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Evaluation of Indicators for Participatory and Collaborative Design Process for Public Parks in Malaysia: Analytical Hierarchy Process

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Abstract: Public participation is deemed relevant and essential for ensuring a holistic approach with equal weighting in implementing the three sustainable pillars of environment, economy and society. Malaysia's effective implementation of sustainable development frameworks also relies heavily on public participation activities. This participation allows for the incorporation of diverse perspectives, knowledge and experiences, ensuring that decisions and policies address the needs and aspirations of the affected community. This study examines the ranking of indicators for public participation exercises in park design in Malaysia. Using the analytical hierarchy process, 22 indicators from three main clusters were evaluated using a quantitative approach based on the opinions of subject matter experts. The methods of approach, types of public and public park design criteria are discussed in the results for the three construction phases recommended for implementation. This study establishes ranking indicators for each cluster relative to the three stages of development. The findings contribute to improving the present work process of the landscape architecture department at local authorities in Malaysia, ensuring an enhanced, holistic and impactful approach to participatory and collaborative design processes for public parks in Malaysia.

Keywords: Public parks in Malaysia, Public park design criteria, Public participation in MADANI government, *Sesi Libat Urus*, Analytical hierarchy process (AHP)

INTRODUCTION

Participatory and collaborative design is an approach that emphasises the active involvement of community members, stakeholders and experts in the design and planning process. This approach acknowledges that the users of public parks are crucial stakeholders, in providing essential information on their needs and preferences prior to park development. By incorporating their perspectives and input from the beginning, participatory and collaborative design ensures that public parks are responsive to the specific needs and desires of the community. This further ensures that public parks are developed to meet the actual needs of the specific community group. This approach also helps build trust, ownership and a sense of belonging among community members, leading to increased utilisation and satisfaction with the public park.

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Furthermore, MADANI (an acronym for SCRIPT, which stands for sustainability, care and compassion, respect, innovation, prosperity and trust) governance promotes a participatory process to ensure inclusivity and transparency. Malaysia MADANI emphasises a governance framework that foster stakeholder engagement and diverse perspectives, enabling the identification of research priorities that address pressing societal needs (Perpaduan Malaysia, 2023). The MADANI government's effort to promote participatory and collaborative development practices, which include engaging stakeholders and communities in decision-making processes, has played a vital role in fostering inclusion and a comprehensive sustainable development strategy. The use of these participatory development practices has greatly improved inclusiveness and sustainability in decision-making processes in Malaysia.

Further, in responding to sustainable development as mandated by sustainable development goals (SDGs) and Local Agenda 21 (LA21), Malaysia's local government has developed a structural mechanism to foster a sense of collective responsibility for the local matters. This includes public consultations and discussions, access to public information, referenda and participatory budgeting. However, the implementation process of these instruments and the poor process in engagement procedure with the stakeholders have become concerning problem (Anuar and Saruwono, 2018; Sonet et al., 2023; 2021). Anuar and Saruwono (2018) added that in the pursuit of sustainability, public participation has been identified as one of the ways forward in achieving this objective.

LITERATURE REVIEW

Governance and Participatory Development

Recently, under the MADANI government led by the 10th Prime Minister of Malaysia, Dato' Seri Anwar Ibrahim, an extensive participatory and collaborative approach across multidisciplinary fields has been implemented throughout Malaysia. The participatory model, known in Malay language as *Sesi Libat Urus* (directly translated as "participatory managed session"), has seen widespread participation since its introduction. Despite being in an exploratory and at experimental stage, *Sesi Libat Urus* has gained significant traction in Malaysia. However, as multiple scholars criticised in 2020, Malaysia's local government policy has yet to establish a comprehensive system of public participation and its regulations and the existing public participation mechanisms were considered underdeveloped (Ali and Arifin, 2020; Ramli and Ujang, 2020; Sonet et al., 2021; 2023).

