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A LESSON FROM EXISTING PARKS OF ADDIS ABABA

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Abstract

Park development must consider public input, as they are the primary users. To enhance recreational ecosystem services, cities should assess existing parks based on public feedback for future green space planning. This paper studied and analyzed the perceived capacity of two parks in Addis Ababa, Ethiopia, selected for their land use and size, which influence their recreational capacity. Data were collected through a questionnaire from 797 visitors to examine factors like visit frequency, desired amenities, time spent, and travel time to the parks, along with suggestions for improvements. Results indicate medium satisfaction among visitors in both parks, with cleanliness identified as a key concern in Bihere Tsige Park. The majority of respondents in both parks highly favor amenities that support passive recreational activities. Recommendations include enhancing cleanliness in Bihere Tsige Park and increasing greenery in Tekle Haimanot Park. The paper recommends that park managers, policymakers, and planners utilize these insights to improve current parks and guide future developments.

Keywords: ***Bihere Tsige Park, Frequency of Visit, Level of Satisfaction, Park Amenities, Recreational Capacity, Suggestions, Tekle Haimanot Park***

I. INTRODUCTION

Urban parks are essential sources of ecosystem services that are primarily developed for recreation but also offer various other benefits [1-3]. Parks are among the urban green spaces that connect people with nature by offering recreational ecosystem services [4]. Urban parks vary in design and distribution worldwide, influenced by historical events, design philosophies, and social class [3, 5]. They play a crucial role in delivering recreational ecosystem services and enhancing human well-being [3]. In developing countries like Ethiopia, urban planning must integrate parks into development. To improve parks, input from end-users, the visitors, should improve their desirability [6].

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The location of urban parks is crucial for their ability to provide recreational ecosystem services [7] as surrounding land uses significantly influence the parks' capacity [8]. For instance, a study by Pacheco and Vasconcelos [9] found that parks in residential areas tend to be less visited, while those near commercial zones attract more visitors. A study by Kaczynski et al. [8] also pointed out that parks adjacent to busy roads may experience disturbances that affect recreational activities. In addition to recreation, urban parks offer vital ecosystem services like climate control. Research by Hamada et al. [10] shows that commercial areas disrupt the cooling effects of parks more than residential areas. Given the higher urban heat island effect in commercial zones, Gago et al. [11] recommended that urban green space development prioritize these areas to enhance climate regulation services.

The size of urban parks also impacts their capacity to provide recreational ecosystem services [12]. For example, Liu et al. [12] indicated that larger parks with diverse amenities, particularly those featuring playgrounds, attract visitors from greater distances. In this paper, park size is highlighted as a key criterion, supporting the Addis Ababa City structure plan, which classifies parks based on size and features to enhance service provision [13].

Investigating the potential of existing parks to provide recreational ecosystem services is essential for appreciating and maintaining desired amenities [14] and identifying areas for improvement to enhance visitor satisfaction [1]. Understanding the perceived capacities and satisfaction of parks is also essential for assessing visitors' comfort levels in the spaces provided for them [6]. Assessing the recreational potential of parks requires investigating visitor preferences [14], satisfaction levels [6], and recreational activities, including what visitors do, their frequency of visits, and duration of stay [3, 15]. Another study by He et al. [15] provided recreational use behaviors as part of the indicators to describe urban green space use. They include *where*, which implies where the visitors recreate, *what* refers to what they like to do, *when*, which relates to when they preferred to visit, *how long*, which is the preferred time to stay, and *how often*, which is the frequency of visit within a specific period [15].

In this paper, the level of satisfaction in the sample parks [6], what people like from the amenities that the parks provide [3], how frequently people visit the sample parks [3, 15], how much time people spend in the sample parks and their motivation of stay [3, 15], how far people travel to get to the parks [3] are investigated to describe the park and the level of satisfaction in the park.

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Additionally, what the sample parks should improve and suggestions for forthcoming parks that we should learn from the existing parks were collected from the participants [6].

