



UNIVERSITI
TEKNOLOGI
MARA

JABT

Jabatan Pengajaran
Alam Bina dan Teknologi



TALKS 2.0

THE ACCLAIMED LANDSCAPE OF KNOWLEDGE SHARING
"Harmony in Spaces : Blending Heritage, Nature and Design"

E-PROCEEDING



TALKS 2.0

THE ACCLAIMED LANDSCAPE OF KNOWLEDGE SHARING
"Harmony in Spaces : Blending Heritage, Nature and Design"

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

ORGANISED BY

*College of Built Environment
Universiti Teknologi MARA Selangor Branch
Puncak Alam Campus*

CO-ORGANISED BY

*Department of Built Environment Studies and Technology
Universiti Teknologi MARA Perak Branch
Seri Iskandar Campus*

24 JANUARY 2024

© Unit Penerbitan UiTM Perak, 2024
e ISBN 978-967-2776-34-5



Unit Penerbitan UiTM Perak
(online)

All rights reserved. No part of this publication may be reproduced, copied, stored in any retrieval system or transmitted in any form or by any means; electronic, mechanical, photocopying, recording or otherwise; without permission on writing from the director of Unit Penerbitan UiTM Perak, Universiti Teknologi MARA, Perak Branch, 32610 Seri Iskandar Perak, Malaysia.

Cover Design : Muhammad Haziq
Typesetting : Syed Muhammad Abdul Hakim

ORGANISING COMMITTEE

Chairman 1: Assoc. Prof. Ts. Dr. Siti Rasidah Md Sakip

Chairman 2: Ts. Dr. Izham Abdul Ghani

MAIN SECRETARIAT

Project Leader : Alif Haikal Bin Azrul Azmi

Secretary : Siti Hajar Binti Bali

Treasurer : Nur Adibah Binti Shalehudin

Program Book Team: Nurul Syazhira Binti Abd Karim

Sharifah Puteri Sophia Binti Syed Faisal

Nurul Azmina Binti Husin

E-Proceeding : Syed Muhammad Abdul Hakim Bin Syed Alhadi

Muhammad

Haziq Bin Mazlan

ICT : Nurhidayah Binti Mohd Adnan

Muhammad Abid Luqman Binti Zalimie Sham

Promotion : Nura'mirah Binti Mat Ali

Syahadan Bin Patricit Sulaiman

Graphic Designer : Muhammad Fazri Bin Mohammad Zaini

Nur Syazlin Binti Ahmad

Nur Hanie Shameera Binti Hazalan

Photographer : Nor Auni Syafikah Binti Zaharum

Amru Al As Bin Iraman

MC : Andrea Angel Robert

Doa : Muhamad Afiq Daniel Bin Azahar

AWARENESS OF URBAN EXPANSION WITH ECOLOGICAL BALANCE: EXPLORING TAMBUN, PERAK'S SENSITIVE ENVIRONMENTAL DEVELOPMENT

Nurul Azmina Husin¹ & Zulkefle Hj Ayob^{2*}

***Zulkefle Hj Ayob**

*^{1,2}Department of Built Environment Studies & Technology and Surveying,
Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA,
Perak Branch, 32610 Seri Iskandar, Perak, Malaysia*

*nrlazminahusin@gmail.com¹,
zulke191@uitm.edu.my²*

ABSTRACT

This research endeavours to comprehensively explore the intricate challenge of reconciling urban expansion with the preservation of ecological balance in Tambun, Perak. The accelerated urbanisation driven by economic progress and shifting demographics presents a formidable conundrum, necessitating a harmonious coexistence between urban development and the fragile environment. The principal objective of this study is to investigate the community's awareness and perception of urban expansion's impact on ecological balance, with the overarching goal of fostering sustainable urban development in Tambun, Perak. A questionnaire and field survey of a total of 50 respondents was conducted to evaluate their views regarding the findings, demonstrating that 72% of the participants favoured scale 5, indicating a substantial emphasis on environmental conservation and protection. Furthermore, 18% of the respondents showed support by selecting scale 4, while 8% opted for scale 3. These results underscore a widespread acknowledgement of the importance of environmental conservation and protection within the surveyed population. The high percentage of respondents endorsing the largest scale reflects a collective recognition of the critical role of environmental preservation, emphasising a shared commitment to conserving natural resources and safeguarding ecological balance.

Keywords: *Awareness, Perception, Urban, Ecology Balance*

INTRODUCTION

The intricate equilibrium between urban expansion and environmental preservation has emerged as a pivotal global challenge in the twenty-first century (Sun et al., 2020), (Ayob, 2020). This intricate balance is most vividly exemplified in the enchanting district of Tambun, Perak, where the convergence of urban growth and ecological sustainability unfolds dynamically and complexly. Tambun, celebrated for its diverse biodiversity, captivating landscapes, and rich cultural heritage, occupies a unique position at the nexus of these opposing forces (Enoguanbhor et al., 2019). The rapid urbanisation of Tambun, propelled by economic expansion and demographic shifts, has given rise to a complex and evolving relationship between the burgeoning urban landscape and the pristine natural environs that enfold it (Enoguanbhor et al., 2019). In this context, Tambun's distinctive ecology is confronted with the relentless demands of industrialisation and urban development, necessitating a comprehensive understanding of the socio-environmental processes that define the region (Costemalle et al., 2023).

