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EXPLORING URBAN PARKS: PERFORMANCE ANALYSIS AND IMPROVEMENT STRATEGIES FOR AMBEDKAR MEMORIAL PARK, LUCKNOW

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ABSTRACT

Urban parks serve as vital green lungs for bustling cities, offering sanctuary, fostering community, and injecting life into concrete jungles. Their role in enhancing livability through recreation, environmental benefits, and social cohesion is undeniable. In Lucknow, Uttar Pradesh, stands Dr. Bhimrao Ambedkar Samajik Parivartan Prateek Sthal, popularly known as Ambedkar Park – a unique blend of public park, memorial, and architectural marvel. Sprawling across 108 acres, this majestic complex pays homage to Dr. B.R. Ambedkar, the architect of the Indian Constitution and champion of social justice, while offering a verdant escape within the city's hustle. However, questions persist about its true contribution to urban green space and its potential for enhancing livability. This research delves into a comprehensive study of Ambedkar Park, assessing its current state and proposing strategies to revitalize it into a more vibrant and inclusive space. A mixed-methods approach, including site visits, SWOT analysis, surveys, and focus group discussions, was employed to gather comprehensive data on the park's status and user perceptions. By highlighting existing challenges and opportunities, it ultimately leads to a discussion on potential improvements for a more vibrant and livable urban green space.

Keywords: Urban Green Space, Comfort, Environmental Benefits, Emotional Wellbeing, Social Inclusion

1. INTRODUCTION

1.1. URBANIZATION AND THE NEED FOR GREEN SPACES

Rapid urbanization is a defining characteristic of the 21st century, with an increasing number of people migrating to cities in search of better opportunities. While urbanization offers economic benefits and fosters innovation, it also poses significant challenges, including environmental degradation, social inequities, and a decline in public health (World Health Organization, 2021). One critical

consequence of urbanization is the loss of green spaces, which are essential for maintaining a healthy and sustainable urban environment.

Therefore, as concrete jungles expand, the need to preserve and enhance green spaces within urban landscapes becomes increasingly vital. Urban green spaces, crucial for ecological balance and human well-being provide numerous benefits, including improved air and water quality, reduced noise pollution, increased physical and mental health, and enhanced social interaction Kowarik (2014), Gill et al. (2016). However, many UGS face challenges such as neglect, degradation, and inadequate management, compromising their ability to deliver these benefits Fuller (2007), Wolch et al. (2014). Revitalizing these spaces is critical to create sustainable and livable cities Gómez-Baggethun et al. (2013).Thus, revitalizing UGS has emerged as a critical strategy for improving urban environments and promoting well-being. Revitalization efforts can encompass a range of interventions, from physical improvements to programmatic changes, aimed at enhancing the functionality, aesthetics, and accessibility of green spaces Francis & Giles-Corti (1998), Sussman & Sallis (2012). Studies on urban green spaces have consistently highlighted their positive influence on physical and mental health, social cohesion, and environmental sustainability Frumkin et al. (2017), Kondo et al. (2018). However, the effectiveness of urban green spaces can vary significantly based on their design, maintenance, and the interplay between natural and built elements.

1.2. THE ROLE OF URBAN GREEN SPACES IN ENHANCING LIVABILITY

In a world increasingly dominated by urban landscapes, the presence of green spaces is no longer a luxury, but a necessity. These havens of nature offer a multitude of benefits that contribute significantly to the very idea of livability. By livability, we mean the quality of life in a city, encompassing aspects like physical and mental health, social cohesion, and environmental sustainability. Urban green spaces, like parks, gardens, and community forests, play a vital role in enhancing each of these elements, making them crucial components of a thriving city. Urban green spaces contribute significantly to enhancing the livability of cities by promoting:

1) **Physical Wellbeing:** Studies show that regular access to green spaces promotes physical activity, reduces stress, and improves cardiovascular health Nieuwenhuijsen et al. (2017). Green spaces encourage physical activity through walking, jogging, and other recreational pursuits, contributing to a healthier population Lee & Faber Taylor (2013). Furthermore, green spaces can mitigate the urban heat island effect, lowering temperatures and improving air quality, both of which benefit physical well-being Oke (1992).
2) **Mental Wellbeing:** Green spaces offer a respite from the hustle and bustle of urban life, providing a calming and restorative environment. Numerous studies have linked exposure to nature with reduced stress, anxiety, and depression Pretty et al. (2005). In addition, green spaces can provide opportunities for social interaction and community engagement, further contributing to mental well-being.
3) **Social Cohesion:** Parks and other green spaces serve as vital community hubs, fostering social interaction and building a sense of belonging. Playgrounds, community gardens, and public events held in these spaces encourage residents from different backgrounds to connect and build relationships, strengthening social fabric Wolch et al. (2014). A recent study

investigated the role of urban parks in promoting social interactions among older adults in China. The research identified that personal, social, and physical factors, along with park use patterns, significantly influence social interactions Cui et al. (2024).