How many people enjoy parks shows the perceived recreational ecosystem service status and desirability of parks [6] while frequency of visit to parks indicates the quality and desirability of the parks by revealing how much people like to be present in the park [16]. The duration of stay in the park indicates whether people are happy to stay in the park or not. Time to travel to parks shows the availability of parks within a small distance, and it shows how dedicated people are to go to the parks because the park is worthy enough, even to travel long distances for longer distance travelers [3]. The desired amenities from parks tell the motivation of people to visit parks [3] while suggestions for improvement provide information on what is missing in the park and what people like to find in the parks [6]. Finally, by learning from the existing parks and from what people recommend for future park development, it is possible to use the information for parks to be developed in Addis Ababa and the urban areas of Ethiopia. This paper investigates the perceived recreation potential of two parks in Addis Ababa using a questionnaire. Research worldwide has examined perceived potential through visitors' motivations, visit frequency, and satisfaction levels. For instance, Goodarzi and Haghtalab [6] studied visitor satisfaction in an Iranian park, revealing dissatisfaction with recreational offerings and suggestions for improvement. Similarly, Breuste et al. [3] found that people in Buenos Aires primarily visit parks to enjoy nature. However, studies in Ethiopia on existing recreational ecosystem services and community suggestions for improvement are scarce. This paper aims to provide valuable insights for the sampled parks and establish a self-evaluation baseline information for other existing and future parks.

II. METHODOLOGY

A. Description of the Study Area

In this paper, the case study area is Addis Ababa, the capital city of Ethiopia, founded during the reign of King Menelik (1844-1913) and Queen Taitu in 1889 and named Addis Ababa or new flower due to its natural beauty and recreational spots [17, 18] as presented in Fig. 1. Currently, the Addis Ababa Beautification, Park, and Cemetery Agency is responsible for developing and maintaining the city's parks, which primarily offer passive recreational activities.

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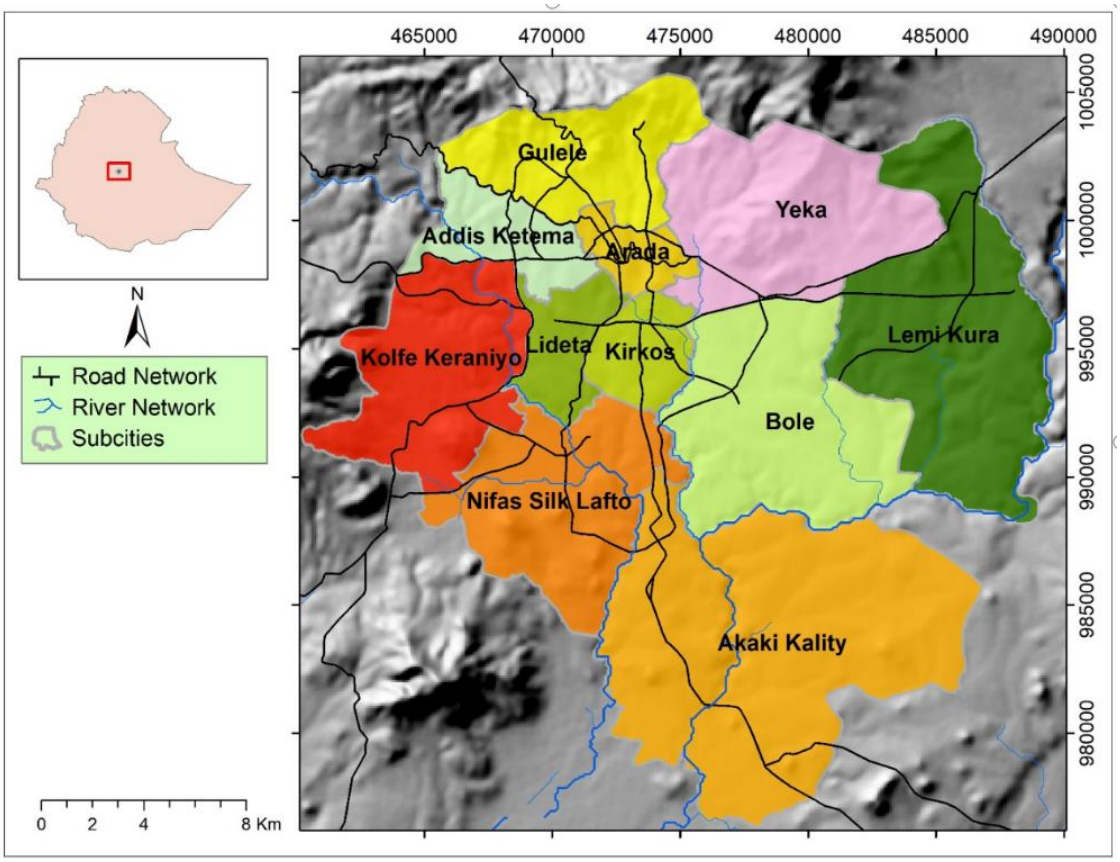

