



GREEN URBANISM: A COMMUNITY STUDY ON PERCEPTIONS OF URBAN REWILDING INITIATIVES AND MENTAL WELL-BEING IN IPOH, PERAK, MALAYSIA

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Abstract

Despite growing recognition of urban rewilding as a nature-based strategy to enhance urban resilience, empirical evidence on community perceptions of its contribution to mental well-being remains limited, particularly in rapidly urbanising Malaysian contexts such as Ipoh, Perak. This study examined Ipoh residents' perceptions of urban rewilding initiatives and their perceived association with mental well-being through three objectives: (1) assessing community awareness and understanding of urban rewilding, (2) evaluating perceived mental well-being and social benefits associated with rewilding initiatives, and (3) identifying implications for nature-based urban policy. A mixed-methods approach was employed, combining quantitative surveys (n = 50 residents) conducted using purposive sampling across diverse Ipoh neighbourhoods with semi-structured interviews. Data were analysed using descriptive statistics and thematic analysis. While the sample size necessitates caution in generalising the findings, the results indicated generally positive community perceptions toward urban rewilding initiatives, with community engagement receiving the highest average rating (M = 4.22/5). Additionally, 78% of respondents associated rewilded spaces with reduced stress and enhanced social cohesion. Qualitative insights further revealed that rewilded spaces were generally perceived as restorative urban environments, although awareness and appreciation varied across age and educational backgrounds. Overall, the findings suggest that urban rewilding may contribute positively to perceived mental well-being and community cohesion, while emphasising the importance of participatory planning and community co-design in supporting socially responsive and ecologically sustainable urban environments in Ipoh and similar urban contexts.

Keywords: Green Urbanism, Urban Rewilding, Mental Well-being, Community

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INTRODUCTION

Urban rewilding—“the restoration of self-sustaining ecological processes and native biodiversity in urban spaces through minimal human intervention” (Zhang et al., 2023)—is a vital nature-based solution to biodiversity loss and the urban human–nature disconnect. Unlike conventional greening, rewilding prioritises habitat connectivity, natural regeneration, and long-term ecological resilience (Carver et al., 2021). These principles align with Green Urbanism, which conceptualises cities as socio-ecological systems that integrate resilience, well-being, and cultural vitality (Beatley, 2000; Lehmann, 2010).

In Malaysia, rapidly urbanising cities face severe environmental pressures. Ipoh, Perak, experienced an 18.7% decline in green cover between 2010 and 2020 (Marzukhi et al., 2022), exacerbating urban heat island effects and diminishing daily interactions with nature. Consequently, urban liveability and mental well-being are under threat (Jabbar et al., 2022). While exposure to conventional, highly maintained green spaces is known to aid psychological restoration and stress reduction (Xingrui & Ibrahim, 2024; Bratman et al., 2019), the restorative potential of “managed wildness” remains underexplored (Hoyle et al., 2020). Furthermore, perceptions of urban wildness are culturally contingent; Asian urban populations often prefer tidy, structured landscapes (Hwang, 2025). As a result, community perspectives on rewilding in Southeast Asia are poorly understood.

Despite the profound ecological restoration potential of Ipoh’s unique limestone karst ecosystem, empirical research on residents’ views of rewilding and its mental health impacts is limited. To address this gap, this study explores community perceptions of urban rewilding in Ipoh, Perak, aiming to:

1. Assess community awareness and understanding of urban rewilding initiatives.
2. Evaluate residents’ perceptions regarding the association between urban rewilding, stress reduction, and social cohesion.
3. Identify context-sensitive considerations for integrating rewilding principles into Ipoh’s Green Urbanism framework.

