Quality of Public Spaces in Vernacular Settlements: Insights from Kotagede, Yogyakarta, Indonesia

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Abstract

Kotagede is a traditional residential area designated as a cultural heritage area. The community is currently developing as a dense residential area and this is limiting the existence of public open spaces despite their importance to social interaction public activities. Therefore, this study was conducted to discuss the quality of public open spaces in Kotagede with a focus on the use and users, accessibility, amenities and furniture, comfort and safety, as well as environmental components through a qualitative method.

The findings show that the highest indicator of use and users' aspect was found in location 1 out of the five locations analyzed, comfort and safety was in location 5, accessibility and amenities were also in location 1, and the environmental component was in location 2. Moreover, the variety of users, activities, and activity times discovered for the use and users' indicator showed that the social activities of Kotagede Settlement were driven by the ease of accessibility and amenities in location 1.

Keywords: Quality, Public Space, Traditional Settlement, Kotagede

Introduction

The provision of the Indonesia Law Number 11 of 2010 concerning Cultural Heritage states that "Cultural heritage area is a geographical unit of space with two or more cultural heritage sites located close together or show distinctive spatial characteristics." This led to the development of policies and strategies to control the spatial utilization of these areas in order to ensure their preservation. The phenomenon is evident in the establishment of cultural heritage areas in different places in the Special Region of Yogyakarta including Kotagede, Palace, Malioboro, Pakualaman, Kotabaru, and Imagiri based on Governor Decree Number 186/2011.

Kotagede is a traditional residential community designated as a cultural heritage area due to the distinctiveness of its physical and non-physical elements. The physical elements include the building typology and area structure while the non-physical ones are the social and cultural values. The building typology reflects the typical style of Islamic Mataram-era architecture which is peculiar to the community and currently exists in the form of heritage buildings such as the great Mataram mosque complex and the tombs of the kings. Meanwhile, the residential buildings are characterized by traditional Javanese architecture.

Kotagede is currently developing as a dense residential area, thereby limiting the availability of public open space which is considered important for the people to interaction. The phenomenon is forcing the people to conduct social interaction on narrow streets and alleys of the village as well as open spaces by the river and the field.

In this context, this study aims to explore the quality of public open space in Kotagede. Its objective is to evaluate them based on different indicators including 1) use and users, 2) accessibility, 3) amenities and furniture, 4) comfort and safety, and 5) environmental components.

The findings will serve as input for the Yogyakarta city government in improving the quality of public open space in the community.

Literature Review

Public open space in residential areas generally consists of parks, open spaces along rivers and waters, fields, pedestrian paths, and roads. They are usually used for joint community activities and provide opportunities for people to meet and interact socially. The quality of these spaces in supporting the intended activities can be determined based on the following aspects:

1. Use and User
2. Accessibility
3. Amenities and furniture
4. Comfort and safety
5. Environmental components

Each aspect can be further divided into the following indicators:

Table 1: Aspects and indicators of Quality and use of Public Space.
Source: United Nations Human Settlements Programme (UN-Habitat) 2020

	Aspect		Indicator
1	Use and User	1.1	Number and variety of users accessing the public space.
		1.2	Number and variety of activities observed in the public space based on time.
2	Accessibility	2.1	Accessibility and presence of qualitative and inclusive facilities for private vehicles.
		2.2	Accessibility and presence of qualitative and inclusive facilities for bikes.
		2.3	Accessibility and presence of qualitative and inclusive facilities for pedestrians
		2.4	Accessibility and presence of qualitative and inclusive facilities for public transport
3	Amenities and furniture	3.1	Presence and quality of lighting.
		3.2	Presence and quality of amenities for recreational structures.
		3.3	Presence and quality of seating.
		3.4	Presence and quality of waste bins.
		3.5	Presence and quality of bike racks.
		3.6	Presence and quality of signage and emergency items.
		3.7	Presence and quality of water and toilet facilities.
4	Comfort and safety	4.1	Perception of safety & level of security of the public space.
		4.2	Quality of sensorial experience.
		4.3	Overall comfort using the public space through maintenance, design, and ambient conditions.
		4.4	Presence of a public space identity defined by the cultural background and enjoyment of users.
5	Environmental components	5.1	Quality of biodiversity and microclimate conditions in the public space.
		5.2	Environmental and community resilience.
		5.3	Presence of energy-efficient elements in the public space.