Fig. 1. Addis Ababa City Map

The sample parks in Addis Ababa were selected based on their surrounding land uses (residential and commercial) within a 500m radius [8] and their size, specifically City Park and Woreda Park. The chosen parks are Bihere Tsige and Tekle Haimanot parks, which are both managed by the Addis Ababa City Administration Beautification, Parks, and Cemetery Agency. Bihere Tsige Park, the largest (14 ha) and oldest (established in 1970), is surrounded by residential areas and features amenities like diverse plants for recreational, educational, and medicinal purposes, a children's playground, and a mini-zoo. It includes long walkways, numerous trees, diverse landforms, and is crossed by the polluted Little Akaki River. In contrast, Tekle Haimanot Park is a smaller Woreda Park (0.45 ha) located in a busy commercial area, providing a resting place from the city's hustle. Its limited size accommodates sitting areas, space for indoor games, and a cafeteria. The park is also used for socio-cultural activities, such as "Equb," a money-saving practice among members who pay an entrance fee for social gatherings.

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The Structural Plan Project Office of Addis Ababa has a policy to establish parks throughout the city to meet recreational needs. Parks are categorized into four types: City Parks (>10 ha), Sub-City Parks (1-10 ha), Woreda Parks (0.3-1 ha), and Neighborhood Parks (0.1-0.3 ha) [13].

B. Methods

The research method involved using a questionnaire directed at park visitors [3, 6]. Data were collected from January to May 2023, coinciding with the summer season and a peak wedding period, which typically attracts more visitors [19]. Respondents were randomly selected from the sample frame of park visitors, ensuring each individual had an equal chance of being represented. Background information about the sample population was gathered to better understand them. In total, 797 park visitors participated in the questionnaire.

The descriptive method of data analysis is utilized in this research to summarize and describe visitor preferences. This approach aims to provide foundational information that can enhance current parks and inform the development of future parks. The data is summarized and presented using tables for easy comprehension.

III. RESULTS

A. Level of Perceived Enjoyment in Sample Parks

As presented in Table I, in Bihere Tsige Park, 49.5% of visitors enjoy the park at a medium level, while in Tekle Haimanot Park, this figure is slightly higher at 52.3%. Additionally, those who enjoy the parks very much account for 37.5% in Bihere Tsige Park and 35.8% in Tekle Haimanot Park.