However, this initiative by the MADANI government further emphasises an impactful and holistic approach to participatory and collaborative development, marking a significant paradigm shift in Malaysia. Previously, before the gazettement of *Sesi Libat Urus*, the implementation of public participation was considered poor, non-holistic and indifferent among the civil society (Ali and Arifin, 2020; Anuar and Saruwono, 2018; Chear et al., 2021; Lanang and Hassan, 2021; Zolkafli, Brown and Liu, 2017). Scholars have criticised public participation in Malaysia as being merely briefing session conducted by rather than genuine public participation, which includes two-way discussions between the public and local authorities (Ali and Arifin, 2020; Yunos et al., 2015; Nurudin et al., 2015). Furthermore, public participation

has been found to be low and ineffective in influencing decisions related to local development at the local authority level (Ali and Arifin, 2020; Nurudin et al., 2015; Yaakob, 2012; Zolkafli, Brown and Liu, 2017). This is often associated with poor public knowledge of the participation process, which certainly influences their decision to participate and contribute throughout the engagement process (Ali and Arifin, 2020; Anuar and Saruwono, 2018; Marzuki, 2015; Zolkafli, Brown and Liu, 2017).

Current public participation in Malaysia is mainly facing three issues: (1) lack of participants, (2) inappropriate methodologies for landscape planning and design and (3) lack of consultation approach (Ali and Arifin, 2019; Lanang and Hassan, 2021; Yunos et al., 2015; Khair, Lee and Mokhtar, 2020; Zolkafli, Brown and Liu, 2017). Yunos et al. (2015) further stated that landscape architects in Malaysia are generally unaware of the public participation methods practised by local authorities; only a few have mentioned public townhall meetings, which provide an opportunity for the public to respond to development proposals. To address identified weaknesses in Malaysia's existing public participation related to landscape design and planning, local authorities should seek effective alternative techniques (Yunos et al. 2015). Yunos et al. (2015) suggested that local authorities should improve and enhance the effectiveness of public participation by empowering communities and involve them in decision-making. Additionally, it has been suggested to develop a framework for public participation in the design and planning process of public parks (Ali and Arifin, 2019; 2020; Zolkafli, Brown and Liu, 2020; Anuar and Saruwono, 2018).

The issue of underutilisation of public parks in Malaysia persists despite well-designed landscapes, the meaningful experience of the green environment and the functionality of parks as community social spaces (Moulay and Ujang, 2021; Ujang, Moulay and Zakariya, 2015). Public parks in Malaysia also face poor maintenance by local authorities, which is related to financial constraints (Samsudin, Masram and Yassin, 2021). Through public participation, issues such as underutilisation and poor maintenance may be resolved, as the public (end-user) has the opportunity to directly express their opinions and dissatisfactions. This could potentially encourage volunteerism in maintaining public parks through shared responsibility among the public, which is also considered as a form of public participation. Thus, this research empirically examines the indicators for participatory and collaborative design for public parks in Malaysia.

Malaysia is a constitutional monarchy with a democratic government. There is a separation of federal and state governments under Westminster system, but with a constitutional predisposition in favour of the federal government (Kamaruddin and Rogers, 2020). Democratic governments provide more open and citizen-oriented options, enhancing civil society organisations, including unions and enabling them to influence public policy (Putra, 2019; Putra and Aminuddin, 2020). Citizens of democratic countries are empowered to be involved in and engage in public policy to better serve the people and meet their demands (Johnson, 2014). This type of public policy displays a bottom-up development framework, with wide-ranging public involvement and citizen engagement (Eckerd and Heidelberg, 2020; Feng et al., 2020). Public participation is commonly perceived as an innovative form of governance that brings together various types of public opinion, each with its own knowledge and resources, to reach a consensus throughout the process (Sondermann and Ulbert, 2021). While democracy does not inevitably result in more responsive governments, it remains a more inclusive political system, depending on the policy-making process and the manner in which citizens' concerns are heard

and taken into consideration (Putra, 2019). Hence, to strengthen democracy in the nation, the local public must actively participate in the decision-making process in civil policy held by the government.

Besides, public participation in governmental policy decision-making significantly impacts the advancement of democracy (Manaf, Mohamed and Lawton, 2016; Sondermann and Ulbert, 2021; Yaakob, 2012). Malaysia, however, is regarded as a "semi-democratic" regime due to restrictions on civil and political liberties, including limitations on communication and assembly, the strategic use of detention orders and other legal and emergency powers (Welsh, 1996). Therefore, there is a need for a significant transition in Malaysia's democracy, which includes enhancing the role of the public in the governmental decision-making process (Kamaruddin and Rogers, 2020). Active public participation is perceived as promoting transparency in civil policy. As a result, civil policy can adapt and develop to respond to the actual needs of the people in a public infrastructure development.