The discussion of public open spaces as places requiring the modification of spatial elements to ensure optimal performance indicated the importance of placemaking efforts. According to Devadas (2022), placemaking requires paying attention to the need "for an overarching ethos that enables a responsive and adaptive approach." The surveys conducted to modify elements effectively established that they are as fundamental as physical elements in constructing architectural ideas. Christopher Alexander (in Devadas, 2022) also noted that "At the geometric level, certain physical elements can be seen, combined in an almost endless variety of combinations. It becomes necessary, then, to see modifying elements together with physical elements as determinants of form and space in architectural theory hence architecture can transcend the boundaries of the tangible dimension of space to the intangible and timeless dimension of place." (Alexander, 2022). According to Praliya (2019), the low scores signifying the poor performance of public spaces in Indian cities were evident from an analytical study of different parks in selected cities. The findings further showed that parks in medium-sized cities and small towns in large cities did not perform well in most dimensions of quality. Factors supporting the quality of public spaces are inclusiveness, meaningfulness, security, comfort, and enjoyment (Mehta, 2014).

Bath (2022) has shown that green open spaces in urban environments could produce therapeutic effects for communities in the urban core, mostly due to the use of shade as a quantitative parameter. Most importantly, the study was used to fill the gap in understanding urban spaces and the physical activities associated with them, in their physical environment. Furthermore, each open space referred to in this study was analyzed more qualitatively than quantitatively based on certain parameters previously mentioned to understand the intent. Land use was the main parameter used to evaluate the functions of urban greens. Moreover, accessibility was observed to have provided interesting results in understanding the type of urban public spaces to be preserved in the city, basically because they were well-shaded. Aside from being a place of social activity, public open space also serves as a place of cultural activity (Zulkarnain, 2022) such as the communal open space in Kaluppini that functions as a center for customary activities, indicating the pattern and custom of togetherness and sanctity. The indigenous people, traditional leaders, and the government usually gather together in communal areas, exemplifying the idea of equality. The religious artifacts associated with the traditional activities in the *datte-datte* area of Manurung also represented the notion of sanctity.

Related to the comfort factor, Eskandar (2022) has shown that thermal comfort could improve the quality and vitality of local public open spaces. Moreover, microclimate, building block pattern, street organization, and direction were discovered to have formed the relationship between urban morphological features and thermal comfort. The results further showed that morphological elements had an impact on the existence of shadows on the street, the increase in the level of direct sunlight exposure, and the generation of thermal comfort.

Li (2022) has explored the concept of publicness from both theoretical and empirical perspectives to explain the true nature of public space. The theoretical discussion showed the sociological and political significance of publicness for general public space, paying more attention to the ownership, rules, and management mechanisms governing the space. Meanwhile, the empirical discussions related the theory to basic physical and material components of general public space. These components complemented the spatial attributes to broaden the understanding of publicness, thereby placing more emphasis on factors that show humanistic concerns such as how the public spaces were designed, meet the needs of diverse users, and support dynamic public life. The clarification of this concept was observed to have allowed unity between several values and functions related to urban public space. The purpose was to ensure that the public space practice did not deviate from its basic purpose, thereby leading to the synthesis of four publicness dimensions including ownership, accessibility, management, and inclusiveness.

Loo (2023) has found that dynamic edges formed by movable furniture and fixed edges of visual landmarks consistently attracted more social interaction and group activity. This showed that urban planners and designers could utilize a combination of fixed objects and

flexible furniture during the design process to maximize options for visitors and organize more attractive public open spaces in order to encourage group activity. Moreover, the intergenerational public space approach emerged in response to an identified need to bridge age-friendly and child-friendly as well as social and spatial approaches. This was associated with several benefits, including individual health and well-being, social cohesion and solidarity, as well as community development (Nelischer, 2022). High-quality public spaces were discovered to be important for the enhancement of the sense of community for the residents in housing developments (Francis, 2012).

