

EVALUATION OF PUBLIC PARKS AND THEIR QUALITIES BASED ON USER SATISFACTION

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Abstract: Public spaces are defined as an area or place that is open to or shared by all people, regardless of gender, race, age or socio-economic level. They are meant to act as a physical manifestation of a city. A public space is successful when it can accommodate diverse activities, diverse users and are flexible in the way they may be used. It has been observed that what majority of cities lack is 'a successful public space'. This research paper focuses on public parks; a study about the basic principles and design criteria that create living public parks and their effects on user satisfaction. The aim of this study is to analyze the existing design criteria of two public parks and evaluate their success rate. Cubbon Park at Bangalore and Kanakakunnu Park at Trivandrum are selected as the case study areas. The quality of the case study areas are calculated through a performance measuring method, Good Public Space Index (GPSI) which are then studied along with the four major quality indicators of a public space. The research finally assess the 'publicness' and success rate of the study areas.

Keywords: Good Public Space Index, Publicness, Success Rate, User Satisfaction.

1. Introduction: The purpose of a park is to provide a glimpse of nature. The park essentially fulfills the need for a respite from the crowds, noise, traffic, pollution and hard surfaces of the city. Being accessible to all, open day and night, and located in the very heart of the city, the park has some of the important qualities of a truly public space. Whether it serves public life more effectively is dependent on several factors.

Cubbon Park, right at the heart of Bangalore city and Kanakakunnu Park at Thiruvananthapuram are the major areas of this study. Analyzing the efficiency of the park considering its diverse users helps in knowing how successful are Cubbon and Kanakakunnu Parks.

2. Results:

2.2. Location and basic characteristics of the park

2.1.1. Cubbon Park:

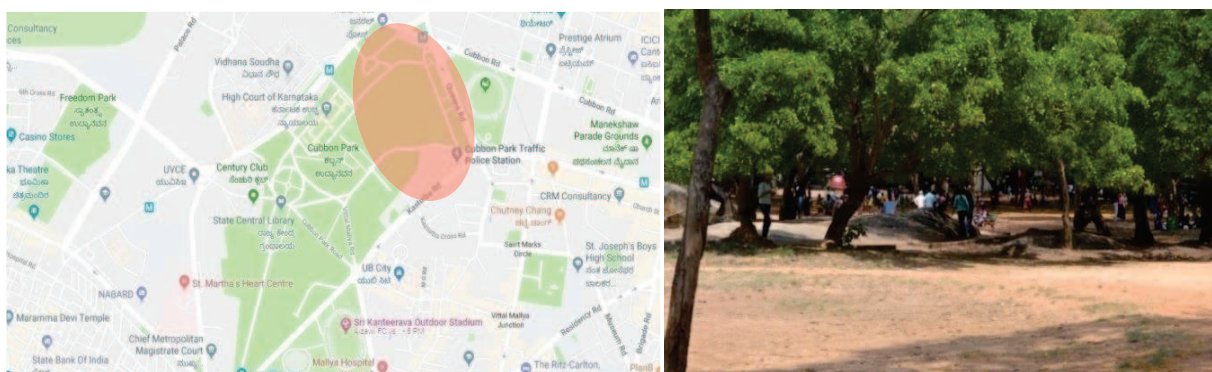


Figure 1: Cubbon Park- Location Map

The Cubbon Park, officially known as Sri. Chamarajendra Park, is a historic park, located in the heart of city in the Central Administrative Area. The park ensures sylvan surroundings to State Legislative building, high court and other organisations under central administrative area, which are situated along the periphery of the park.

The chosen area for study is the part near to the active entry points of Cubbon park. This is the most active part of the park. People of all age groups come here during different times of a day for different purposes. The park is studied mainly through direct observation(visual study) during different times of a day, preparing activity lists, conducting surveys, recording informations, through photographs etc.