Inclusivity and Participatory: Collaborative Design Process

Inclusive urban development aims to ensure that cities are designed and built to consider the needs and preferences of all residents, including those from marginalised and underrepresented communities (Liu et al., 2020). One approach to achieving inclusive urban development is through the use of a participatory design process. This process involves actively involving stakeholders, such as community members, residents, local organisations and experts, in the decision-making and planning of urban design projects. By incorporating diverse perspectives and expertise, participatory design can lead to more inclusive and equitable outcomes in urban development. Allowing individuals to have a say in the design of their built environment empowers marginalised and underrepresented communities to shape their surroundings according to their needs and preferences. This approach can address social issues faced by communities, such as lack of affordable housing, inadequate public transportation and limited access to amenities and services.

Furthermore, participatory design can promote social cohesion and a sense of ownership among community members. Through participatory design, communities can collaborate with designers and decision-makers, ensuring that their voices and needs are heard and incorporated into urban development plans. The concept of public participation embodies the deep democratic planning process, aiming to ensure that planning decisions protect individual rights and the public interest. Furthermore, public participation serves two key functions: (1) it is a method for making environmental decisions and (2) it can foster social legitimacy by establishing trust and a sense of ownership in the decision-making process, thereby reducing conflict among stakeholders (Yaakob, 2012).

A participatory and collaborative design approach is vital for attaining sustainable cities. The concept of public participation in decision-making, as well as its implementation, is critical for transitioning toward sustainable development (Ghiasi, Hassanzadeh and Forghanifar, 2015). The United Nations' SDG frameworks states that achieving the SDG targets will require concerted action across governments, public and private sector organisations, civil society and individual citizens (Acuti, Bellucci and Manetti, 2020). Subsequently, the United Nations General Assembly adopted the 17 SDGs to enhance the operationalisation and integration

of sustainability, thereby addressing current and future stakeholder needs and ensuring a better and sustainable future for all while balancing economic, social and environmental development (Fonseca, Domingues and Dima, 2020).

Hierarchy of Structure

The underpinning theory of this research is derived from the model of the "Public Participation Integrated Design Framework (PPIDF) for Public Parks in Malaysia" established by Sonet et al. (2023). This model was adopted as it is the only established framework for public participation in designing public parks within the Malaysian context. Hence, the PPIDF model is the most relevant for further investigation towards the establishment of a work process model for the "Participatory and Collaborative Design Process for Public Parks in Malaysia". This research further complements the ranking of each indicator established by the PPIDF model, enhancing its usability as a guideline for the local government agencies and the public sectors in moving toward a systematic public participation exercise. The model is subsequently transformed into a hierarchy structure for the research, as shown in Figure 1. Figure 1 illustrates the factors contributing to the public participation framework in public parks design in Malaysia (Sonet et al., 2023). It identifies four main variables and 22 indicators.

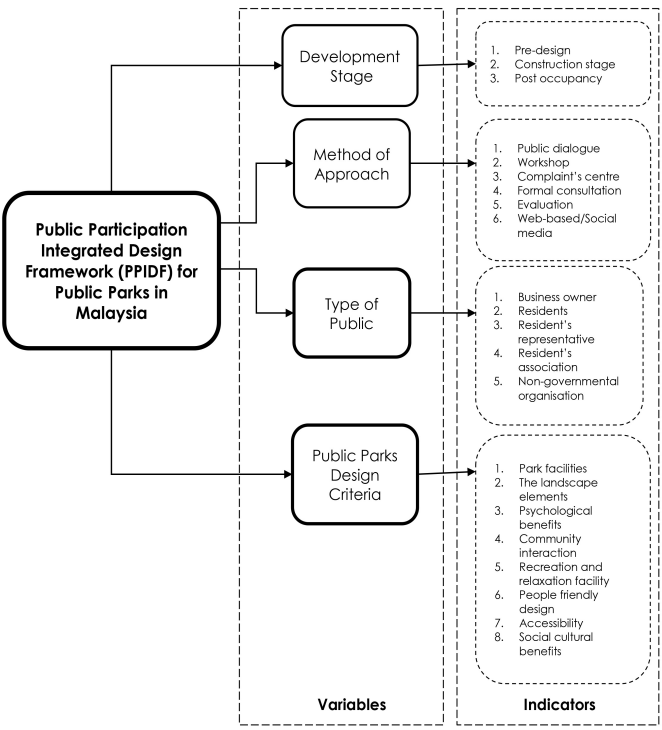

Figure 1. Variables and indicators for PPIDF for public parks in Malaysia
Source: Sonet et al. (2023)

In developing a hierarchy of structure, the problem is decomposed into a hierarchy of goals, clusters and sub-cluster. This is the most important part of decision-making. Structuring the decision problem as a hierarchy is fundamental to the process of the analytical hierarchy process (AHP). The sequence can be described in three steps as follows:

1. Identify the objective of the process: This process begins with defining the overall objective or goal of the process.
2. Identify the clusters to achieve objectives: Criteria that contribute to the successful realisation of this goal are then identified.
3. Identify the sub-cluster: Specific sub-clusters related to each are then identified and included in the hierarchy.

