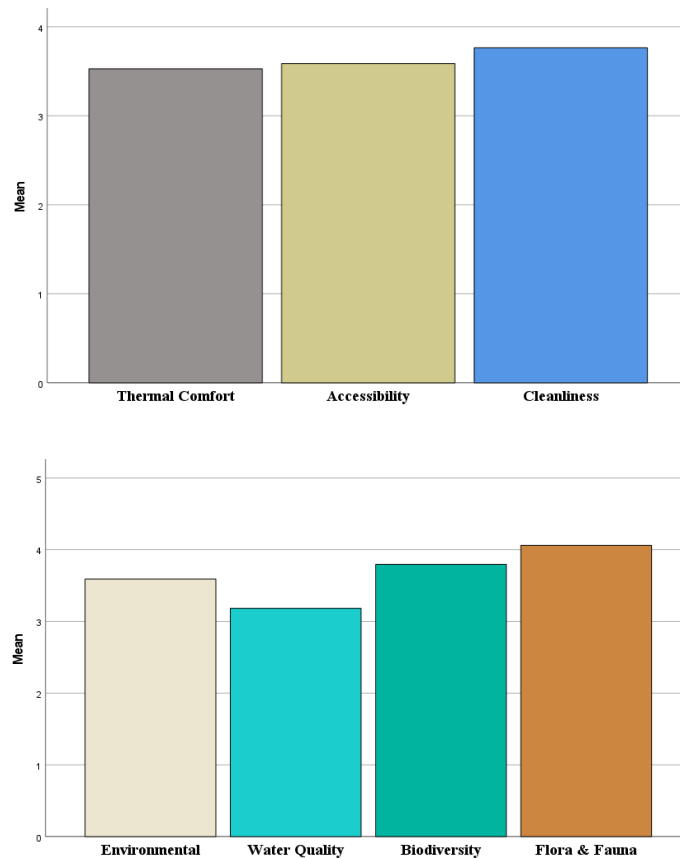


Figure 4. Comparison of mean group for perceptions of comfort and ecological value at Tasik Iskandar.
(Source: Author, 2025)

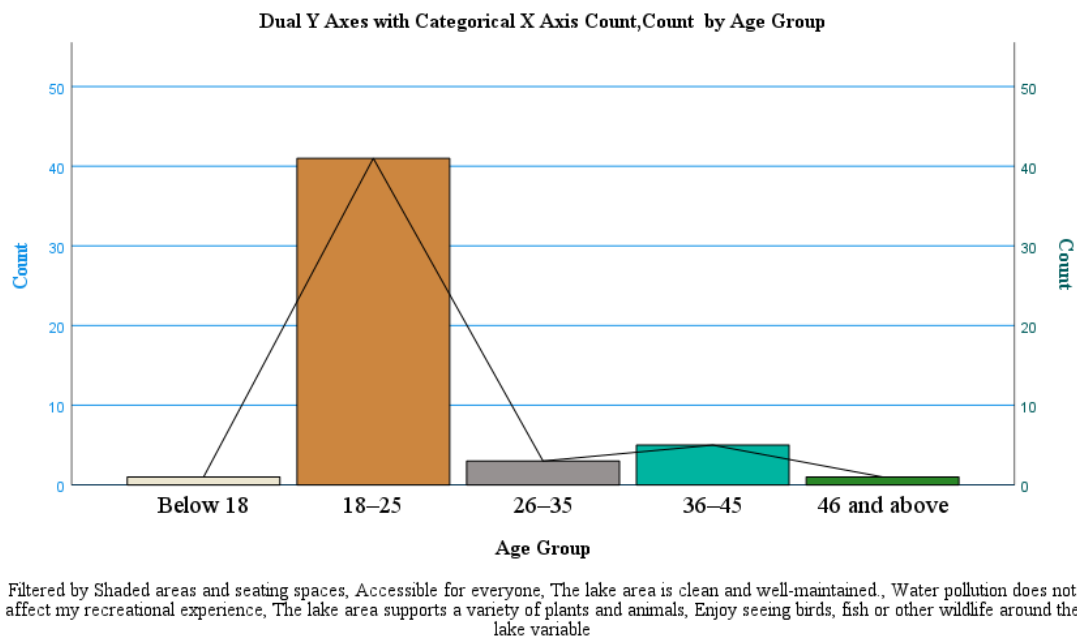


Figure 5. Distribution of visitor responses by age group for perceptions of comfort and ecological value at Tasik Iskandar.

(Source: Author, 2025)

Overall, the findings suggest that while Tasik Iskandar performs well for younger and more active users, enhancements in shaded resting areas, inclusive design features, and age-friendly amenities could improve comfort and satisfaction for older user groups. These variations highlight the importance of user-sensitive landscape design to support diverse age groups within urban recreational spaces.