2.1.2. Kanakakunnu Park:



Figure 2: Kanakakunnu Park- Location Map

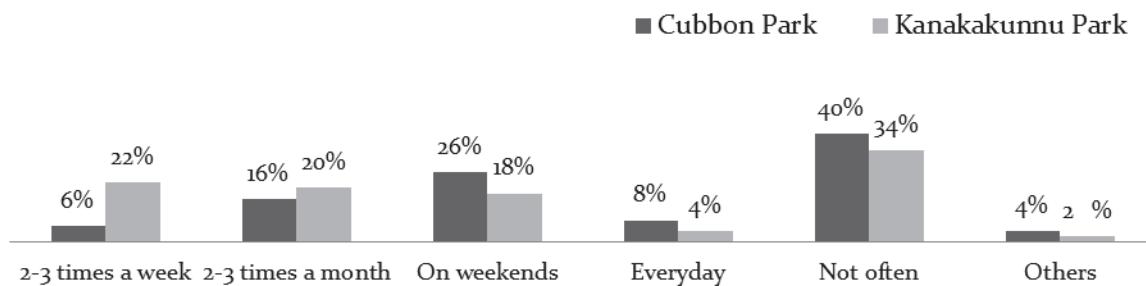
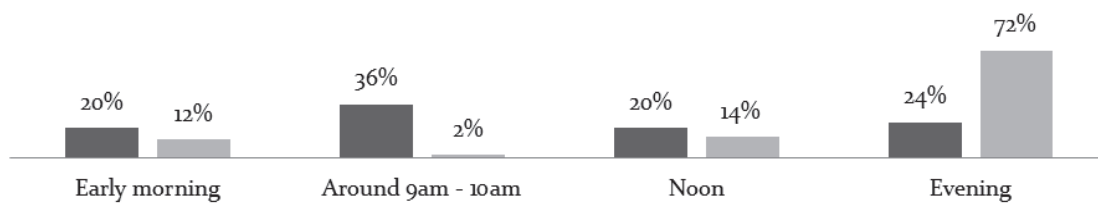
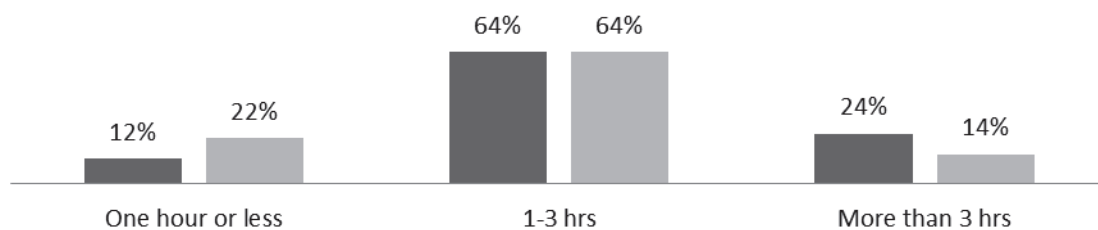
Kanakakunnu Park situated near Napier Museum in Thiruvananthapuram, spreads around Kanakakunnu Palace which has been documented as heritage monument by INTACH. The park located on a small hillock has an open air auditorium – Nishagandhi, which is one of the most sought-after venues for conducting stage shows. Diverse user groups are found at the park during different times of a day. Several exhibitions, fairs, dance festivals, etc occur at specific times of a year.

2.2. Profiling and Analysing the Park: In order to create a profile of the case study areas, a survey was conducted among the user groups. The number/age/gender of users at different time period, the time of visit, frequency of visiting both the parks, duration of stay, usage diversity were also recorded during the field study. Users were asked to rate the parks on different characteristics like entrance to the park, accessibility, sitting areas, rest rooms, cleanliness, safety and overall condition of the park and facilities.

2.2.1. User Diversity at the Parks: Male users dominated both parks. Cubbon park had almost an equal ratio among the gender, with 57% male and 43% female. Female user group was much lesser at Kanakakunnu (38%).