Figure 2 shows the hierarchy of structure of the researcher. This structure is formed by three main clusters and three main sub-clusters. Each sub-clusters have its own indicators. The hierarchical structure of the research serves as the measurement model for ranking each indicator within the sub-clusters to their respective cluster.

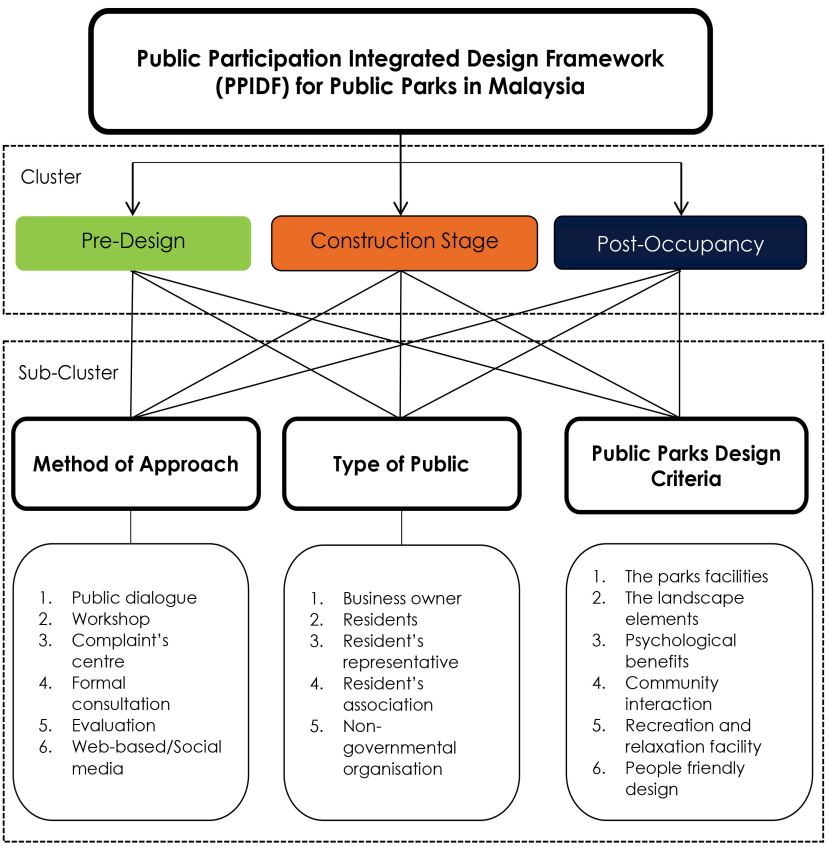

Figure 2. Hierarchy of structure for PPIDF for public parks in Malaysia

METHODOLOGY

Analytical Hierarchy Process

The establishment of the hierarchical structure of the research mirrors the relevant statistical analysis method, which is the AHP. AHP is an expert opinion approach focusing on responses from experts within the research components. This method was adopted because it is fundamental to decision-making among categorical expert respondents. AHP is designed to address both rational and intuitive aspects, allowing the selection of the best alternative from several options evaluated against multiple criteria. In this process, the decision-maker conducts simple pairwise comparison judgements, which are then used to develop overall priorities for ranking the alternatives (Saaty and Vargas, 2001).

Data were collected through a questionnaire survey among the public park's users. Based on the formulated hierarchical structure, the survey questionnaire was generated using the SuperDecisions software This hierarchical structure aims to examine the ranking of each indicator across the three-development stages of public parks: the pre-design stage, the construction stage and the pre-occupancy stage. Experts ranked the indicators based on the method of approach, type of public and public park design criteria in relation to these three development stages.