TABLE I: Level of satisfaction in sample parks

Status of people enjoying Bihere Tsige and Tekle Haimanot Parks						
	Bihere Tsige Park		Tekle Haimanot Park		Total	
	No. of respondents	Percent	No. of respondents	Percent	No. of respondents	Percent
Very much	150	37.5	140	35.3	290	36.4
Medium	198	49.5	209	52.6	407	51.0
Low	52	13.0	42	10.6	94	11.8
I don't enjoy it	0	0	6	1.5	6	0.8
Total	400	100.0	397	100.0	797	100

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B. Recreational Use Behaviors

1) *Frequency of visits:* In Bihere Tsige Park, 41% of visitors reported visiting the park once a month, while in Tekle Haimanot Park, 22.5% of visitors reported visiting the park once a week. Additionally, Table II indicates that 31.5% of respondents in Bihere Tsige Park visit once a week. Also, this indicates that the majority of respondents in Bihere Tsige Park visit monthly, whereas the majority in Tekle Haimanot Park visit weekly.

TABLE II: Frequency of visit to parks

	Frequency of visits to parks					
	Bihere Tsige		Tekle Haimanot		Total	
	No. of respondents	Percent	No. of respondents	Percent	No. of respondents	Percent
For the first time	8		36	9.1	44	5.5
Everyday	10	2.5	56	14.1	66	8.3
Once a week	126	31.5	91	22.9	217	27.2
Once a month	164	41.0	58	14.6	222	27.8
Once in 2 or 3 months	13	3.3	3	.8	16	2.0
Whenever we can	47	11.8	75	18.9	122	15.3
When we want to feel good	2	.5	2	.5	4	0.5
Sometimes	5	1.3	38	9.6	43	5.45
Once in 6 months	10	2.5	3	.8	13	1.65
Once in two weeks	4	1.0	7	1.8	11	1.4
Twice a week	2	.5	4	1.0	6	0.75
Once a year	8	2.0	2	.5	10	1.25
three times a week	1	.3	22	5.5	13	2.9
Total	400	100.0	397	100.0	797	100

2) Amenities people enjoy in the sample parks: In Bihere Tsige and Tekle Haimanot parks, a significant majority of visitors enjoy amenities related to passive recreation, with 65.8% and 69.3%, respectively, and presented in Table III. These activities include watching plants and people, listening to birds, and reading while sitting or lying in the natural area. Tekle Haimanot

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Park lacks a children's playground and a mini-zoo, making those amenities irrelevant for its visitors. Additionally, the park does not feature diverse landforms. In contrast, Bihere Tsige Park includes various slopes, rendering gentle landforms less applicable.

TABLE III: Amenities people enjoy in the sample parks (note: np –not relevant)

Amenities people enjoy in Bihere Tsige and Tekle Haimanot Park				
	Bihere Tsige Park		Tekle Haimanot Park	
	No. of respondents	Percent	No. of respondents	Percent
The children playground	9	2.3	NR	-
Everything (the plants, seats, and shades)	64	16.0	9	2.3
Amenities for passive activities (seats, shades, the lawns for lying down, the plants that are resting places for the birds, the quiet reading areas)	263	65.8	275	69.3
The quiet areas	-	-	40	10.0
The landform	3	0.8	3	0.8
The mini zoo	56	14.0	NR	-
The areas for active activities (playing area)	2	.5	-	-
The sound from the nearby church	-	-	7	1.8
Nothing	3	0.8	19	4.8
The cafeteria	-	-	41	10.3
The outdoor interaction areas	-	-	4	1.0
Total	400	100.0	397	100.0

3) Time to spend in the park and reasons for staying that long: In Bihere Tsige and Tekle Haimanot parks, the most common duration of stay is between 30 minutes to 2 hours, accounting for 42% and 58% of visitors, respectively. The primary reason for longer stays in Bihere Tsige Park is the enjoyment of the greenery and the inspiration drawn from nature. In contrast, visitors to Tekle Haimanot Park primarily stay longer to interact with friends and family. Additionally, while 38.8% of people stay in Bihere Tsige Park for 2-4 hours, only 5.8% stay that long in Tekle

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Haimanot Park. Conversely, a larger portion of visitors (34.8%) in Tekle Haimanot Park stay for 0-30 minutes, compared to just 4.8% in Bihere Tsige Park.