RESEARCH BACKGROUND

Originating in the 1990s, Green Urbanism is a theoretical paradigm for sustainable city development designed to support both human well-being and ecological health (Beatley, 2000; Lehmann, 2010). Although frequently cited, its practical definition centres on zero-carbon initiatives, circular resource use, and waste elimination. Achieving these goals requires breaking down fragmented, traditional views of urban development and fostering multidisciplinary

collaboration across architecture, engineering, sociology, and economics (Ayob, 2020; Hegazy, Hammad, Munshi, Alqurashi, & Bahreldin, 2024).

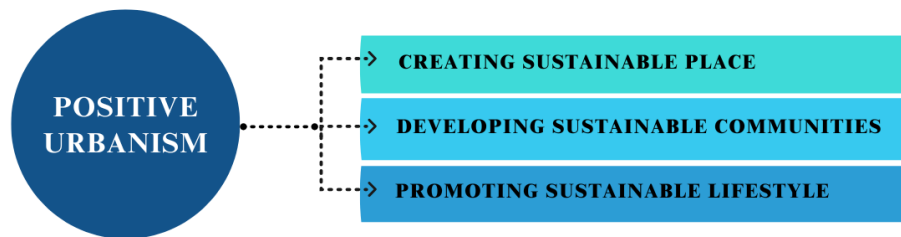


Figure 1: Green Urbanism as Positive Urbanism
 Source: The Author (extracted from Beatley, 2000)

Methodologically, Green Urbanism optimises urban density through energy-efficient design, favouring the adaptive reuse of existing infrastructure and the ecological revitalisation of post-industrial cores over outward expansion. It provides a holistic foundation for sustainable modifications, ensuring urban systems maintain a healthy equilibrium with their surrounding hinterlands without degrading local ecosystems (Ayob & Amir, 2024; Lehmann, 2010). Rethinking existing infrastructure is therefore essential to creating compact, mixed-use, and polycentric urban centres.

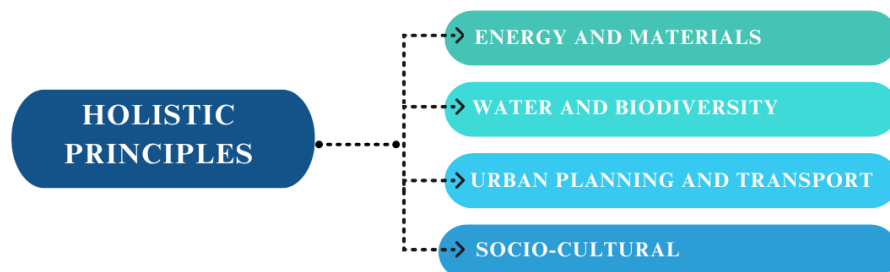


Figure 2: Green Urbanism Promotes Holistic Principles
 Source: The Author (extracted from Lehmann, 2010)

This research is significant as it explores the vital intersection of urban development, mental health, and the emerging concept of urban rewilding within the rapidly urbanising context of Ipoh, Perak, Malaysia. Understanding community perceptions is essential to determine how urban rewilding practices might influence residents' mental health and well-being.

In Malaysia, the commitment for sustainable development is reflected in several key policy frameworks. The *National Urbanisation Policy* (NUP) and

the *National Physical Plan* (NPP) target the development of sustainable, resilient cities. Similarly, the *National Policy on Biological Diversity* and the *National Climate Change Policy* encourage ecosystem conservation and urban greenery. While these frameworks align closely with the principles of Green Urbanism, a crucial gap remains between policy goals and local implementation: rewilding is not yet incorporated as a clear, actionable strategy for improving mental health and well-being in urban planning.

The findings of this study contribute to the growing body of knowledge on green and sustainable urban development through the case of Ipoh. The findings can be used to inform community involvement programs and urban planning policies, resulting in a more comprehensive strategy that supports community mental health and environmental sustainability.

LITERATURE REVIEW

The Domain of Green Urbanism

Green Urbanism (GU) is a broad paradigm promoting sustainable, environmentally responsible city development. While defined in over 40 distinct ways across the literature, researchers generally agree on three core components that form the foundation of GU (Figure 3).