The user group were divided into five different age groups : Toddler(0-5), Children(6-12), Juvenile(13-19), Adult(20-45), Elderly(above 45). Cubbon Park has a higher diversity among the users, though the adult age group (20-45) forms the major age group. Male user group dominates in the juvenile, adult and elderly age groups. Kanakakunnu displays much lower user diversity. Toddler, Children age groups are almost nil. Juvenile, elderly age groups are found at a lower rate.

A majority of the user group came with their friends in both the parks. This came upto 68% in case of Cubbon whereas a 60% in case of Kanakakunnu. The graph follows same pattern in both cases. 14% of people at Cubbon came with their family, whereas 18% of users at Kanakakunnu were families. Another 18% and 22% of users came alone to visit Cubbon and Kanakakunnu respectively.

2.2.2. Frequency of Visit, Time of Visit and Duration of Stay:**Figure 2: Frequency Of Visit****Figure 3: Time Of Visit****Figure 4: Duration Of Stay**

2.2.3. Activity Diversity at the Parks: Number of users involved in various activities were calculated during the survey conducted. User groups were involved in diverse activities like jogging, walking, sitting and relaxing, reading, eating/picnic, socializing, family outing, watching performances, playing, photography, etc at both parks. Sitting and relaxing was the most preferred activity at both the parks. The activity preference at the parks can be represented as follows:

Cubbon Park;

Sit and relax(72%) > Walk(18%) > Socialize(16%) > Read(14%) > Jogging(10%) > Eating = Photography(8%) > Family outing = Watching Performances = Playground for kids(6%)

Kanakakunnu Park:

Sit and relax(90%) > Walk(22%) > Family outing(20%) > Socialize(18%) > Read(6%) > Eating = Watch performances = Playground for kids(4%) > Jogging = Others(2%)

2.2.4. Rating the Parks: During the survey, people were asked to rate the park based on following aspects; Entrances, Sitting areas, Rest rooms, Cleanliness, Safety, Overall condition of park and facilities. On an average, both the parks were rated as 'good' under these aspects. In case of Cubbon Park, a majority of 68% rated entrances as good and 6% rated it as poor. Though the multiple number of entry points into the park adds to its quality, those in the study area (which is also the most active spot) were difficult to access for the users, especially elderly and disabled. Sitting areas were rated as 'very good' by 18%, 'good' by 54%. 22% rated rest rooms as 'good', 16% as 'poor', 14% as 'very poor'. The toilets provided

near the entry points, were not properly maintained neither easily accessible. 54% rated cleanliness as 'good'. 44% rated 'good' for safety. Overall park conditions and facilities were rated as 'good' by 62%. Rating for Kanakakunnu park almost followed the same pattern. A higher percentage of 26 and 54 rated entrance as 'very good' and 'good' respectively. Rest rooms were marked as 'good' by 34%. Overall, the park was rated as 'very good' and 'good' by 10% and 60% of people.