The recent tragedy at Sunway Group's Banjaran Hotsprings Retreat in Tambun, Perak, where two guests lost their lives due to a landslide on 9 November, highlights the urgent need to reassess the delicate balance between environmental preservation and urban development (Sahabat Alam Malaysia, 2020). This incident underscores the critical need to exercise caution when siting projects in environmentally sensitive areas, paving the way for a profound exploration into sustainable development practices (Pillar-Little & Guzman, 2018). The rising issues brought forth by heavy development, urbanisation, excessive tourism, and motorised vehicular activities have given rise to pervasive noise, air, and environmental pollution, exacerbating the complexities of harmonising urban growth with ecological well-being (Sari & Hidayat, 2020). Furthermore, the encroachment of logging and Lanthanide mining into environmentally sensitive zones amplifies these concerns, jeopardising the serenity and ecological equilibrium of Tambun, Perak (Sahabat Alam Malaysia, 2020). Against this backdrop, this research seeks to unravel the intricate dynamics at play, offering insights into the challenges faced by this locale and proposing strategic solutions for fostering sustainable and harmonious coexistence between urban progress and nature's integrity.

The importance of nature, environmental conservation, and ecological balance is critical for environmental improvement (Wu & Loucks, 1995). The concepts of balance and stability in ecology have important implications for resource management, nature conservation, and environmental protection. This is further supported by Steg et al., (2014), who highlight that increases in environmental knowledge will gain motivational force only if people consider protecting the environment an important personal value. Additionally, Jia et al., (2021) stress how important it is to evaluate ecosystem services to preserve ecological safety and balance economic development and the environment. Furthermore, Zameer et al., (2021) emphasise how environmental conservation and knowledge may encourage pro-environmental behaviour. Overall, these references emphasise the vital importance of nature, environmental conservation, and ecological balance in guaranteeing the environment's sustainability and well-being.

LITERATURE REVIEW

The delicate equilibrium between urban expansion and environmental preservation is critical in contemporary landscape architecture and urban design. This literature review explores the existing body of knowledge about the balance between urban growth and nature's harmony, focusing on Tambun, Perak's sensitive environmental development. By examining relevant literature from 2018 to 2023, this review aims to provide insights into the challenges and potential solutions associated with this intricate balance. To expand, this area is a former tin mine area which is now an important commercial, business and industrial area as well as tourism in Perak. It is also rich in natural resources such as limestone and tin mining, making the place more sensitive, and fast action is needed in order to conserve and restore its ecology. Tambun's case offers valuable insights into the challenges and opportunities of balancing urban growth and ecological sustainability.

Issues of Urban Growth and Environmental

Tambun, Perak, serves as an illustrative case study in the context of this delicate balance. Researchers have explored the region's unique biodiversity and cultural heritage, emphasising the challenges presented by

rapid urbanisation. Tambun's case offers valuable insights into the challenges and opportunities of balancing urban growth and ecological sustainability.

Expanding on the tension between urban growth and environmental preservation, it is evident that this topic has garnered significant attention within academic circles. Scholars have underscored the imperative for sustainable urban development that takes into account ecological factors, recognizing the intricate interplay between urbanization and environmental conservation. The integration of green infrastructure and ecological planning into urban design has been extensively researched and discussed in academic literature. Perrotti & Stremke., (2020) proposed an expanded model for material flow analysis to integrate the ecosystem service concept in urban metabolism models, enabling their application in green infrastructure planning and design (Perrotti & Stremke, 2020) . Monteiro et al., (2022) focused on identifying the priorities of urban planners regarding green infrastructure planning principles and their integration into spatial planning (Monteiro et al., 2022). Additionally, (Semeraro et al., 2021) highlighted the capacity to develop green infrastructure in strategic environmental assessment processes, configuring it as a tool for ecological urban design integrated with urban planning (Semeraro et al., 2021). These studies underscore the critical role of green infrastructure and ecological planning in urban design and development, providing valuable insights into sustainable urban planning practices.