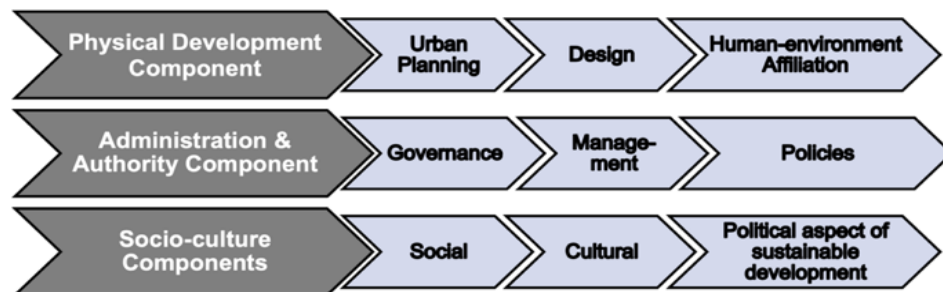


Figure 3: Green Urbanism: The Domain and Its Components

Source: The Author (extracted from Ayob, 2020)

Green Urbanism and the Nature Dimension

Green Urbanism refers to an integrated urban planning approach that promotes ecological sustainability, biodiversity conservation, climate resilience, and human well-being through environmentally responsive design and nature-based urban strategies (Beatley, 2012; Lehmann, 2010). The concept emphasises the integration of green infrastructure, ecological restoration, and sustainable land-use planning to create healthier and more liveable urban environments.

Within this framework, urban rewilding represents a practical application of Green Urbanism by restoring natural ecological processes and

increasing biodiversity within urban areas. Rewilding initiatives such as native vegetation restoration, ecological corridors, and naturalised public spaces contribute not only to environmental enhancement but also to social and psychological well-being through increased human interaction with nature.

Previous studies have shown that exposure to natural environments may reduce psychological stress, improve emotional restoration, and strengthen social cohesion among urban communities (Bratman et al., 2019; Hartig et al., 2014). In the Malaysian context, however, limited studies have explored community perceptions toward urban rewilding initiatives and their perceived influence on mental well-being, particularly in secondary cities such as Ipoh.

Urban Rewilding and Well-Being

Extensive research links exposure to biodiverse urban nature with reduced stress, lower anxiety, emotional restoration, and enhanced cognitive function (Bratman et al., 2019; Hartig et al., 2014). Crucially, naturalistic and semi-wild landscapes offer greater sensory diversity and ecological authenticity than highly manicured parks, often generating stronger restorative experiences (Carrus et al., 2015; Taylor & Hochuli, 2017).

Beyond individual health, rewilding fosters social well-being by encouraging outdoor recreation, social interaction, and community attachment. Environmentally, rewilded spaces improve urban liveability through cooling, air purification, biodiversity enhancement, and stormwater regulation (Castaño-Rosa, Pelsmakers & Järventausta, 2024). These compounded benefits are critical in rapidly urbanising cities, where a growing disconnect from nature exacerbates stress and mental fatigue (Bratman et al., 2019).

Despite growing international interest, empirical studies on urban rewilding predominantly originate from Western contexts. The applicability of these findings to Southeast Asian cities is uncertain due to distinct differences in climate, biodiversity, urban morphology, and socio-cultural perceptions of nature.

Local Context: Green Urbanism and Urban Rewilding in Malaysia

To bridge this geographical gap in the literature, urban rewilding is increasingly recognised as a critical strategy for restoring biodiversity and improving psychological well-being within rapidly urbanising Asian cities (Bratman et al., 2019; Taylor & Hochuli, 2017).

In the Malaysian context, urban rewilding explicitly focuses on the restoration of tropical urban ecosystems and ecological functions. This is achieved through native planting, rehabilitation of secondary forest patches, ecological river restoration, and biodiversity-sensitive, naturalised landscape planning. Crucially, these local approaches align directly with the sustainable

urban development goals outlined in Malaysia's *National Landscape Policy* and the *Low Carbon Cities Framework* (Nizarudin & Zakariya, 2025). Therefore, targeted investigation within these tropical urban settings is necessary to understand exactly how urban rewilding influences community well-being locally.