Chibli (2021) has reviewed the design of inclusive public spaces using digital technologies such as smart urban furniture, smart platforms, bench design, and others to change boundaries and promote new types of social interactions that align with digitally-driven lifestyles. Salle (2022) also has shown the ability of digital tools to enhance the experience of public spaces and encourage people to engage with their environment in new and meaningful ways. Moreover, social media and digital platforms were found to be important in conveying and disseminating information about public spaces during the COVID-19 pandemic. A study by Ottaviani (2022) has brought a new understanding of the public space perception in contemporary cities. The creative insights generated through this project could inform further investigation into the role of public space of the future as well as the creative adaptation and transformation to serve individual and collective needs. Quality design and flexibility in the use of public spaces, as well as updates to meet the new needs of the COVID-19 pandemic (Sepe, 2021).

This discussion showed that the factors forming the quality of public open space include the Use and User, Accessibility, Amenities and furniture, Comfort and safety, as well as Environmental components.

Research Method

This descriptive study was conducted using both primary and secondary data (Leedy and Ormrod, 1997).

a) Primary data were obtained based on direct observation in the field. Data was obtained through interviews with public space users on Saturdays and Sundays in 5 locations
b) The analysis method applied was descriptive and it was used to explain the quality of public open space in the area based on the predetermined indicators. The survey techniques used for the primary data include field observations, interviews, and documentation. Surveyors who interview public space users on Saturdays and Sundays: The number of respondents was 12 people. Respondents were selected to represent gender (men and women). Questions are presented in question-and-answer form. This means all the data processed and analyzed were stated as follows:

a) A collection of documents containing relevant theories sourced from books and journals.
b) Written and visual recordings from field observations that explain the condition of each public open space based on the indicators.

The instruments used in this study process include:

a) A computer for the analysis process.
b) Camera to record the condition of the study area.

The stages involved in the qualitative analysis include:

a) Preparation
Preparing study materials by first compiling a literature review and the instruments.
b) Implementation
Collecting observational data (five locations) on existing conditions.
Recording the activities of the people in public open spaces.
c) Analysis

Identifying the quality of public open space based on indicators by calculating the assessment score using Microsoft Excel.

Evaluation

The activities in recorded in the five locations (fig 1) are indicated in Figs. 2-6 and assessed based on five aspects in Tables 2-6.

Fig 1: Research Locations
Source: Author, 2023

Fig 2: Use and Users
Source: Author, 2023

Fig 3: Accessibility
Source: Author, 2023

Fig 4: Amenities and Furniture
Source: Author, 2023

Fig 5: Comfort and Safety
Source: Author, 2023

Fig 6: Environmental Component in Karang Public Open Space
Source: Author, 2023

Table 2: Results and Analysis in Location 1
Source: Author, 2023

	Aspect		indicator	weight	weighted score	dimension
1	Use and User	1.1	4.00	1.1	4.40	3.95
		1.2	3.50	1	3.50	
2	Accessibility	2.1	3.50	1	3.50	2.80
		2.2	3.00	1	3.00	
		2.3	2.38	1	2.38	
		2.4	2.33	1	2.33	
3	Amenities and furniture	3.1	3.25	1	3.25	2.72
		3.2	3.67	1	3.67	
		3.3	4.00	1	4.00	
		3.4	2.67	1	2.67	
		3.5	1.00	1	1.00	
		3.6	2.40	1.1	2.64	
		3.7	2.00	0.9	1.80	
4	Comfort and safety	4.1	2.43	0.9	2.19	2.02
		4.2	1.25	1	1.25	
		4.3	2.90	1	2.90	
		4.4	1.75	1	1.75	
5	Environmental components	5.1	2.50	1	2.50	1.83
		5.2	2.00	1	2.00	
		5.3	1.00	1	1.00	