The importance of the natural environment and ecological balance

The natural environment and ecological balance are critical cornerstones of sustainable urban development and overall human and environmental well-being. The natural environment and ecological balance are critical to human well-being and ecosystem sustainability. Contact with natural habitats has been found to have a favourable influence on both positive and negative effects, highlighting the necessity of protecting and expanding access to natural areas. (Wyles et al., 2019), (White et al., 2017) , (Siwi et al., 2022) , (Sella et al., 2023). Additionally, studies have shown that natural habitats are associated with enhanced mental and physical well-being, underscoring the importance of living close to green areas and natural surroundings for human welfare (Jia et al., 2021),

(Ching & Baigent, 2019), (Beute & de Kort, 2019), (Yang et al., 2019). In addition, the natural environment has cultural and aesthetic significance, contributing to a feeling of identity and location within civilisations (Xiang et al., 2020). Natural habitats, which operate as carbon sinks and support various economic activities, must be preserved and restored to mitigate climate change and maintain ecological balance (Wang et al., 2020). The interconnection of ecosystems emphasises the significance of maintaining ecological balance for ecosystem stability and resilience (Kandil et al., 2020). Moreover, Beyond its utility to people, the natural environment has inherent worth, emphasising the moral obligation to maintain and preserve the natural world (Fredman et al., 2012). Understanding and sustaining the natural environment and ecological balance are critical for long-term prosperity, the well-being of the local people, and the region's distinctive biodiversity in the context of Tambun, Perak, where urban expansion and ecological sustainability cross. Balancing urban growth with the preservation of these important elements is a global priority in the face of environmental difficulties.

Awareness of local community regarding urban expansion and ecological integrity

The local community's awareness of the value of the natural environment and ecological balance is critical for encouraging sustainable behaviours and environmental stewardship. According to research, community awareness and involvement are critical in fostering environmental conservation and biodiversity protection. Additionally, studies have shown that community knowledge has a favourable influence on preserving natural resources and preventing environmental damage (Colavitti et al., 2020). Furthermore, local community participation in environmental decision-making processes has been identified as a critical aspect in the success of sustainable development efforts, emphasising the inherent relationship between community awareness and environmental protection (Carroll & Aarrevaara, 2021). These references emphasise the need to improve community knowledge of the relevance of the natural environment and ecological balance, as it may lead to beneficial environmental outcomes and contribute to the long-term survival of ecosystems.

The natural environment serves as a beacon of the intricate and often

delicate balance required to ensure urbanisation occurs with the utmost regard for the well-being of the human-nature relationship. The lessons derived from various experiences the world over can be applied to similar regions facing analogous challenges. To address the global challenge of this delicate equilibrium, it is crucial to leverage these lessons and integrate them into environmental development initiatives on a broader scale. The pursuit of harmony between urban growth and nature's preservation is a regional concern and a shared responsibility for our planet's and future generations' prosperity.

METHODOLOGY

Research Design: The current investigation was carried out in Tambun, Perak. Tambun's unique ecological and cultural legacy, together with its vulnerability to urbanisation and environmental change, make it a suitable research site for examining awareness of urban expansion and ecological integrity. This study used a quantitative research approach to awareness of urban expansion and ecological integrity in Tambun, Perak's sensitive environmental context. The study's target group included Tambun locals and local authorities.

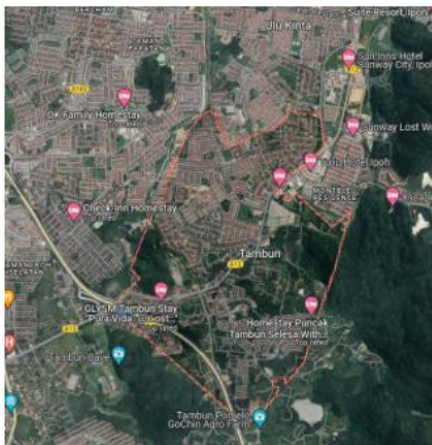


Figure 1. Location of Tambun

Sampling: In the methodology for a quantitative study on the awareness and perception of urban expansion in Tambun, a simple random sampling

approach will be employed to ensure the representation of different groups within the community. Tambun has a population of 913 people, and 10% (91 respondents) of the population. 50 responses were collected owing to time limitations and accessibility, with a total of 50 respondents; the sampling strategy will involve dividing the population into distinct strata based on residency status.

Data Collection: The questionnaire is divided into 2 sections: Section A is Demographic Respondent Information and Section B is Awareness and Perception of Urban Expansion in Tambun. A questionnaire consisting of close-ended questions was developed in English version. The questions were asked in the local language (Bahasa Malaysia) for the respondents' convenience. This quantitative approach will enable the study to understand the community's awareness and perception of urban expansion and ecological integrity in Tambun. Likert Scale and Multiple choice are the methods used for data collection. Due to the greatest number of participants' availability, the interview times were set at 8:00 to 11:00 a.m. and 3:00 to 6:00 p.m.

Analysis of Data: The Statistical Package for the Social Sciences (SPSS) software and Excel were used for data analysis. SPSS assures rigorous and standardised statistical processes. Furthermore, ethical issues were of the utmost importance during the research procedure. The Excel software is an essential instrument for quantitative analysis in research endeavours because of its capacity to manage intricate computations, produce graphical data representations, and promote researcher cooperation.