RESEARCH METHODOLOGY

This study employed a convergent mixed-methods exploratory case study design to examine residents' perceptions of urban rewilding and its perceived effects on psychological well-being in Ipoh. Quantitative and qualitative data were collected concurrently and interpreted collectively to provide a comprehensive understanding of community experiences.

Sampling and Data Collection: Purposive sampling was used to recruit 50 demographically diverse residents familiar with Ipoh's urban green spaces. While this relatively small sample size precludes broad statistical generalisation, it is appropriate for generating in-depth, contextualised insights.

Data collection consisted of two primary instruments:

- **Structured Questionnaires:** Utilised a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to measure three main constructs: (i) awareness of urban rewilding, (ii) perceived psychological and emotional benefits (e.g., stress reduction, mood improvement), and (iii) perceptions of community engagement and environmental quality.
- **Semi-Structured Interviews:** Utilised open-ended questions to explore participants' lived experiences, emotional responses, and perceptions of rewilded spaces.

Instrument Validation and Ethical Considerations: To ensure reliability and validity, the questionnaire was piloted with 10 respondents to assess clarity and item suitability. Content validity was strengthened through expert review by academic professionals in urban design and landscape studies, while internal consistency was verified using Cronbach's Alpha. Standard ethical protocols were strictly observed: participants were briefed on the study's purpose, informed consent was obtained, and all data were anonymised and securely stored solely for academic purposes.

Data Analysis and Integration: Quantitative data were analysed using descriptive statistics (frequencies, means, and standard deviations; see Figures 5–10) to identify response patterns, rather than to establish causal relationships or broad statistical generalisations. Concurrently, qualitative interview data

underwent thematic analysis—utilising open coding, categorisation, and theme development—to capture recurring lived experiences of urban rewilding. These themes directly informed the interpretations presented in Sections 5.1.2, 5.2.2, and 5.3.2. Integrating both datasets yielded a robust, comprehensive understanding of how residents perceive the ecological and psychological impacts of these initiatives. However, given the small sample size and potential for subgroup variations, these valuable local insights should be interpreted cautiously; future studies with larger, more diverse cohorts are recommended to validate and extend these findings.

Table 1: Research Method Procedures

Procedures	Implementation
Research Design	Mixed-methods exploratory case study integrating quantitative surveys and qualitative interview
Sampling Method	Purposive sampling of 50 residents representing demographic diversity in Ipoh
Data Collection	Surveys: 5-point Likert scale measuring awareness, psychological well-being, and community engagement. Interviews: Semi-structured questions on lived experiences and perceptions of rewilded spaces
Instrument Validation	Pilot testing with 10 respondents; expert review for content validity; internal consistency reliability assessed using Cronbach's Alpha
Data Analysis	Quantitative: descriptive statistics (frequencies, means, standard deviations). Qualitative: thematic analysis using open coding, categorisation, and theme development

The questionnaire instrument was reviewed by academic experts to ensure content validity and clarity. A pilot study was conducted prior to the actual data collection to test the suitability of the instrument. Reliability analysis was conducted using Cronbach's Alpha to assess the internal consistency of the questionnaire items. The instrument achieved a Cronbach's Alpha coefficient of 0.81, indicating good internal reliability.

RESULTS

This section presents findings from 50 residents in Ipoh regarding their perceptions of urban rewilding, its perceived influence on psychological well-being, and community engagement. Data were collected through structured questionnaires and semi-structured interviews. The integration of quantitative and qualitative findings provides a more comprehensive understanding of how residents perceive urban rewilding initiatives within the local context.