Expert opinion was obtained using the AHP, a fundamental approach to decision-making. AHP is designed to address both rational and intuitive aspects, allowing the selection of the best alternative from several options criteria. In this process, the decision-maker carried out simple pairwise comparison judgements, which are then used to develop overall priorities for ranking the alternatives (Saaty and Vargas, 2001).

The AHP method in this research consists of three steps: (1) Hierarchy formation – The first level of the hierarchy contains the decision goal, whereas the subsequent lower levels represent the progressive breakdown of the decision criteria and sub criteria, (2) Pairwise comparison – Decision-makers (who are often domain experts) are asked to complete pairwise comparisons of the elements at each level of the hierarchy, assuming the elements at each level of the hierarchy, assuming the elements are independent of each other and (3) Verification of consistency – Expert judgement are necessary for determining the relative importance of each criterion and any alternatives to achieving decision goal (Darko et al., 2019). Considering the decision goal, the comparison is made between the relative importance of every two indicators in sub-criteria at the second level of the hierarchy.

This pairwise comparison is often based on a nine-point scale (Darko et al., 2019). Consistency verification is essential to ensuring an optimised outcome. To control the consistency of pairwise comparisons, a computation of the consistency ratio was performed using the SuperDecisions software (Creative Decisions Foundation, Pittsburgh, PA). Decision-makers are required to revise their initial judgements if the computed consistency ratio exceeds the threshold of 0.1 (Saaty, 2000). After all, the necessary pairwise comparisons and revisions have been made and the consistency ratio is found to be less than 0.1, the judgements can be synthesised to prioritise the decision criteria along with their corresponding sub-criteria. The decision making using AHP includes the following steps through SuperDecisions software:

1. Step 1: Making decision hierarchy (Hierarchy of Structure).
2. Step 2: Constructing comparison matrices.
3. Step 3: Calculating eigenvector and eigenvalues.
4. Step 4: Checking consistency of matrices.
5. Step 5: Evaluating for criteria and decision making.

The AHP requires a small sample size to achieve sound and statistically robust results (Darko et al., 2019). The extant literature on AHP applications in construction indicates no strict requirement on the minimum sample size for AHP analysis. However, some studies have used sample sizes ranging from four to nine (Darko et al., 2019). These findings suggest that AHP can be effectively performed with a small sample size to achieve useful decision results and models.

The questionnaire for expert opinion using the AHP method was systematically developed to capture interactions and feedback among indicators within the same sub-cluster (as shown in Table 1). Absolute measurement (scoring) was applied to rank the alternatives based on whether the indicators within the sub-cluster were deemed extremely important, very strongly important, strongly important, or moderately important. The questionnaire was generated and developed using the SuperDecisions software. This software facilitated the creation of a comprehensive set of pairwise comparison questionnaires for comparing each indicator with another within the same sub-cluster group, aligning with the research objective of developing rankings for each indicator within the sub-cluster.

Table 1. Sample of a question of pair-wise comparison between indicators in the same sub-cluster

Sub-Criteria	**← Level of Importance →**	**Sub-Criteria**
MA1: Public dialogue	□9□7□5□3□1☒3□5□7□9	MA2: Workshop

The criteria will be presented side by side (on the left and right sides of the table) with Saaty's scale of judgement (1 to 9) displayed in Table 2 (Saaty and Vargas, 2001). Table 2 illustrate the measurement scale used in the research questionnaire. A score of 1 indicates equal importance between two criteria, three indicates moderate importance of one criterion over another, five indicates strong importance, seven indicates very strong importance and 9 indicates extremely strong importance. The weight assigned to each criterion will be determined by its influence relative to another criterion.

Table 2. Scale of measurement

Sub-Criteria	**Extremely Important**	**Very Strongly Important**	**Strongly Important**	**Moderately Important**	**Equal**	**Moderately Important**	**Strongly Important**	**Very Strongly Important**	**Extremely Important**
Scale	9	7	5	3	1	3	5	7	9

After setting the priorities for the sub-cluster and the pairwise comparison has been completed, finally, aggregates are scored by checking off their respective ratings under each indicator of sub-clusters and summing these ratings for all the sub-cluster.

RESULTS AND DISCUSSION

The researcher distributed the questionnaire set to 12 experts, selecting six based on their professional backgrounds and years of experience in landscape architecture and architecture. Table 3 displays organisational backgrounds, years of experience, academic qualifications and profession of these six experts.