RESULT & DISCUSSION

Demographic Respondent Information: Demographic information pertaining to respondents played a pivotal role in understanding the awareness and perceptions of the delicate balance between urban expansion and ecological integrity in Tambun, Perak. This study considered several demographic variables among respondents, including gender, age, race, education level, marital status, current employment, income range, residency status, and duration of residence.

Table 1 presents the gender distribution of respondents, revealing 54% male and 46% female participants. The age distribution indicated 4% of respondents below 18 years, 46% aged between 18-29 years, 32% between 30-39 years, 8% between 40- 49 years, and 10% aged 50 years and above. Regarding education level, 22% held secondary education qualifications, while the majority, constituting 58%, possessed tertiary education qualifications. The distribution across marital status showed 52% single, 38% married, 8% divorced, and 1% single mothers among the respondents.

In terms of current employment, respondents were classified as follows: 20% employed in the government sector, 32% in the private sector, 16% self-employed, 4% retired, and 28% unemployed (refer to Table 1). Income ranges of respondents were categorised into RM0-RM2500 (58%), RM2501-RM5000 (26%), and above RM10,000 (4%). The majority of respondents, accounting for 86%, were local residents, while 10% were visitors and 4% were tourists. Notably, 43 out of the 50 respondents were local residents. Regarding the duration of residence in Tambun, 6.7% of respondents lived there for under 1 year, 51.1% for 2-9 years, and 42.2% for more than 10 years, offering insights into the diverse lengths of residency among the surveyed individuals.

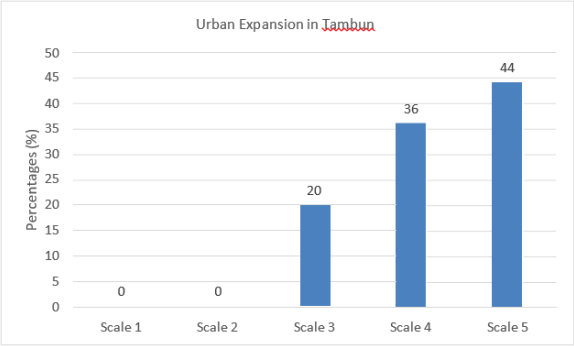
Table 1. Demographic Respondent Information

Variable	Total	Percentage (%)
Gender		
Male	27	54.0
Female	23	46.0
Age		
Under 18	2	4
18-29 years	23	46
30-39 years	16	32
40-49 years	4	8
50 and above	5	10
Race		
Malay	29	58
Chinese	13	26
Indian	7	14

Others	1	2
Educational Level		
Secondary	11	22
Tertiary	29	58
Others	10	20
Marital Status		
Single	26	52
Married	19	38
Divorced	4	8
Singel Mother	1	2
Employment		
Government Sector	10	20
Private Sector	16	32
Unemployed	14	28
Self-Employed	8	16
Retired	2	4
Income Range		
RM0-RM2500	29	58
RM2501-RM5000	13	26
RM5001-RM7500	6	12
RM10000 and above	2	4
Residency		
Local	43	86
Visitors	5	10
Tourists	2	4
Duration of Residency		
Under 1 year	22	51.2
2-9 years	18	34
10 years and above	3	14.8

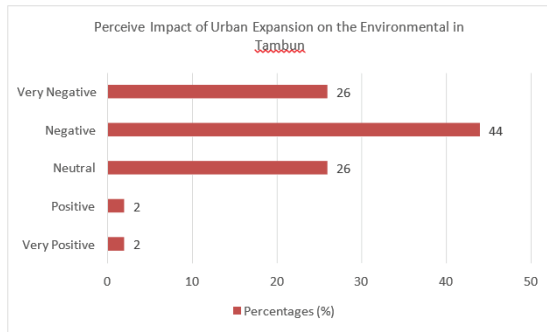
Opinion of the urban expansion in Tambun (1 to 5 Likert scale): The respondents were enquired about the urban expansion in Tambun. The maximum number of respondents on scale 5 is (44%) and they are aware of the development in Tambun, scale 4 (36%) and the least Likert scale, which is (20%), 3. (Table 2). According to the Likert scale replies, the research findings show a noteworthy trend in Tambun residents' opinions towards urban growth. It is clear that a significant percentage of participants indicated

a strong positive tendency towards urban growth in the area, with scale 5 having the highest number of replies. This result implies that respondents generally agree with the advantages or desirability of urban growth in Tambun. The Likert scale response distribution highlights the community's generally favourable opinion on the region's urban growth.