Demographic Profile of Respondents

The sample consisted of an equal number of male and female respondents ($n = 25$ each; 50%). Participants ranged in age from 16 to 70 years, with an average age of 34.6 years. The majority of respondents were aged 25–40 years ($n = 30$;

60%), followed by 41–55 years ($n = 10$; 20%), 16–24 years ($n = 7$; 14%), and above 55 years ($n = 3$; 6%).

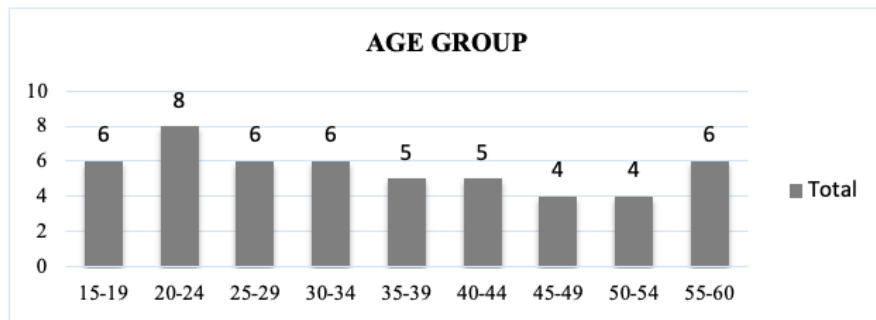


Figure 4: Distribution of Respondents by Age Group
Source: The Author

Regarding educational background, 15% ($n = 8$) held university degrees, 30% ($n = 15$) possessed diploma qualifications, 25% ($n = 13$) completed secondary education, 20% ($n = 10$) held vocational certifications, and 10% ($n = 5$) completed primary education. Employment backgrounds were also diverse, comprising government employees ($n = 15$; 30%), private sector employees ($n = 14$; 28%), individuals engaged in odd jobs ($n = 10$; 20%), self-employed participants ($n = 6$; 12%), and unemployed respondents ($n = 5$; 10%).

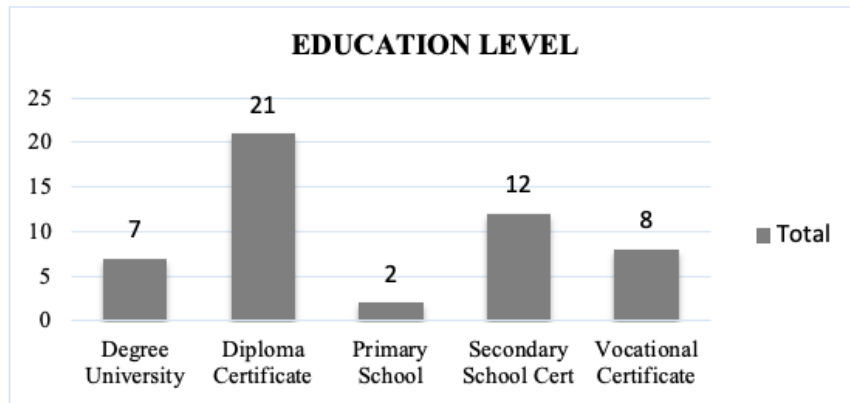


Figure 5: Distribution of Respondents by Education Level
Source: The Author



Figure 6: Distribution of Respondents by Employment Type

Source: The Author

This descriptive analysis highlights the diverse demographic characteristics found in the sample of 50 respondents, including age, gender, educational attainment, and employment status. In addition to providing demographic data, the participants were asked to rate the following:

Perceptions of Urban Rewilding Initiatives Benefits:	Respondents were asked to rate, on a scale of 1 to 5, their perceptions of the benefits of urban rewilding initiatives, considering factors like green spaces, biodiversity, and community integration.
Perceived Impact on Mental Health and Well-Being:	Participants were requested to assess, using a 1 to 5 scale, the perceived impact of urban rewilding initiatives on their mental health, considering stress levels, relaxation, and overall well-being.
Community Engagement in Urban Rewilding:	Respondents were queried about their level of involvement in urban rewilding activities and their desire for increased community engagement and participation in decision-making processes related to these initiatives.