4) Time to travel to get to the parks: The investigation of travel time to the parks was conducted under conditions of no traffic. As presented in Table IV in Bihere Tsige Park, out of 400 respondents, 283 (70.75%) used transportation to reach the park. Among these, the majority, 37.8%, reported taking 15-30 minutes to arrive, while 34.3% traveled for 30 minutes to an hour. In Tekle Haimanot Park, of the 397 respondents, 226 (56.9%) used transportation. Among these individuals, the majority (39.45%) took 30 minutes to 1 hour to reach the park. However, this result may be influenced by visitors who do not come specifically for recreation but rather pass through while conducting business because the park is located in a core commercial area of Addis Ababa.

TABLE IV: Travel time to visit the sample parks

	Travel time to visit the sample parks						
	0-5 min.	6-15 min.	16-30 mins.	30 mins. - 1 hr.	1-2 hrs.	> 2 hrs.	Total
Time to travel to visit Bihere Tsige park							
Number of respondents	9	36	107	97	31	3	283
Percent	3.18	12.72	37.8	34.3	10.9	1.1	100
Time to travel to visit Tekle Haimanot Park							
Number of respondents	19	29	47	89	29	13	226
Percent	8.4	12.8	20.8	39.45	12.8	5.75	100
Total number of respondents	28	65	154	186	60	16	509
Percent	5.79	12.77	29.3	36.88	11.86	3.4	100

C. Suggestions for improvement

1) Suggestions for improvements of the sample park: Out of the 400 respondents in Bihere Tsige Park, 309 (77.25%) provided suggestions for improvement, while in Tekle Haimanot Park, 233 (58.7%) did the same. It's important to note that some individuals offered multiple suggestions. Therefore, the total number of suggestions was calculated, resulting in 589 suggestions for Bihere Tsige Park and 329 for Tekle Haimanot Park. A small percentage of respondents indicated they

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did not have any additional suggestions, believing the parks should maintain their current state—1.19% for Bihere Tsige Park and 1.52% for Tekle Haimanot Park. The most frequently suggested improvement was for the parks to be cleaner, with 19.69% of suggestions for Bihere Tsige Park and 17.33% for Tekle Haimanot Park. Other notable suggestions included the establishment of a cafeteria in Bihere Tsige Park (15.62%) and the addition of more plants in Tekle Haimanot Park (12.16%).

2) Recommendations for future forthcoming parks: From the 400 visitors in Bihere Tsige Park, 177 (44.25%) provided suggestions for future parks, while 145 (36.5%) of the 397 visitors in Tekle Haimanot Park did the same. Notably, some individuals offered multiple suggestions, such as advocating for cleanliness, the inclusion of indigenous plants, and designs aligned with community preferences. This resulted in a total of 272 suggestions for Bihere Tsige Park and 208 for Tekle Haimanot Park. The most common suggestion for Bihere Tsige Park (20.96%) was that the park should be very clean. In contrast, the predominant suggestion for Tekle Haimanot Park (31.73%) was that the park should feature more greenery and vegetation.

IV. DISCUSSION

Parks are among the most favored outdoor recreational areas in the community. This makes considering people's preferences and suggestions for improvements in their design necessary. This paper aims to gather foundational information from two sample parks in Addis Ababa, which will help enhance existing parks and provide a baseline for future developments. These parks, located amidst varied land uses, significantly influence their recreational capacity, while their size plays a crucial role in effectively meeting community needs.

The questionnaire results show that most visitors go to Bihere Tsige Park once a month, while Tekle Haimanot Park is visited weekly, making it more popular. This trend aligns with Pacheco and Vasconcelos (2007) indicate that parks near commercial areas attract more visitors, often for socio-cultural activities. Both parks receive medium satisfaction ratings, highlighting the need for improvements. Cleanliness is a primary concern for both, reflecting sanitation issues. Visitors suggest adding cafés to Bihere Tsige Park but not to Tekle Haimanot Park, which indicates different needs. Additionally, Tekle Haimanot Park requires more greenery, as visitors recommend

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adding plants, while Bihere Tsige Park is already sufficiently green. Overall, visitor suggestions can guide enhancements for both parks and inform improvements in other parks.