In this research, the questionnaire was distributed to the experts and Darko et al. (2019) recommended four to nine expert respondents for the AHP data analysis method. Therefore, this study utilised six experts among the decision-maker of academicians, private practitioners and public servants (local authorities). They are professionals in the field of landscape architecture and architecture. This is to ensure a robust outcome. Prior to the distribution of the questionnaire, the experts were initially brief on the research background by the researcher. The weights derived from the expert opinion were used to produce the public participation integrated PPIDF.

Table 3. Expert demographic information

Expert ID	Organisation	Year of Experience	Academic Qualification	Profession or Position
Expert 1	Public Works Department (JKR)	14	Master	Architect or expert of urban design
Expert 2	Kuala Lumpur City Hall (DBKL)	10	Bachelor	Professional landscape architect
Expert 3	Institute of Landscape Architects Malaysia (ILAM)	24	Doctor of Philosophy (PhD)	Senior lecturer or president
Expert 4	Malaysian Urban Design Association	28	Bachelor	Vice president
Expert 5	Malaysian Institute of Architects (MIA)	36	Master	Professional architect or president
Expert 6	Pusat Perubatan Universiti Malaya (PPUM) or Board of University Malaya	35	Bachelor	Professional architect, chairman, board member or architect

METHOD OF APPROACH FOR PUBLIC PARTICIPATION INTEGRATED DESIGN FRAMEWORK

Table 4 shows the ranking for the method of approach for the three development stages, including the pre-design stage, construction stage and post-occupancy stage. In general, the results shown based on the ranking sequence of each

indicator in the method of approach for the three different development stages of public parks demonstrated a relevant reference for the landscape department in determining the best method of approach on organising public participation exercise (PPE) for future public park projects.

Table 4. Ranking for the method of approach for three development stages

Rank	Pre-Design	Construction	Post-Occupancy
1	Workshop	Evaluation	Evaluation
2	Public dialogue	Formal consultation	Complaint's centre
3	Formal consultation	Complaint's centre	Web-based or social media
4	Evaluation	Web-based or social media	Formal consultation
5	Web-based or social media	Public dialogue	Public dialogue
6	Complaint's centre	Workshop	Workshop

Figure 3 illustrates the radar chart depicting the method of approach across the three-development stages. The closer a point is to the centre of zero, the higher its ranking. Therefore, it can be concluded that for the pre-design stage, the optimal methods of approach are workshops, public dialogue and formal consultation. Similarly, the highest-ranking methods for the construction stage is evaluation, formal consultation and complaint centre. In the post-occupancy stage, evaluation ranks highest, followed by complaint's centre and web-based or social media. The radar chart provides options and recommendations to the landscape department for determining the best approach methods for implementing public participation programs in designing public parks. Therefore, the landscape department can further evaluate these options based on the projected ranking for each method of approach indicator.

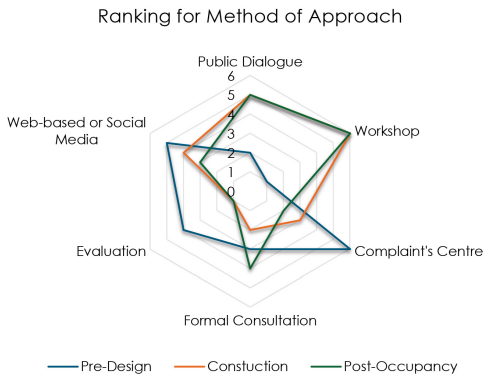

Figure 3. Ranking for the method of approach for three development stages

Type of Public for Public Participation Integrated Design Framework

Table 5 shows the ranking for the type of public for the three development stages in designing public parks in Malaysia.

Table 5. Ranking for the type of public for three development stages

Rank	Pre-Design	Construction	Post-Occupancy
1	Residents	Resident's association members	Resident's association members
2	Resident's association members	Residents	Residents
3	Resident's representative	Resident's representative	Resident's representative
4	Non-governmental organisation	Business owner	Non-governmental organisation
5	Business owner	Non-governmental organisation	Business owner

Figure 4 presents the radar chart depicting the types of publics across the three-development stages of public parks. This category evaluates five types of publics: business owners, residents, resident's representatives, members of resident's associations and non-governmental organisations. The radar indicates that, for all three development stages, the top three rankings are consistently occupied by members of resident's associations, residents and resident's representatives. Business owners and non-governmental organisations typically occupy the fifth or sixth positions. This highlights that resident's association members, residents and resident's representatives are the most significant groups to involve and engage in PPE for designing public parks in Malaysia. This does not imply that their inclusion should be further evaluated by the landscape department based on their relevance to each development stage and the objectives to be achieved.