The combination of quantitative and qualitative responses provides a clear understanding of residents' perceptions and experiences with urban rewilding in Ipoh. This section also outlines the questions asked during data collection to give context for the following analysis.

Summary of Quantitative Findings

Table 2: Summary of Quantitative Findings on Urban Rewilding Perceptions (n = 50)

Constructs	Mean (M)	Standard Deviation (SD)	Key Response Patterns
Perceived Benefits of Urban Rewilding	3.60	0.80	72% (n = 36) rated benefits as moderate to significant
Perceived Impact on Mental Health and Well-Being	4.00	0.70	78% (n = 39) perceived positive mental health benefits
Community Engagement and Involvement	4.22	0.62	86% (n = 43) reported high involvement or desire for involvement

Perceptions of Urban Rewilding Initiatives

Quantitative Findings

Participants reported generally positive perceptions regarding the benefits of urban rewilding initiatives, with an average score of 3.60 out of 5 (SD = 0.80). Approximately 72% of respondents (n = 36) rated urban rewilding as providing moderate to significant benefits. The relatively low standard deviation indicates a moderate level of consistency in participants' responses.

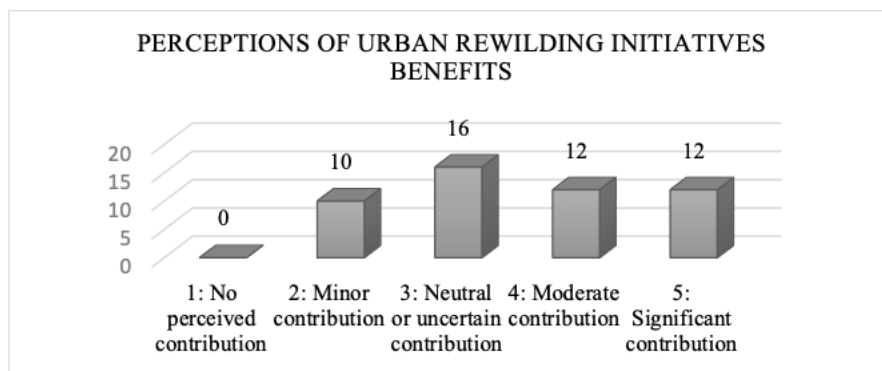


Figure 7: Respondents' Perceptions of the Benefits of Urban Rewilding Initiatives
Source: The Author

The bar graph presented in Figure 7 displays respondents' ratings regarding the perceived benefits of urban rewilding initiatives.

Qualitative Findings

Thematic analysis identified the theme of Perceived Environmental and Psychological Benefits. Participants frequently associated rewilded spaces with greener surroundings, stress reduction, improved emotional well-being, and enhanced community connections.

One participant explained: *"The presence of green spaces in the city contributed to a healthier environment and stress relief after a hectic day."* (Participant P1). These findings suggest that participants perceived urban rewilding as beneficial not only for environmental enhancement but also for psychological restoration and daily well-being.

Perceived Impact on Mental Health and Well-Being

Quantitative Findings

Participants generally perceived urban rewilding as positively influencing mental health and well-being, with a mean score of 4.00 out of 5 (SD = 0.70). Nearly half of the respondents (48%; n = 24) rated the relationship as moderate, while 30% (n = 15) perceived a significant positive impact.