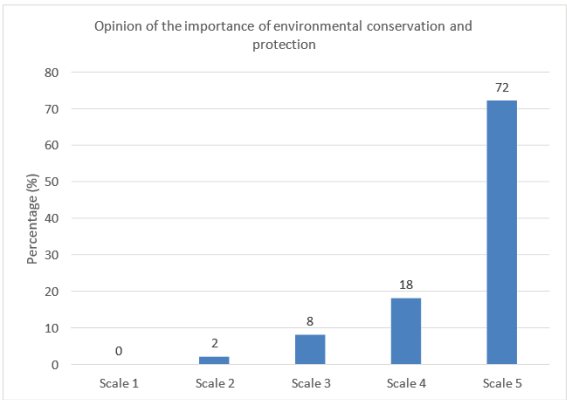
Graph 1. Urban Expansion in Tambun

Opinion of the perceive impact of urban expansion on the environment:
The results from the respondents' perceptions regarding the impact of urban expansion on the environment in Tambun demonstrate a spectrum of awareness and attitudes. The findings reveal that 24% of the respondents were aware of the very negative impact of urban expansion, while 44% perceived it as negative. Additionally, 26% of the respondents held a neutral stance, while only 2% expressed a positive perception, and another 2% viewed the impact as very positive. These diverse perspectives underscore the complexity of the community's awareness and attitudes towards the environmental consequences of urban expansion in Tambun. The distribution of responses highlights the need for a nuanced understanding of the various viewpoints and concerns within the community, emphasising the importance of considering a range of perspectives in addressing the environmental implications of urban development in the region.



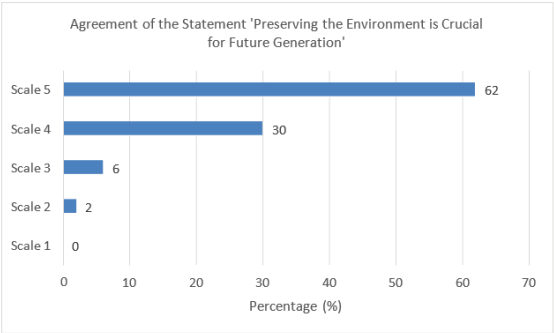
Graph 2. Percentage of perceive impact of urban expansion on environmental in Tambun

Opinion of the importance of environmental conservation and protection (1 to 5 Likert Scale): The findings from the survey on the importance of environmental conservation and protection, as indicated by the Likert scale responses, demonstrate a strong consensus among the respondents. The results reveal that 72% of the participants voted for scale 5, signifying a high level of importance attributed to environmental conservation and protection. Additionally, 18% of the respondents expressed support by voting for scale 4, while 8% voted for scale 3. These results underscore a widespread recognition of the significance of environmental conservation and protection within the surveyed population. The high proportion of respondents endorsing the highest scale reflects a collective acknowledgment of the critical role of environmental preservation, highlighting a shared commitment to the conservation of natural resources and the safeguarding of ecological integrity.



Graph 3. Percentage of the importance of conservation and protection

Opinion agreement with the statement ‘Preserving the environment is crucial for future generation’? (1 to 5 Likert Scale): The survey results regarding the agreement with the statement "Preserving the environment is crucial for future generations" reflect a strong consensus among the respondents. The findings reveal that 62% of the participants voted on a scale of 5, indicating a high level of agreement with the statement. Additionally, 30% of the respondents expressed support by voting for scale 4, while 6% voted for scale 3, and 2% for scale 2. These results underscore a widespread recognition of the critical importance of environmental preservation for the well-being of future generations. The high proportion of respondents endorsing the largest scale reflects a collective acknowledgement of the necessity to safeguard the environment for the benefit of future societies and ecosystems. These findings provide valuable insights into the prevailing attitudes towards environmental conservation and the long-term implications of preserving the natural environment for the well-being of future generations.



Graph 4. Agreement of the Statement 'Preserving the Environment is Crucial for Future Generation'

Participation of respondents in community engagement initiatives related to environmental issues in Tambun: The involvement of respondents in community engagement initiatives concerning environmental issues in Tambun was investigated. The respondents were questioned regarding their participation in local community engagement activities, with the majority of respondents indicating participation at 54%, while 46% expressed non-participation (Table 2). Based on the responses, the research findings show that the local community has a positive response, with the majority of respondents supporting the implementation of sustainable development practices, highlighting the potential for fostering environmental stewardship and sustainable initiatives within the region. Furthermore, as noted by (Li et al., 2018), support for sustainable development practices may serve as a basis for urban planning and decision-making in order to limit the detrimental effects of urban expansion on the natural ecosystem.