Frequently Used Areas and User Preferences

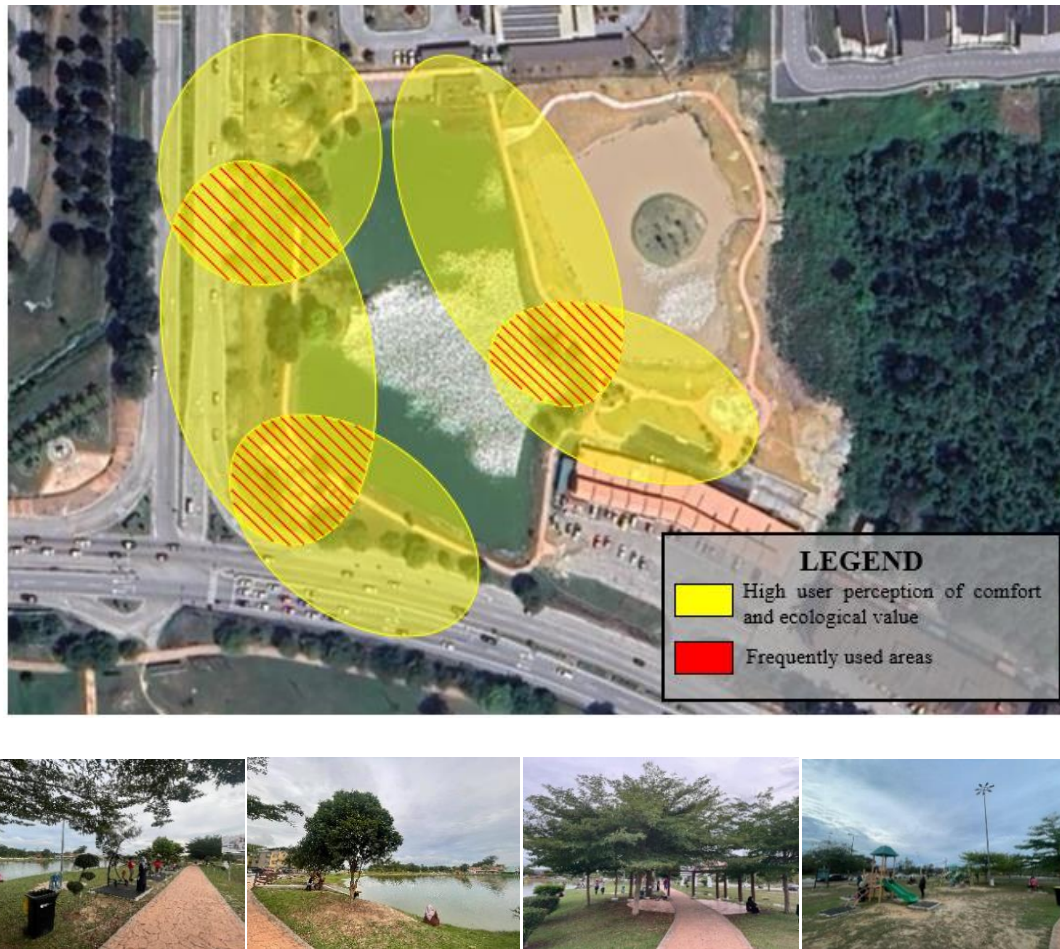


Figure 6. Map showing activity concentration zones and frequently used areas at Tasik Iskandar, highlighting shaded spaces, pedestrian pathways, and lakeside activity

(Source: Author, 2025)

The preferences of the users are interlinked with thermal comfort, visual comfort, and functionality. Scenic views of lakes, in addition to cooling effects created by water bodies and vegetation around, increase recreational experiences. This happens in shaded resting places where users are able to socialize and take a rest. Previous findings by various researchers indicate that vegetation and water elements contribute to improving thermal comfort and encouraging greater stay times in recreation space (Li et al., 2025; Lyu et al., 2025). These are places that are most preferred by users and thus contribute to greater spatial use.

On the contrary, areas that receive direct sunlight and have no supportive infrastructure, such as seating, are less frequently used, especially when the weather is hot. Such a situation underlines the significance of environmental comfort and the presence of amenities in influencing spatial behavior. Observations on the site suggest that the majority of the activities of the users take place near the shaded nodes, playgrounds, gym areas, and the lakeside routes, where the users receive the benefit of thermal comfort and visual

enjoyment. Such observations have also been witnessed in the studies that stress the significance of visual quality and functional comfort in influencing the spatial preference of the users in the recreational landscape (Adigüzel and Batman, 2025; Yonzan et al., 2025).

Overall, the results obtained here imply that outdoor recreational environments should be planned and designed in a manner that emphasizes climate-responsive design, aesthetics, and user comfort. This is in line with previous studies, which found that environmental factors and personal needs play a critical role in determining users' perception and behavior in outdoor recreational environments (Siltanen & Buhakka, 2025).

RECOMMENDATION

Based on what users have shared, there are a few key improvements that could really boost comfort and enjoyment at Tasik Iskandar. Adding more low-growing flowering shrubs along the walkways would not only make the space look nicer but also help create a stronger landscape identity and provide some natural cooling for people walking through. The jogging paths could use some upgrades too, resurfacing them to make the ground more even would make running or walking safer and more comfortable, especially for older visitors or those who come often.