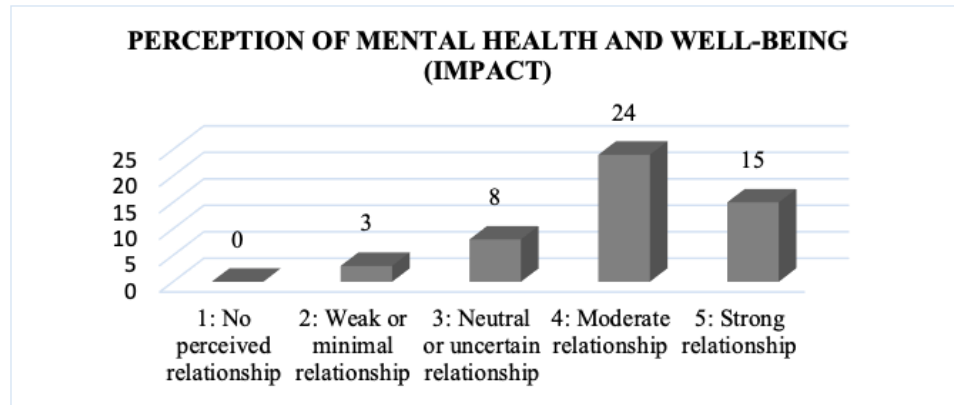


Figure 8: Perceived Relationship Between Urban Rewilding and Mental Well-Being
 Source: The Author

Qualitative Findings

Thematic analysis revealed the theme of Psychological Restoration Through Nature Exposure. Participants commonly described experiences related to stress reduction, emotional comfort, and improved mental well-being when interacting with greener and more naturalistic environments.

As one participant stated: “*The greenery around parks and the kampung area has noticeably reduced my stress. It would be nice to have similar greenery in our Ipoh neighbourhood.*” (Participant P12). Most participants perceived urban greenery as emotionally restorative, although several respondents who rarely visited rewilded spaces expressed more neutral views.

Community Engagement in Urban Rewilding

Quantitative Findings

Community engagement received the highest average score among all constructs ($M = 4.22$, $SD = 0.62$), indicating strong interest in participation and involvement. Approximately 86% of respondents ($n = 43$) reported high involvement or a strong desire to participate in urban rewilding initiatives.

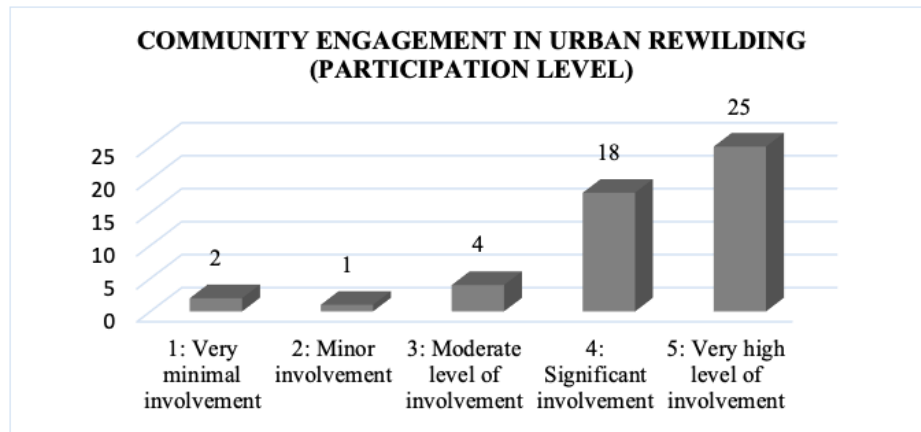


Figure 9: Community Interest in Participation in Urban Rewilding Initiatives
Source: The Author

Qualitative Findings

The thematic analysis identified the theme of Community Participation and Shared Responsibility. Participants emphasised the importance of involving local communities in planning and implementing rewilding initiatives.

One participant noted: “*While I occasionally join tree-planting drives, I wish to have more say in planning these initiatives.*” (Participant P23). These responses indicate that participants not only supported urban rewilding initiatives but also desired more meaningful involvement in decision-making processes.