Table 3: Results and Analysis in Location 2
Source: Author, 2023

	Aspect		indicator	weight	weighted score	dimension
1	Use and User	1.1	2.33	1.1	2.57	2.12
		1.2	1.67	1	1.67	
2	Accessibility	2.1	1.75	1	1.75	1.51
		2.2	1.33	1	1.33	
		2.3	1.63	1	1.63	
		2.4	1.33	1	1.33	
3	Amenities and furniture	3.1	4.00	1	4.00	2.57
		3.2	1.67	1	1.67	
		3.3	3.33	1	3.33	
		3.4	4.33	1	4.33	
		3.5	1.00	1	1.00	
		3.6	1.40	1.1	1.54	
		3.7	2.33	0.9	2.10	
4	Comfort and safety	4.1	2.43	0.9	2.19	2.70
		4.2	3.50	1	3.50	
		4.3	2.60	1	2.60	
		4.4	2.50	1	2.50	
5	Environmental components	5.1	2.50	1	2.50	2.67
		5.2	3.75	1	3.75	
		5.3	1.75	1	1.75	

Table 4: Results and Analysis in Location 3
Source: Author, 2023

	Aspect		indicator	weight	weighted score	dimension
1	Use and User	1.1	1.67	1.1	1.83	1.83
		1.2	1.83	1	1.83	
2	Accessibility	2.1	2.00	1	2.00	1.43
		2.2	1.33	1	1.33	
		2.3	1.38	1	1.38	
		2.4	1.00	1	1.00	
3	Amenities and furniture	3.1	5.00	1	5.00	2.24
		3.2	3.00	1	3.00	
		3.3	1.67	1	1.67	
		3.4	1.67	1	1.67	
		3.5	1.00	1	1.00	
		3.6	1.60	1.1	1.76	
		3.7	1.78	0.9	1.60	
4	Comfort and safety	4.1	2.14	0.9	1.93	2.58
		4.2	3.00	1	3.00	
		4.3	2.40	1	2.40	
		4.4	3.00	1	3.00	
5	Environmental components	5.1	2.67	1	2.67	2.22
		5.2	2.67	1	2.67	
		5.3	1.00	1	1.00	

Table 5: Results and Analysis in Location 4
Source: Author, 2023

	Aspect		**indicator**	**weight**	**weighted score**	**dimension**
1	Use and User	1.1	2.33	1.1	2.57	2.53
		1.2	2.50	1	2.50	
2	Accessibility	2.1	2.25	1	2.25	1.44
		2.2	1.00	1	1.00	
		2.3	1.50	1	1.50	
		2.4	1.00	1	1.00	
3	Amenities and furniture	3.1	2.25	1	2.25	1.42
		3.2	1.00	1	1.00	
		3.3	1.00	1	1.00	
		3.4	1.00	1	1.00	
		3.5	1.00	1	1.00	
		3.6	2.00	1.1	2.20	
		3.7	1.67	0.9	1.50	
4	Comfort and safety	4.1	2.86	0.9	2.57	2.63
		4.2	1.50	1	1.50	
		4.3	2.20	1	2.20	
		4.4	4.50	1	4.50	
5	Environmental components	5.1	2.83	1	2.83	1.61
		5.2	1.00	1	1.00	

		5.3	1.00	1	1.00	

Table 6: Results and Analysis in Location 5
Source: Author, 2023

	Aspect		indicator	weight	weighted score	dimension
1	Use and User	1.1	2.67	1.1	2.93	2.30
		1.2	1.67	1	1.67	
2	Accessibility	2.1	1.25	1	1.25	1.06
		2.2	1.00	1	1.00	
		2.3	1.00	1	1.00	
		2.4	1.00	1	1.00	
3	Amenities and furniture	3.1	4.50	1	4.50	2.32
		3.2	3.00	1	3.00	
		3.3	3.33	1	3.33	
		3.4	1.00	1	1.00	
		3.5	1.00	1	1.00	
		3.6	1.00	1	1.00	
		3.7	2.56	0.9	2.30	
4	Comfort and safety	4.1	3.00	0.9	2.70	2.78
		4.2	3.50	1	3.50	
		4.3	1.90	1	1.90	
		4.4	3.00	1	3.00	
5	Environmental components	5.1	2.83	1	2.83	2.28
		5.2	3.00	1	3.00	
		5.3	1.00	1	1.00	

Findings

The assessment results from the table are visualized in the following Figs. 7-11.