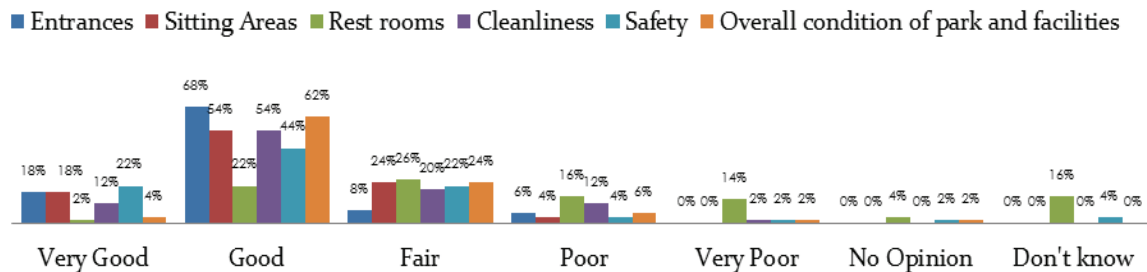


Figure 5: Rating For Cubbon Park

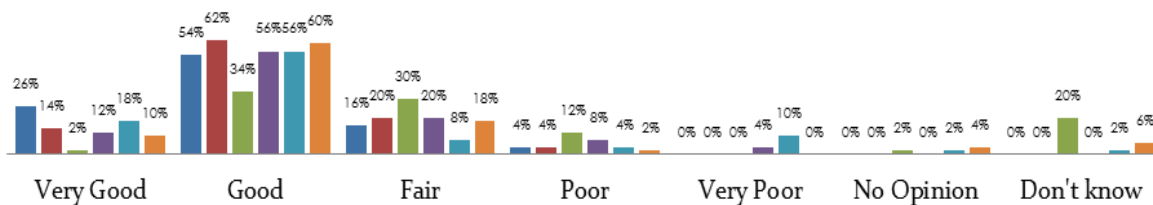


Figure 6: Rating For Kanakakunnu Park

2.3. **Public Space Index of the Case Study Area:** A toolkit for Performance measures of Public space(2007) by Vikas Mehta, uses some variables to measure & arrange "Good Public Space Index". Six measures were used as indicators of the responsiveness and diversity of the parks. These six measures contributed to the index(GPSI), which ranges from 0 & 1. (a) The **Intensity of Use** was determined by calculating the number of people engaged in some stationary and sustained activity at the parks. (b) The **Intensity of Social Use** was determined by calculating the number of people in groups of two or more engaged in some stationary and sustained social activity. (c) **People's Duration of Stay** was calculated by studying how much time people spent in stationary activities at the parks. (d) The **Temporal Diversity of Use** was determined by calculating the use of the space over the duration of the day. (e) The **Variety of Use** was determined by calculating the number of types of activities at the parks. (f) The **Diversity of Users** was determined by calculating the variety in the gender and age of the people at the parks.

Table 1: Conclusion of Public Space Index		
Variable	Index of Variable	
	Cubbon Park	Kanakakunnu Park
Intensity of Use (IU)	0.856	0.881
Intensity of Social Use (ISU)	0.88	0.803
People's Duration of Stay(PDS)	0.833	0.583
Temporal Diversity of Use(TDU)	0.688	0.703
Variety of Use (VU)	0.772	0.692
Diversity of User (DU)	0.823	0.631
TOTAL GPSI	4.852	4.293
Average GPSI	0.809	0.7155
Category	Very High	High

As a result of the measurement process, Good public space indices (GPSI) of Cubbon Park and Kanakakunnu were 0.809 and 0.7155 respectively. Both the parks have high values of GPSI. Cubbon's GPSI is higher than Kanakakunnu indicating it's high quality of space. Cubbon has high values for all the variables whereas Kanakakunnu has moderate value for duration of use (0.583) and high values for the rest.

3. Discussion:

3.1. Analysis of the Study Area According to Public Space Design Criteria and Its Relationship with User Satisfaction

3.1.1. Human Behaviours and Spatial Design at the Cases Study Areas: The basic human behaviours that are carried out in public spaces can be grouped as walking, standing and sitting, as well as seeing, hearing and talking. Jan Gehl describes these basic activities as a starting point since they are part of nearly all other activities.

Table 2: Relationship between Human Behaviours and Spatial Design in the Case Study Areas

Human Behaviours	Spatial Design Details	Cubbon Park	Kanakakunnu Park
Walking	Paving materials and street surface conditions	Average	Proper walkways
	Suitability for the "wheeled" walking traffic	Not Suitable	Suitable
	Differences in level	Low	High
Standing	Edge effect for standing	Exist	Exist
	Microclimatic conditions (zones for staying half shade)	Average	Average
Sitting	Edge effect for sitting	Rare	Rare
	Along facades and spatial boundaries, steps	Exist	Exist
	Microclimatic conditions	Exist	Exist
	Viewing opportunities	Exist	Exist
Seeing, hearing and talking	Distance between observer and object	Suitable	Suitable
	Field of vision and overview	Suitable	Suitable
	Noise levels	Average	Average

3.1.2. Assessing the Quality Indicators at the Case Study Areas: The quality of the case study areas are analysed with the four factors put forth by Project for public spaces (PPS). The factors for a successful place are; accessibility, comfort and image, uses and activities, sociability.