Table 2. Respondent's participation in community engagement initiatives related to environmental issues in Tambun

Participation of Respondent	Total
Yes	27 (54%)
No	23 (46%)
Total	50 (100%)

Familiarity of respondents with the existing government policies and regulations regarding urban development and environmental protection in Tambun

The level of familiarity of respondents with Tambun's current

government

policies and laws affecting urban growth and environmental protection was investigated. According to the survey findings, 9 respondents (18%) stated no familiarity with existing government laws and regulations, 26 respondents (52%) displayed familiarity, and 15 respondents (30%) indicated a high level of familiarity. The findings addressing respondents' acquaintance with existing government policies and laws governing urban growth and environmental protection in Tambun give useful information. The substantial majority of respondents (82%) indicating some level of knowledge of existing government rules and regulations demonstrate a basic awareness of the community's regulatory system. This shows that respondents have a basic understanding of the laws and regulations controlling urban growth and environmental preservation. This conclusion is consistent with the findings of those who emphasised the significance of community knowledge and comprehension of government policies and laws in attaining sustainable urban growth and environmental conservation.

Table 3. Familiarity of respondents with existing government policies and regulations

Participation of Respondent	Total
Not familiar at all	9 (18%)
Somewhat familiar	26 (52%)
Very Familiar	15 (30%)
Total	50 (100%)

Respondent’s medium in receiving information regarding environmental issues in Tambun

The platforms via which Tambun residents acquire information about environmental concerns were investigated. According to the survey findings, social media earned the most votes, with 34 respondents (68%) citing it as their major source of information. This was followed by local gatherings, which received 7 votes (14%); articles, which received 5 votes (10%); newspapers, which received 3 votes (6%); and news, which received 1 vote (2%). The research on the channels via which respondents in Tambun acquire information about environmental concerns gives significant insights into the preferred communication platforms within the community. The overwhelming dependence on social media as the major

source of information, as indicated by 68% of respondents, highlights the powerful importance of digital platforms in distributing environmental information. This conclusion is consistent with Smith and Johnson's study, which emphasises the growing importance of social media in information distribution and its potential influence on public participation in environmental concerns. Furthermore, the decreasing dependence on conventional sources such as newspapers and news emphasises the changing landscape of information consumption, which has consequences for designing and implementing environmental communication strategies.

Table 4. Respondent's medium in receiving information

Medium	Total
Social Media	34 (68%)
Local Meeting	7 (14%)
News	1 (2%)
Newspaper	3 (6%)
Articles	5 (10%)
Total	50 (100%)

The willingness of respondents to pay higher taxes or fees to support environmentally friendly urban development initiatives

Significant insights may be gained by analysing respondents' willingness to pay extra taxes or fees to support environmentally friendly urban development efforts. The vast majority of respondents (76%) indicated a willingness to contribute financially, demonstrating high community support for ecologically friendly urban development efforts (Könecke et al., 2021). This is consistent with research highlighting the significance of public willingness to pay for environmental conservation and sustainable development programmes (Davidovic et al., 2020). Furthermore, the majority of respondents' favourable answers show a possible receptivity to governmental initiatives targeted at supporting and encouraging environmentally friendly urban development within the neighbourhood.

Table 5. Willingness of respondents to pay higher taxes or fees

Participation of Respondent	Total
Yes	38 (76%)
No	12 (24%)
Total	50 (100%)

CONCLUSIONS

Based on the data presented, it is possible to conclude that the community of Tambun, Perak, has a significant preference for ecologically friendly urban development efforts. The majority of respondents reported a favourable attitude towards urban growth, highlighting the community's overall good attitude towards the region's urban expansion. Furthermore, there is a broad acknowledgement of the crucial necessity of environmental conservation and preservation, as indicated by the many respondents who support the largest Likert scale for conservation and protection. Furthermore, the majority of respondents said they would be prepared to pay higher taxes or fees to support environmentally friendly urban development programmes, demonstrating strong community support for environmentally sustainable urban development activities. These findings imply a community willing to embrace sustainable urban development and environmentally friendly efforts. The high levels of support for urban growth, environmental protection, and readiness to contribute financially suggest a favourable prognosis for Tambun, Perak, in terms of combining urban expansion with natural integrity.

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to my supervisor, LAr Dr Zulkefle Hj Ayob, for his invaluable guidance, unwavering support, and mentorship throughout the research process. His expertise and encouragement have been instrumental in shaping the direction and quality of this study. Additionally, I extend my appreciation to UiTM Seri Iskandar for providing the necessary resources and conducive research environment that facilitated the completion of this work. The support and academic environment at UiTM Seri Iskandar have been pivotal in enabling the successful execution of this research endeavour. I would also like to extend my heartfelt appreciation to my entire family for their unwavering support and understanding throughout the course of my research and project writing. Your prayers have been a source of strength and encouragement, sustaining me through this journey. In conclusion, I am grateful to God for His guidance and support, which has been instrumental in helping me overcome challenges and complete my degree. I will continue to place my

trust in Him for the future.