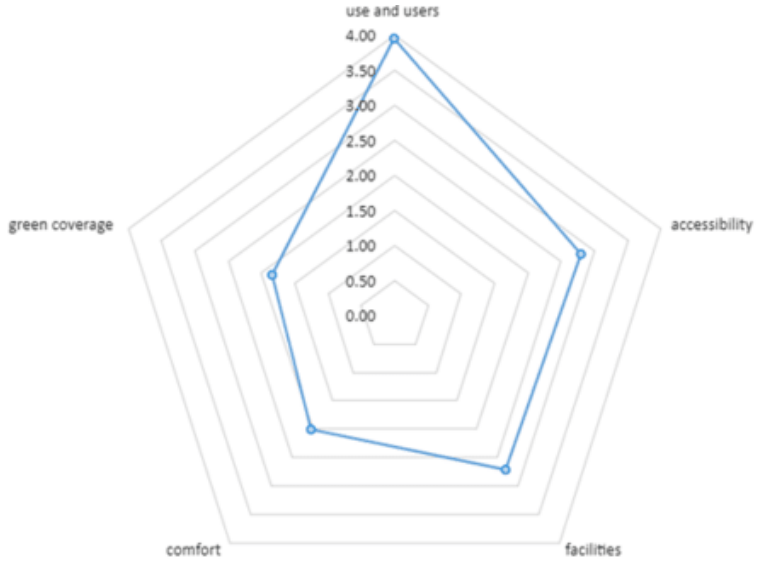

Fig 7: Analysis Diagram of Location 1
Source: Author, 2023

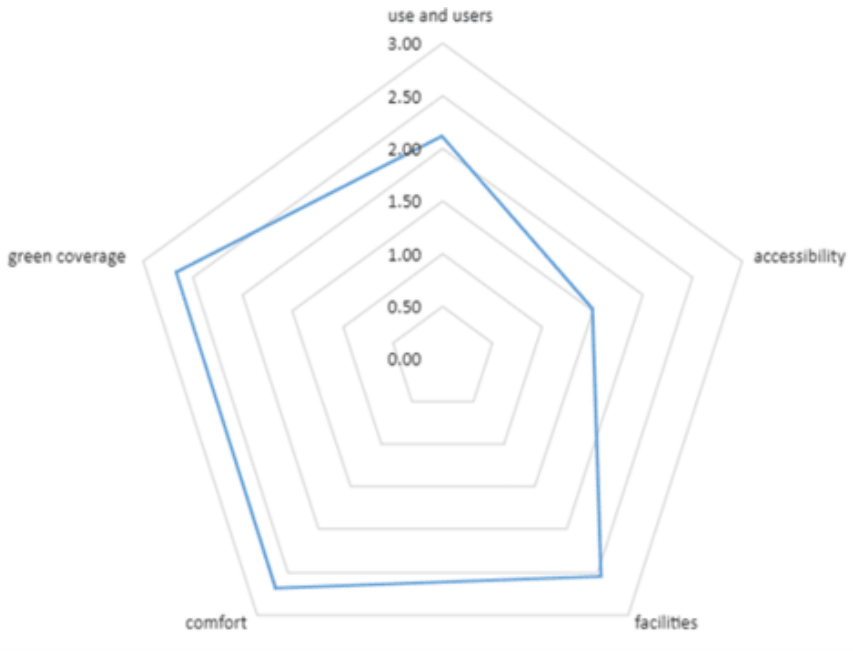

Fig 8: Analysis Diagram of Location 2
Source: Author, 2023

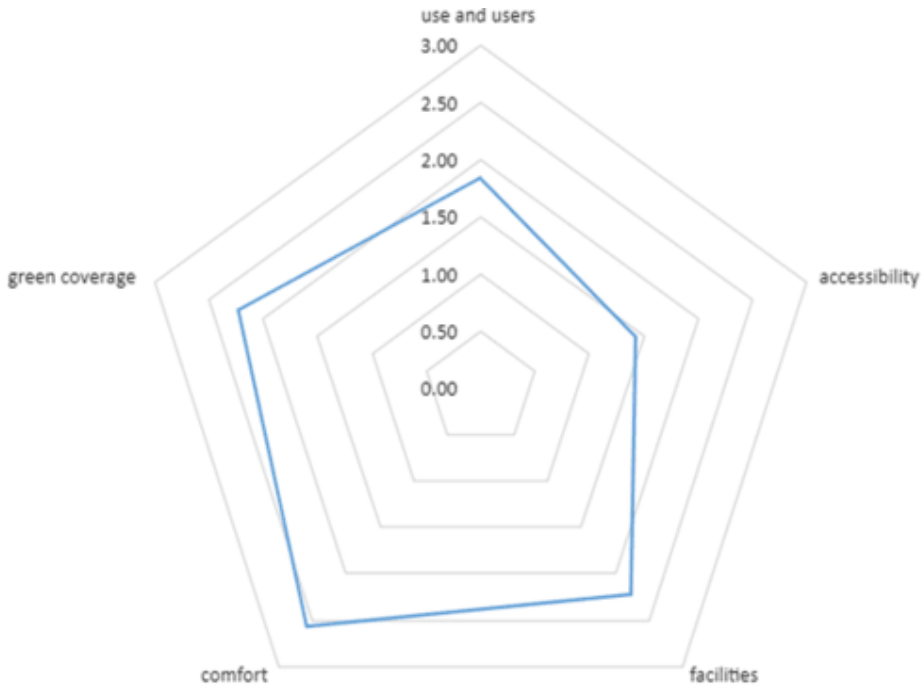

Fig 9: Analysis Diagram of Location 3
Source: Author, 2023

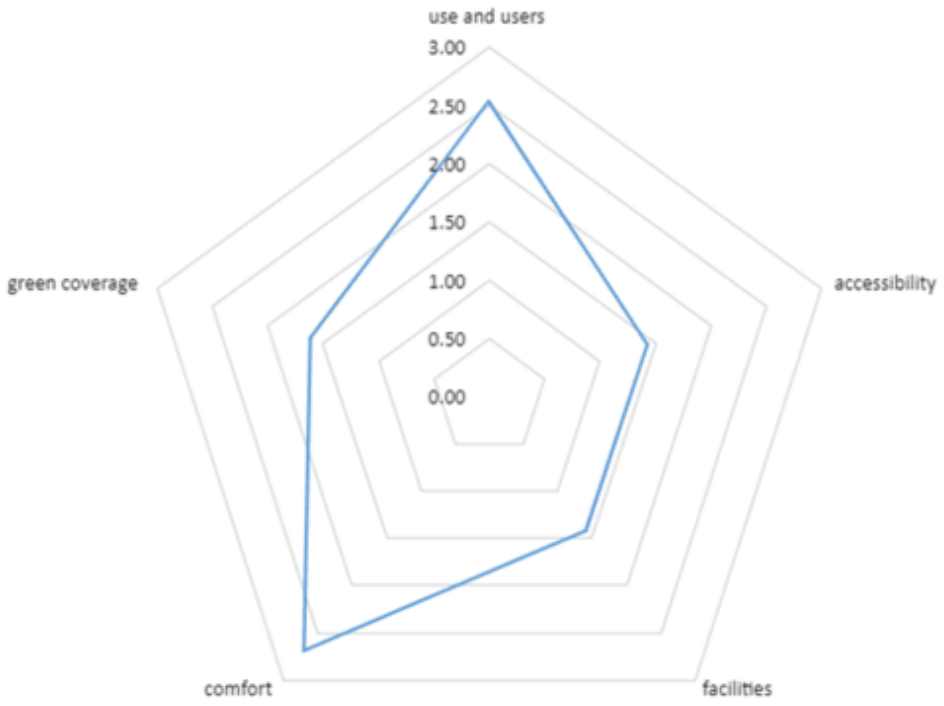

Fig 10: Analysis Diagram of Location 4
Source: Author, 2023

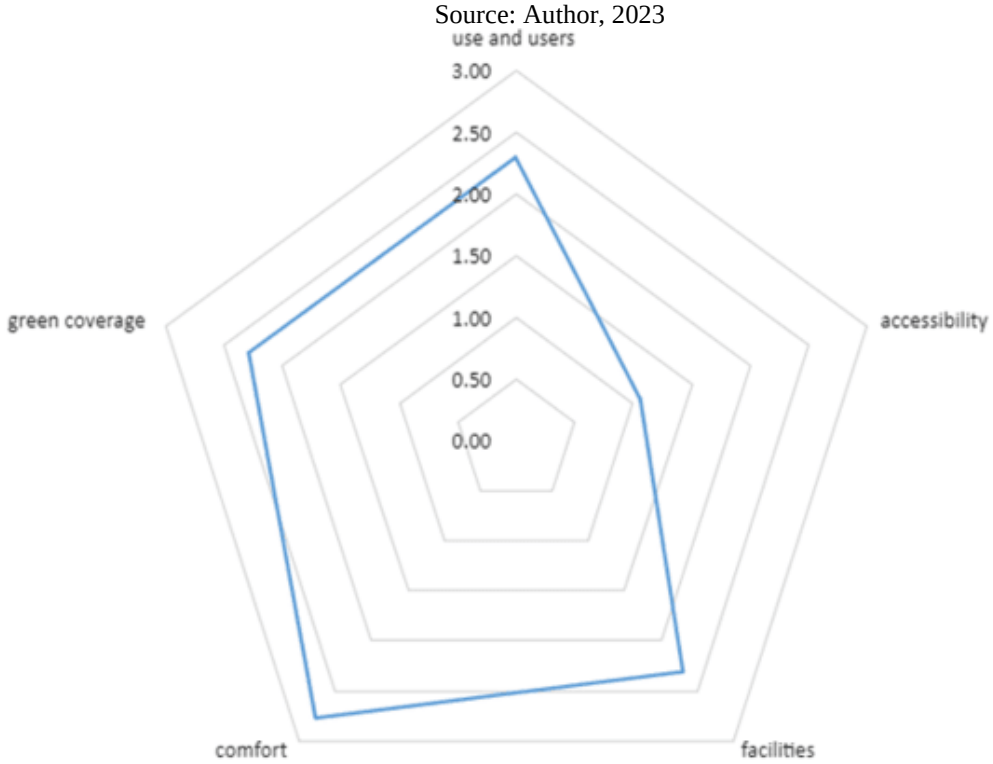

Fig 11: Analysis Diagram of Location 5
Source: Author, 2023

The assessment results showed that the score for the use and users' aspect at location 1 was the highest with 3.95 followed by accessibility (2.80), and amenities and furniture (2.72) while comfort and safety (2.02) and environmental components (1.83) were low. In location 2,

the use and users' aspect were lower (2.12) and a similar trend was observed for accessibility (1.51) while the other aspects including amenities and furniture (2.57), comfort and safety (2.70), as well as environmental components (2.67) were higher. In location 3, the comfort and safety aspect was found to be high (2.58) while the others including use and users (1.83), accessibility (1.43), amenities and furniture (2.43), as well as environmental components (2.22), were low. A similar trend was also observed in location 4 where comfort and safety aspect was high (2.69) while others such as use and users (2.53), accessibility (1.44), amenities and furniture (1.42), as well as environmental component (1.61), were low. The trend continued in location 5 where the comfort and safety aspect was high (2.78) while other aspects were low with use and users (2.30), accessibility (1.06), amenities and furniture (2.32), as well as environmental component (2.28). The conclusion from the five locations was that the highest use and users' aspect was in location 1 with 3.95, comfort and safety was in location 5 with 2.78, accessibility and amenities were also in location 1 with 2.80 and 2.72 respectively while the highest environmental component aspect was at location 2 with 2.67.

Conclusions

This paper concludes that the social activities and users of public open spaces in Kotagede settlements were determined based on the accessibility, facilities, and furniture that support convenience.

1. It was discovered that location 1 was most easily accessible from the highway and had more activities and users compared to those considered more difficult to reach and further away from the highway.
2. Locations Such as 2, 3, 4, and 5 were also accessible with the existence of facilities and furniture to support comfort and a high level of security as well as the better environmental components recorded in the location 2.
3. These findings show that the aspect of accessibility is important and needs to be considered in designing public open spaces in residential areas.

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