People also suggested putting in more outdoor gym equipment near the lakeside to promote active lifestyles and make the park a place where everyone can get some exercise. More seating spots are definitely needed, particularly in shaded areas, so visitors have comfortable places to rest or hang out. Covered resting areas would be a big plus as well, offering protection from the sun and rain so the park can be enjoyed at any time of day.

Lastly, adding basic facilities like public toilets would make it easier for people to spend longer periods at the park without inconvenience. Collectively, these improvements reflect user needs and can guide future landscape and facility enhancements to strengthen Tasik Iskandar as a comfortable, inclusive, and well-supported urban recreational space.

CONCLUSION

This study aimed to examine the perceptions of users on the level of comfort and ecological values of Tasik Iskandar in Perak in terms of thermal comfort, accessibility, cleanliness, water quality, biodiversity, and spatial preferences. The findings of this study showed that Tasik Iskandar is a very effective multifunctional urban retention basin that can be used as a recreational site while also fulfilling its ecological function. In terms of thermal comfort, cleanliness, accessibility, water quality, and biodiversity, the study showed that perceptions of these variables have a significant effect on visitor satisfaction to recreational sites, as supported by various studies on urban green-blue and recreational environments (Adigüzel & Batman, 2025; Li et al., 2025; Luyao et al., 2025).

The perceptions regarding the value of nature are also largely positive, with participants being able to identify good water quality, lack of pollution, and the presence of birds and fish, which are all important in creating value in relation to nature in a recreation site. These are in line with findings that biodiversity and properly managed water bodies are important in creating perceptions of nature value in recreation sites (Nayeb Yazdi et al., 2021; Siltanen & Puhakka, 2025). Differences in perceptions by age indicate that there

are differences in expectations regarding comfort and accessibility, with older individuals being more concerned with safety, seating, and mobility.

The site observations showed consistency with the questionnaire data in the existence of functional paths, user interaction, shaded nodes of activity, and relatively constant conditions of an ecosystem. However, there were site-specific problems of imbalance in shade distribution, insufficient sheltered resting places, and a small accumulation of trash. These site conditions indicate a need for regular maintenance and better universal accessibility and shade facilities as proposed in other studies on landscape recreation and environment (Adigüzel and Batman, 2025; Luyao et al., 2025). In general, Tasik Iskandar shows a high potential as a resilient, inclusive, and ecologically valuable recreational retention pond. The results highlight the significance of user-centric design and sustainable management of the landscape to ensure retention ponds within urban areas are healthy, aesthetically pleasing, and meaningful. By incorporating the aspects of thermal comfort, ecology, and functionality, retention ponds such as Tasik Iskandar will continue to function as sustainable and well-occupied green-blue spaces within the context of urbanization and climate change (Nayeb Yazdi et al., 2021; Sillanen & Puhakka, 2025).

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REFERENCES

- Adigüzel, E., & Batman, Z. P. (2025). Visual quality assesment in recreational and touristic landscape. *Environment, Development and Sustainability*, 27(11), 27393–27410
- Hegedűs, A., Staszny, Weiperth, A., Bányai, Z., Lente, V., Urbányi, B., Dérer, I., & Ferincz. (2026). Characterization of management practices and ecological challenges of sustainable recreational fishery management in Hungary (Central Europe). *Reviews in Fish Biology and Fisheries*, 36(1).
- Li, L., Kross, A., Eicker, U., & Ziter, C. D. (2025). Tree presence and level of aggregation in urban parks are associated with opposite daytime and nighttime urban cooling. *Urban Forestry and Urban Greening*, 114.
- Luyao, H., Ling, L., Xinkai, L., & Junfeng, D. (2025). Outdoor thermal comfort benchmarks and optimization design for children in open parks of hot summer and cold winter region. *Scientific Reports*, 15(1).
- Nayeb Yazdi, M., Scott, D., Sample, D. J., & Wang, X. (2021). Efficacy of a retention pond in treating stormwater nutrients and sediment. *Journal of Cleaner Production*, 290.
- Sharpe, E. J., Perlaviciute, G., & Steg, L. (2021). Pro-environmental behaviour and support for environmental policy as expressions of pro-environmental motivation. *Journal of Environmental Psychology*, 76.

- Siltanen, U., & Puhakka, R. (2025). Urban forest visitors' perceptions of biodiversity and its effects on their well-being. *Journal of Outdoor Recreation and Tourism*, 50.
- Tymków, P., Józków, G., Walicka, A., Karpina, M., & Borkowski, A. (2019). Identification of water body extent based on remote sensing data collected with unmanned aerial vehicle. *Water (Switzerland)*, 11(2).
- Yonzan, A., Li, Z., Zhang, Q., Bajracharya, D., & Song, G. (2025). Thermal environment in rammed earth structures: a systematic review on thermal comfort, thermal performance, and climate strategies. *Energy and Buildings*, 349, 116542. <https://doi.org/10.1016/j.enbuild.2025.116542>