Integration of Findings

From Findings to Statutory Integration

The synthesis of quantitative and qualitative data reveals a robust consensus: urban rewilding in Ipoh is perceived not merely as an environmental upgrade, but as a catalyst for socio-psychological restoration. Quantitative metrics demonstrating moderate-to-high agreement on the benefits of rewilding are powerfully substantiated by qualitative narratives of emotional rejuvenation and community attachment. Analytically, this convergence underscores a reciprocal relationship between ecological health and human well-being. Participants identified specific interventions—such as native plantings and the naturalisation of public spaces—as direct contributors to both neighbourhood identity and environmental awareness. Consequently, these findings validate the necessity of embedding rewilding mechanisms, such as biodiversity corridors and ecological restoration zones, directly into statutory urban development frameworks. Furthermore, the strong desire for participatory planning indicates that collaborative governance is essential to maximise both ecological and social outcomes.

Theoretical Implications: Biophilia and Green Urbanism

These findings offer crucial empirical validation for the biophilia hypothesis (Schiebel, Gallinat, & Kuhn, 2022) within a tropical, Southeast Asian urban context. The recurrent themes of stress alleviation and cognitive restoration experienced in naturalistic spaces suggest that participants perceived meaningful psychological value in ecological engagement. Beyond individual experiences, the findings reinforce the broader principles of Green Urbanism by highlighting the perceived relationship between biodiversity enhancement, environmental quality, and urban liveability. The emphasis placed on community involvement further suggests that sustainable urbanism may benefit from participatory and human-centred planning approaches alongside ecological design strategies.

Practical Implications for Urban Planning

For urban planners and policymakers in Ipoh, this research translates theoretical concepts into actionable, evidence-based mandates. The clear association between ecological restoration and public well-being dictates a shift away from highly manicured, conventional landscaping toward biodiversity-sensitive infrastructure. Crucially, the overwhelming preference for community involvement signals a need to transition from top-down municipal planning to collaborative stewardship models. Integrating rewilding principles into local planning guidelines, public space design, and green infrastructure policies will not only cultivate environmental resilience but also foster inclusive, psychologically supportive urban landscapes sustained by public ownership.

CONCLUSION

This study addressed an important gap in Southeast Asian urban sustainability discourse by exploring community perceptions of urban rewilding initiatives and their perceived relationship with mental well-being in the rapidly developing city of Ipoh, Perak. Through a convergent mixed-methods approach, the findings indicate that residents generally support the transition from conventional urban greening toward more ecologically functional and naturalised urban spaces.

The integration of quantitative survey findings and qualitative narratives suggests that “managed wildness” is positively perceived in relation to emotional restoration, cognitive refreshment, stress reduction, and environmental quality enhancement. The findings further reinforce existing literature on the biophilia hypothesis and the principles of Green Urbanism, highlighting the perceived interconnection between ecological health and urban liveability within urban communities.

From a practical perspective, the study indicates that the success of urban rewilding initiatives may depend not only on ecological planning strategies but also on meaningful community participation and social integration. The

strong interest in participatory planning among respondents suggests that collaborative and community-oriented stewardship approaches could support the implementation of native planting, biodiversity corridors, and naturalised public spaces within urban environments.

Overall, the study contributes to the growing discourse on nature-based urban planning approaches in Malaysia by highlighting public perceptions toward urban rewilding within the context of Green Urbanism. While the findings are limited to a relatively small sample size and perception-based responses, the study provides useful preliminary insights for planners and policymakers seeking to promote more ecologically resilient, climate-responsive, and socially restorative urban environments in Ipoh and similar rapidly urbanising cities.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The study focused exclusively on Ipoh, Perak, Malaysia. The impacts of urban rewilding are influenced by cultural, socioeconomic, and environmental contexts unique to Ipoh. The findings may not be applicable to other regions, even within Malaysia, thus limiting broader applicability.

Future studies on the role of technology and innovative urban design in enhancing the impact of urban rewilding on mental health could be particularly beneficial. Overall, these avenues of research contribute to a more comprehensive understanding of the potential benefits and challenges associated with urban rewilding initiatives and their implications for community well-being.

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CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest regarding the publication of this research.

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