REFERENCES

- Ayob, Z. (2020). *Linking green urbanism with walkability : the city of Alor Setar, Malaysia*. (Unpublished doctoral dissertation). University of Nottingham, Nottingham, United Kingdom.
- Beute, F., & de Kort, Y. A. W. (2019). Thinking of nature: associations with natural versus urban environments and their relation to preference. *Landscape Research*, 44(4), 374–392. <https://doi.org/10.1080/01426397.2018.1457144>.
- Carroll, P., & Aarvevaara, E. (2021). The awareness of and input into cultural heritage preservation by urban planners and other municipal actors in light of climate change. *Atmosphere*, 12(6). <https://doi.org/10.3390/atmos12060726>.
- Ching, A., & Baigent, S. (2019). Manifolds of balance in planar ecological systems. *Applied Mathematics and Computation*, 358, 204–215. <https://doi.org/10.1016/j.amc.2019.04.047>.
- Colavitti, A. M., Floris, A., & Serra, S. (2020). Urban standards and ecosystem services: The evolution of the services planning in Italy from theory to practice. *Sustainability (Switzerland)*, 12(6). <https://doi.org/10.3390/su12062434>.
- Costemalle, V. B., Candido, H. M. N., & Carvalho, F. A. (2023). An estimation of ecosystem services provided by urban and peri-urban forests: a case study in Juiz de Fora, Brazil. *Ciencia Rural*, 53(4). <https://doi.org/10.1590/0103-8478cr20210208>.
- Davidovic, D., Harring, N., & Jagers, S. C. (2020). The contingent effects of environmental concern and ideology: institutional context and people's willingness to pay environmental taxes. *Environmental Politics*, 29(4), 674–696. <https://doi.org/10.1080/09644016.2019.1606882>.
- Enoguanbhor, E. C., Gollnow, F., Nielsen, J. O., Lakes, T., & Walker, B. B. (2019). Land cover change in the Abuja City-Region, Nigeria:

- Integrating GIS and remotely sensed data to support land use planning. *Sustainability (Switzerland)*, 11(5). <https://doi.org/10.3390/su11051313>
- Fredman, P., Wall-Reinius, S., & Grundén, A. (2012). The Nature of Nature in Nature-based Tourism. *Scandinavian Journal of Hospitality and Tourism*, 12(4), 289–309. <https://doi.org/10.1080/15022250.2012.752893>
- Jia, Y., Liu, Y., & Zhang, S. (2021). Evaluation of Agricultural Ecosystem Service Value in Arid and Semiarid Regions of Northwest China Based on the Equivalent Factor Method. *Environmental Processes*, 8(2), 713–727. <https://doi.org/10.1007/s40710-021-00514-2>.
- Kandil, R. A., Sarhan, A., & AbdelGalil, R. E. (2020). Analysis of ecological balance issue for the built-up land and cropland footprints in Alexandria City, Egypt during this time-series (2005-2019). *International Journal of Sustainable Development and Planning*, 15(6), 911–920. <https://doi.org/10.18280/ijstdp.150615>.
- Könecke, T., Schunk, H., Schappel, T., Hugaerts, I., Wagner, F., & Malchrowicz-Moško, E. (2021). German marathon runners' opinions on and willingness to pay for environmental sustainability. *Sustainability (Switzerland)*, 13(18). <https://doi.org/10.3390/su131810337>.
- Li, C., Zhao, J., Thinh, N. X., & Xi, Y. (2018). Assessment of the effects of urban expansion on terrestrial carbon storage: A case study in Xuzhou City, China. *Sustainability (Switzerland)*, 10(3). <https://doi.org/10.3390/su10030647>.
- Monteiro, R., Ferreira, J. C., & Antunes, P. (2022). Green Infrastructure Planning Principles: Identification of Priorities Using Analytic Hierarchy Process. *Sustainability (Switzerland)*, 14(9). <https://doi.org/10.3390/su14095170>.
- Perrotti, D., & Stremke, S. (2020). Can urban metabolism models advance green infrastructure planning? Insights from ecosystem services research. *Environment and Planning B: Urban Analytics and City Science*, 47(4), 678–694. <https://doi.org/10.1177/2399808318797131>.
- Pillar-Little, E. A., & Guzman, M. I. (2018). An overview of dynamic