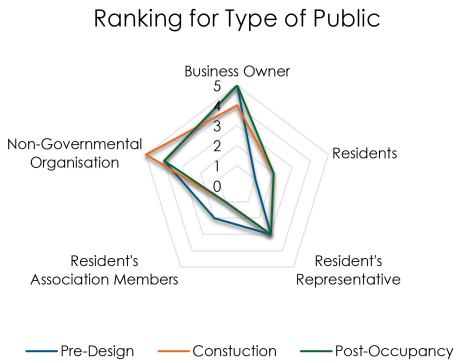

Figure 4. Ranking for the type of public for three development stages

The importance and significance of public participation are closely linked to the sense of ownership among the public. Additionally, public parks are regarded as public assets (Mullenbach et al., 2019). The sense of ownership or belonging is a perception developed by the public towards a place, contributing to various positive factors such as enhancing security levels and fostering social interactions within neighbourhoods. Therefore, it can be concluded that the public plays a crucial role in shaping the future urban fabric of a place (Mullenbach et al., 2019).

The categorisation of public types established in this study serves as a guideline for the landscape department in conducting the PPE for future public park developments in Malaysia. However, these public types should be seen as variables warranting further investigation into their relevance and broader inclusivity for groups not currently covered. Conversely, the landscape department must also recognise the importance of setting clear boundaries for each variable in PPE to ensure effective management and implementation in designing public parks. According to Webler, Tuler and Krueger (2001), individuals most impacted by the development tend to be more committed to participating in public participation efforts. This underscores the importance, as suggested by Creighton (2005), for the organiser—in this case, the landscape department—to define the scope and objectives of PPE to effectively meet its goals.

The large volume of participation anticipated will demand a substantial budget, a robust system and potentially longer time requirements in the decision-making process for organising a PPE and vice versa (Abelson et al., 2003). Hence, it is important for the landscape department to analyse the size of the project and its budget to determine the three main variables of PPE, including the type of public involvement in the PPE.

Public Park Design Criteria for Public Participation Integrated Design Framework

Table 6 shows the ranking for the public parks design criteria for the three development stages of public parks. These public park design criteria suggest the design issues to discuss during the PPE.

Table 6. Ranking for public park design criteria for three development stages

Rank	Pre-Design	Construction	Post-Occupancy
1	Accessibility	Accessibility	Accessibility
2	People friendly design	People friendly design	People friendly design
3	Social cultural benefits	Social cultural benefits	Community interaction
4	Psychological benefits	The park facilities	Recreation and relaxation facility
5	Recreation and relaxation facility	Recreation and relaxation facility	Psychological benefits
6	Community interaction	Community interaction	Social cultural benefits
7	The landscape elements	The landscape elements and psychological benefits	The park facilities
8	The park facilities		The landscape elements

The public park design criteria established in this PPIDF is crucial in establishing the limitations and boundaries to the extent of the involvement of the public on the issues of public parks design. The establishment of limitations is crucial and highly important to ensure that the objective of every public participation activity is achievable (Creighton, 2005; Webler, Tuler and Krueger, 2001). Further, the landscape architects and architects would have better design knowledge in designing public parks. Hence, public participation is a platform to further investigate in complimenting the existing design theories in designing public parks rather than the ultimate decision making in public parks design.

Figure 5 is a radar that shows the public park design criteria to be discussed during the PPE for every three development-stage of public parks. The results show that the two highest-ranking for the three development stages are accessibility design and people-friendly design. This shows that the essential primary input to obtain from the public in PPE is the accessibility issues and people-friendly design issues. The third ranking is the social cultural benefits design factor for the pre-design and construction stage, while the post-occupancy is the community interaction design factor. The psychological benefits and the recreation and relaxation facility were found to be the lowest in the ranking for the public parks design issues to be discussed during the PPE.

However, this does not dictate the relevant design factors discussed during the PPE. Instead, this shows the priority of the design factor that will most benefit in conducting PPE, as those are seen as the most crucial elements to gain out of public inputs.