3.1.2.1. Accessibility: Cubbon park situated near the metro station is easily accessible from MG road, Kasturba road, Hudson road, Ambedkar road. The variety of transportation options to get to the park and presence of multiple entrances makes it easily accessible physically. Since the park is spread to an area of approximately 300 acres, and the main roads run around the park efficient visual connections are ensured. The roads around the park and paths through the park take people where they want to go. The pedestrian entry to the park in the selected area of study is inefficient. The inadequate arrangement is difficult to use for the disabled as well as elderly.

Kanakakunnu Park Around The Palace Compound, Situated Along The Vellayambalam Road Is Easily Accessible From The City Centre, And Is Situated Near Napier Museum Complex. Parking Facilities Are Available Near The Entry Gates, And Two Wheeler Parking Is Permitted Within The Park In The Space Allotted. Three Main Entrances Are Provided, Of Which One Is A Central Pedestrian Staircase Leading Directly To The Palace Compound Above. For People Who Find It Difficult To Use The Stairs Leading To The Palace Compound, The Roads On Either Sides Is An Alternative. These Roads Also Serve As Service Roads For The Auditorium Within The Compound.

3.1.2.2. Comfort & Image: The natural and abundant green texture of Cubbon park presents it a 'good image'. Literature studies prove that a thirst for natural environment is particularly strong among urban residents, and Cubbon Park satisfies this need. Cubbon satisfies their need to experience a natural setting and the wilderness, which is a basic human need along with human communication. 66% of people surveyed were satisfied with the safety offered by the space. 22% rated it as fair, while the rest were unsatisfied. The park users are safe from vehicular traffic since the park area is completely pedestrianised. The moderate climate throughout the year provide comfort for the users. Still there are numerous trees and few gazebos which ensure shaded spaces. Eventhough 54% of people surveyed rated cleanliness as 'good', 12% marked it 'poor'. Uncleanliness at specific parts is a problem that can be easily solved by accurate management process. This is a pedestrian oriented space, which restricts vehicles within the park, and even makes sure the wide vehicular roads around the park complex is pedestrianised during morning hours. But within the park, pedestrians face problems in terms of less-efficient entry in the study area and less maintained pathway in the inner areas of the park. Numerous places to sit are provided in and around the park in the form of benches along the pathway as well as randomly placed under trees, natural boulders which also turn out as playing areas for kids, green ground which people comfortably use for taking rest/eat/picnicking, etc. Giving people the right to choose the space they want to sit is almost satisfied in Cubbon, since they can even choose the ground (under tree shades) or tree branches. Provision of movable chairs will provide people more freedom of action and make it easier for diverse user groups to choose the place they want.

Since Kanakakunnu park is located around the Kanakakunnu palace complex, it has a cultural and historical link with its city and people. Diverse user groups use this space for various reasons. Most of the shaded areas are occupied almost all the time. The park area being small, people density is distributed all around the park, unlike Cubbon and hence is safer. 74% of the people surveyed were satisfied with the safety offered by the space. Safety means; protection from crime, vehicular traffic and unpleasant weather. The crime aspect is out of scope of this paper. But protection from vehicular traffic and unpleasant weather are not completely ensured at Kanakakunnu Park. The park allows vehicular entry and parking upto a certain distance. Apt microclimatic conditions and proper seating arrangements must be provided in order to ensure protection from the tropical climate of Kerala (sun, rain, etc). Seating arrangements doesn't follow the user's preferences. People are even restricted to use majority of the green lawn areas. This restricts their freedom of action and their right to choose the place they want to use, and eventually the green lawns just serve the purpose of aesthetic quality. Though the park is cleaned at specific times, conducting exhibitions /programmes results in unclean surroundings.