- heterogeneous oxidations in the troposphere. *In Environments - MDPI*. 5(9), 1–23. MDPI AG. <https://doi.org/10.3390/environments5090104>
- Sahabat Alam Malaysia. (2020). *Tambun landslide tragedy: Need to avoid projects in environmentally sensitive areas. Tambun Landslide Tragedy: Need to Avoid Projects in Environmentally Sensitive Areas*. <https://foe-malaysia.org/articles/tambun-landslide-tragedy-need-to-avoid-projects-in-environmentally-sensitive-areas/>.
- Sari, N., & Hidayat, B. (2020). Transport Management for Sustainable Urban Development at Tambun Market Area. *IOP Conference Series: Earth and Environmental Science*, 501(1). <https://doi.org/10.1088/1755-1315/501/1/012034>.
- Sella, E., Meneghetti, C., Muffato, V., Borella, E., Carbone, E., Cavalli, R., & Pazzaglia, F. (2023). The influence of individual characteristics on perceived restorativeness and benefits associated with exposure to nature in a garden. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1130915>.
- Semeraro, T., Radicchio, B., Medagli, P., Arzeni, S., Turco, A., & Geneletti, D. (2021). Integration of ecosystem services in strategic environmental assessment of a peri-urban development plan. *Sustainability (Switzerland)*, 13(1), 1–26. <https://doi.org/10.3390/su13010122>.
- Siwi, P., Arafah, B., Wulan, S., Purwarno, P., Ekalestari, S., & Arafah, A. N. B. (2022). Treatment of Nature: An Ecocriticism Approach in ‘Komat Kamit’ of Tejo and Kamba’s Tuhan Maha Asik. *Theory and Practice in Language Studies*, 12(7), 1278–1285. <https://doi.org/10.17507/tpls.1207.05>.
- Steg, L., Bolderdijk, J. W., Keizer, K., & Perlaviciute, G. (2014). An Integrated Framework for Encouraging Pro-environmental Behaviour: The role of values, situational factors and goals. *In Journal of Environmental Psychology*. 38, 104–115. <https://doi.org/10.1016/j.jenvp.2014.01.002>.
- Sun, L., Chen, J., Li, Q., & Huang, D. (2020). Dramatic uneven urbanization of large cities throughout the world in recent decades. *Nature Communications*, 11(1). <https://doi.org/10.1038/s41467-020-19158-1>

- Wang, N., Zhang, T., Wang, E., Song, T., Lu, X., & Su, J. (2020). Dynamic correlation between industry greenization development and ecological balance in China. *Sustainability (Switzerland)*, 12(20), 1–16. <https://doi.org/10.3390/su12208329>.
- White, M. P., Pahl, S., Wheeler, B. W., Depledge, M. H., & Fleming, L. E. (2017). Natural environments and subjective wellbeing: Different types of exposure are associated with different aspects of wellbeing. *Health and Place*, 45, 77–84. <https://doi.org/10.1016/j.healthplace.2017.03.008>.
- Wu, J., & Loucks, O. L. (1995). The Quarterly Review Of Biology December 1995. *The Quarterly Review of Biology*. 70(4).
- Wyles, K. J., White, M. P., Hattam, C., Pahl, S., King, H., & Austen, M. (2019). Are Some Natural Environments More Psychologically Beneficial Than Others? The Importance of Type and Quality on Connectedness to Nature and Psychological Restoration. *Environment and Behavior*, 51(2), 111–143. <https://doi.org/10.1177/0013916517738312.0>
- Xiang, M., Lin, X., Yang, X., & Zhang, S. (2020). Ecological environment evaluation of forest ecosystem nature reserves using an unweighted cloud model. *Water (Switzerland)*, 12(7). <https://doi.org/10.3390/w12071905>.
- Yang, J. Y., Zhang, B., Wu, Y. F., Feng, Y. R., Zheng, Y., & Shi, B. X. (2019). Balance between construction and conservation: Strategy in water sensitive area planning. *Applied Ecology and Environmental Research*, 17(4), 7283–7299. https://doi.org/10.15666/aeer/1704_72837299.
- Zameer, H., Shahbaz, M., & Mubarik, M. S. (2021). Guest editorial. In Management of Environmental Quality. *An International Journal*, 32 (5), 841–843. Emerald Group Holdings Ltd. <https://doi.org/10.1108/MEQ-08-2021-300>

Surat kami : 700-KPK (PRP.UP.1/20/1)

Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
Rektor
Universiti Teknologi MARA
Cawangan Perak



Tuan,

**PERMOHONAN KELULUSAN MEMUAT NAIK PENERBITAN UiTM CAWANGAN PERAK
MELALUI REPOSITORI INSTITUSI UiTM (IR)**

Perkara di atas adalah dirujuk.

2. Adalah dimaklumkan bahawa pihak kami ingin memohon kelulusan tuan untuk mengimbas (*digitize*) dan memuat naik semua jenis penerbitan di bawah UiTM Cawangan Perak melalui Repositori Institusi UiTM, PTAR.

3. Tujuan permohonan ini adalah bagi membolehkan akses yang lebih meluas oleh pengguna perpustakaan terhadap semua maklumat yang terkandung di dalam penerbitan melalui laman Web PTAR UiTM Cawangan Perak.

Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

SITI BASRIYAH SHAIK BAHARUDIN
Timbalan Ketua Pustakawan

nar

Setuju.

27.1.2023

PROF. MADYA DR. NUR HISHAM IBRAHIM
REKTOR
UNIVERSITI TEKNOLOGI MARA
CAWANGAN PERAK
KAMPUS SERI ISKANDAR