Figure 5. Ranking of public parks design criteria for three development stages

CONCLUSIONS

The rank of each indicator allows the landscape department in Malaysia to evaluate further the rationale and relevance of each indicator for each PPE in designing public parks in Malaysia. The public parks design process is a place-based oriented development. Hence, it is essential to implement PPIDF in designing public parks relevant to its context. The researcher established the variables and indicators for implementing PPE in designing public parks in Malaysia,

Figure 6 shows PPIDF in Malaysia. The first part of the PPIDF is establishing the input by the landscape department as discussed earlier in the public participation planning. The dissemination process of the PPE involves the announcement method to the public. There are six preferred methods for the announcement method by the public, the most preferred is through social media platforms, followed by media, email, face to face, postage mail and phone call.

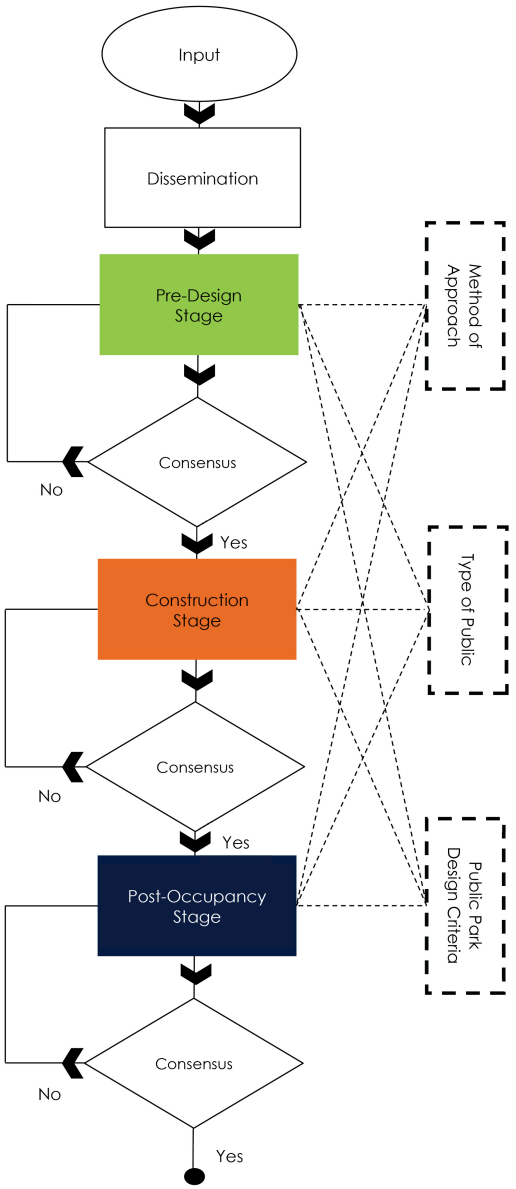

Figure 6. PPIDF for public park design in Malaysia

The PPIDF is further recommended to be integrated with the current work process for public parks by the landscape department in Malaysia. Briefly, the public parks project in Malaysia is commonly designed in-house by the landscape department themselves, rather than appointing third party design consultants. This is various and depends on the individual decision-making process by each local authority in the landscape department.

The research presents a rating system for reference and guidance to be employed by the landscape department of the local authority in Malaysia and it is projected in a concise manner. The ranking system for each indicator will allow the organiser (landscape department) of PPIDF to determine the appropriate indicators based on their judgement to include various influenced factors such as budget allocated as well as project timeline in conducting the public participation activity relevant to the project of public parks in Malaysia. The public parks project is executed and managed by the landscape department and further maintained by the maintenance division under the landscape department's authority. In this respect, the findings of this study imply that the proposed PPIDF should serve as a guideline for the landscape department in Malaysia as the designated party.

One significant contribution in engaging the public and stakeholders in future development is the reflection of the bottom-up development framework. The wisdom behind the bottom-up development framework includes a good practice of democratic governance, develop a good socially responsible public society, ability to meet the needs of the public in designing public facilities and infrastructure, enhancing the interaction between the local authority and public, enhancing social interaction between the public and educate the public the advance knowledge in sustainable development.

Public participation has proven to be highly relevant and significant in its contribution towards sustainable development in a holistic measure, including towards socially sustainable development. This research has proposed a systematic method in organising public participation in designing public parks in Malaysia through PPIDF in Malaysia. The finding allows the landscape department of the local authority in Malaysia to establish their own suitable PPE indicators for each public park project in Malaysia. This research also encouraged further investigation relevant to public participation in other potential public facilities and infrastructure in Malaysia.

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