3.1.2.3. Uses and Activities: A public space must ensure user as well as usage diversity. Cubbon has high index values for variety of use (VU – 0.772), Diversity of user (DU – 0.823), People's duration of stay (PDS – 0.833), Temporal diversity of use (TDU – 0.688). These in turn implies the vibrance of the park. Cubbon is mostly used during the weekends rather than weekdays. 64% of the people use the space for 1-3 hrs, whereas 24% use it for more than 3 hrs. These results support its very high index for duration of stay. The pleasant & calm pathways are used for exercising/jogging during the peak hours of morning and evening. Children are seen playing with their age group as well as adults from their family during weekend evenings. The benches facing the walkways are mostly used by older age groups, watching kids playing or talking to others or reading. This is also a well preferred location for photoshoots. For young professionals, the place is a break from their busy schedule and chaotic city life. Cubbon Park is the main venue for weekend activities, social gatherings, etc. Painting workshops, yoga spots, artists meetups, travelling meetups, etc occur very frequently. Male user group (57%) dominates in all age groups and the major age group using the park is 20-45. It is actively used by children, women and older age group. The park provides suitable conditions for passive-active recreations as well as necessary, optional and social activities. The high number of optional activities itself implies higher usage opportunities at the park.

In case of Kanakakunnu, the variety of use, diversity of use, people's duration of stay and temporal diversity of use have index values:- 0.692, 0.631, 0.583 and 0.703. Of which the VU, DU, PDS indices are

less than Cubbon's, though VU and DU has high values and PDS moderate. The lower PDS index implies lower duration of stay. According to the results obtained from survey, an equal percentage as in Cubbon use the space for 1-3 hrs, whereas 22% stay for less than one hour and just 14% use the space for more than 3 hrs, which resulted in the decline of PDS index. The activities were restricted to walking, sitting, hanging out with friends/family, studying, etc during the field study. Even though, several exhibitions, fairs, dance festivals, also occur at specific time of a year. Male user group dominated in this case too. The majority of users were from the age group 20-45, with very less number children and elderly. Lack of facilities/opportunities for children and elderly resulted in the lesser DU and VU than Cubbon.

3.1.2.4. Sociability: This factor requires the presence of 'groups'; group of friends, family, etc and arrangements that bring together diverse user groups and foster social interaction among them. The public space index value for Intensity of social use (ISU) can indicate the quality of a space in this aspect. Intensity of social use (ISU) indicates the presence of 'groups' and diversity of users (DU), the age group and gender variations among the users. Cubbon has very high values for ISU (0.88) and DU (0.823), which indicates the presence of groups at a high rate and co-existence of various are groups. Since optional activities like walking, sitting, standing, playing, exercising, etc leads to resultant social activities like socializing with friends, playing/exercising in groups, meet-ups, etc, the park is eligible to accommodate people in groups performing different social activities and those belonging to different user groups. 68% of the survey respondents came to the park with their friends, whereas 14% with their families and a 22% came alone.

Intensity of social use and diversity of use for Kanakakunnu park are 0.803 and 0.631, which are lower than that of Cubbon's. The ISU index is very high whereas DU moderate. Restricting people from using certain areas, not providing the users the freedom to choose the place they want to use, not incorporating favourable conditions for kids and elderly, etc had resulted in less diversity of user at the park.

4. Conclusion: Both the Public spaces that are located in the city centre are areas that need to be handled and regulated with priority as they serve the entire city. Conducting user satisfaction surveys from time to time will help in determining the current needs and improving insufficiencies of a public space thus leading to a more effective usage of the space by people. As Jan Gehl said, considering Human dimension as a universal starting point helps in creating simple, healthy and sustainable outdoor spaces for people. Carefully working on planning principles in order to assemble people and events is also an important prerequisite for developing living public spaces. Gehl also suggests that, "Of all the principles and methods available for reinforcing life in an urban area/city, inviting people to spend more time is the simplest and the most effective".

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