The findings reveal that most visitors spend between 30 minutes to 2 hours in the parks, mainly to enjoy the greenery and nature, which aligns with Breuste et al. [3], regarding visitor preferences in Buenos Aires. This suggests that park management should focus on enhancing natural elements that attract visitors. In Bihere Tsige Park, the second most common duration of stay is 2-4 hours, indicating that many visit for recreation. In contrast, Tekle Haimanot Park sees most visitors staying only 0-30 minutes, with a few staying longer. Factors such as its commercial location and a lack of facilities that promote longer visits may contribute to this trend. Further research is needed to understand the dynamics influencing visitor behavior in Tekle Haimanot Park.

Visitors enjoy the greenery and passive activities in parks, seeking respite from urban hustle for physical and mental relaxation. The quietness appreciated in Tekle Haimanot Park, absent in Bihere Tsige Park, is likely due to its busy commercial surroundings, which create a need for tranquil spaces. This makes Tekle Haimanot Park vital as it offers a natural escape from the hectic urban environment, providing essential recreational opportunities. The differences between the parks highlight the need for tailored amenities based on their specific contexts and visitor preferences.

The results indicate that most people take 16-30 minutes to reach Bihere Tsige Park and 30 minutes to 1 hour for Tekle Haimanot Park, suggesting a willingness to travel for these destinations. However, few visitors come from nearby (0-5 minutes) or very far (over 2 hours) distances, indicating that most visitors are coming from moderate distances. The longer stay duration at Bihere Tsige Park, located in a residential area, implies that people travel significant distances for recreational purposes. In contrast, the shorter stay at Tekle Haimanot Park, situated in a commercial area, suggests that visitors may not be traveling specifically for recreation. It's possible that many stop by on their way to work. This finding, while needing further research, highlights the convenience of having parks in busy urban areas, as noted by Breuste et al. [3].

Visitor experiences and their familiarity with parks significantly influence suggestions for future developments. Despite this limitation, the feedback remains relevant, reflecting the reality of users'

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experiences. Cleanliness is a key concern in Bihere Tsige Park, while Tekle Haimanot Park visitors emphasize the need for more greenery and plant coverage. Future park developments should incorporate these suggestions to better meet the recreational needs of the community. Many visitors expressed a desire to be involved in the design process, highlighting the importance of including local communities in park development. Similar sentiments were noted in research by Cohen et al. [20] on parks in Los Angeles, where residents advocated for improvements such as organizing events, enhancing landscaping, and increasing sports facilities. Therefore, we recommend that the feedback from the community be integrated into park development in Ethiopia to effectively address societal recreational needs.

Future studies can explore strategies for creating quiet recreational spaces in bustling urban centers. Additionally, researchers may investigate methods to integrate built-up areas with natural green spaces. Further examination of the benefits of urban nature in Ethiopia's hectic urban environments is also warranted.

V. CONCLUSIONS

Park design should incorporate community input to enhance the provision of recreational ecosystem services. The indicators presented in this paper reflect the current state of the sample parks based on visitor attitudes. Most respondents reported medium satisfaction with these parks. While the frequency and duration of visits differ between the two parks, these differences likely relate to their size, surrounding land use, and available amenities. The travel time to each park also reflects the purpose of the visit. Findings indicate that Bihere Tsige Park is primarily visited for recreation, whereas Tekle Haimanot Park serves as a space for social interaction and a respite from the urban environment. Common suggestions for improvement, particularly regarding cleanliness, highlight existing sanitation issues in both parks. We recommend that park management utilize public feedback to enhance the parks and their capacity to provide recreational ecosystem services. Additionally, urban planners and policymakers should consider these suggestions in future park developments to create a sustainable urban environment that meets community needs.

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