4) **Environmental Sustainability:** Urban green spaces play a crucial role in stormwater management, air and water filtration, and biodiversity conservation. Trees absorb pollutants and carbon dioxide, while green spaces can help reduce flooding by absorbing rainwater. Additionally, they provide habitat for various species, contributing to the ecological health of the city. Research has shown that well-designed parks can mitigate the urban heat island effect and enhance the comfort of park visitors by regulating temperature and humidity levels Lin et al. (2023).

1.3. SIGNIFICANCE OF THE STUDY: EXPLORING THE POTENTIAL OF AMBEDKAR PARK

This research article presents a comprehensive study of Ambedkar Park, a significant UGS in Lucknow, India. The Park, characterized by its extensive hardscape, has the potential to serve as a valuable community asset but currently faces challenges that limit its functionality and appeal particularly in day time during summer season. Through a mixed-methods approach, this study investigates the current state of Ambedkar Park, including its physical characteristics, social use patterns, and community perceptions. The research also explores and identifies potential strategies for enhancing the park's functionality as an urban green space.

2. STUDY AREA

Figure 1

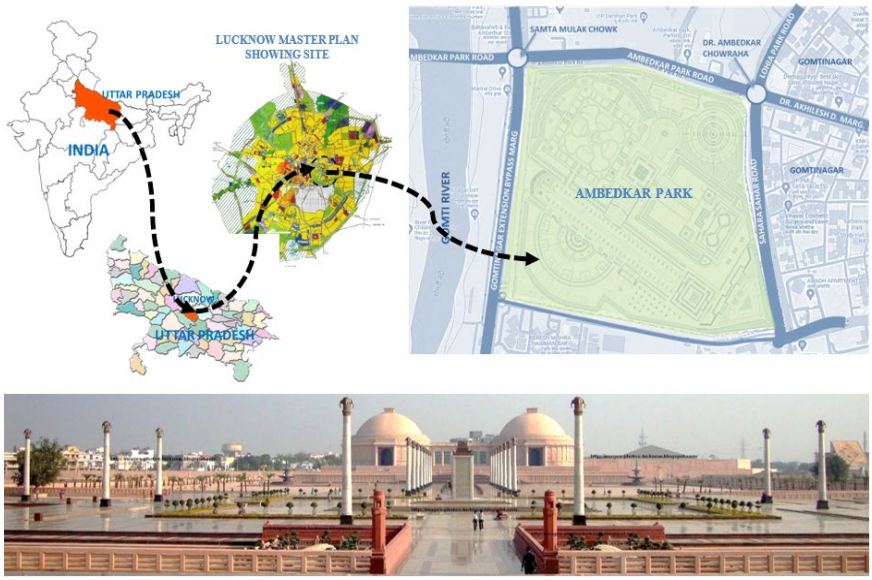

Figure 1 Study Area- Ambedkar Park
Source Author

Dr. Bhimrao Ambedkar Samajik Parivartan Prateek Sthal, also known as Ambedkar Park shown in Figure 1, is situated in Gomti Nagar, Lucknow, India. Established in 2008, it sprawls over a vast area of 107 acres, making it one of the

largest urban parks in the city. The Park was commissioned by Mayawati, the former Chief Minister of Uttar Pradesh, during her fourth term in office. It was envisioned as a memorial park dedicated to Dr. Bhimrao Ambedkar, a social reformer and the architect of the Indian Constitution, and to commemorate the struggles and achievements of the Dalit community in India. The construction of the park was a significant undertaking, involving the displacement of several families and local businesses. The project has been met with mixed reactions, with some praising it for creating a valuable public space and others criticizing its cost, scale, and political motivations.

2.1. PARK AMENITIES AND FEATURES

Ambedkar Park boasts a variety of amenities and features, catering to diverse needs and interests shown in Figure 2 and Figure 3. Here's a glimpse into what the park offers:

1) **Memorials and Monuments:** The park's central attraction is the towering Ambedkar Stupa, a hemispherical structure modeled after the Buddhist Sanchi Stupa. Other notable structures include the Bhimrao Ambedkar Samajik Parivartan Sangrahalay (museum), the Bhimrao Ambedkar Samajik Parivartan Gallery (exhibition hall), and the Pratibimb Sthal (reflection point). These structures pay homage to Dr. Ambedkar's life and legacy, showcasing his contributions to Indian society.

Figure 2

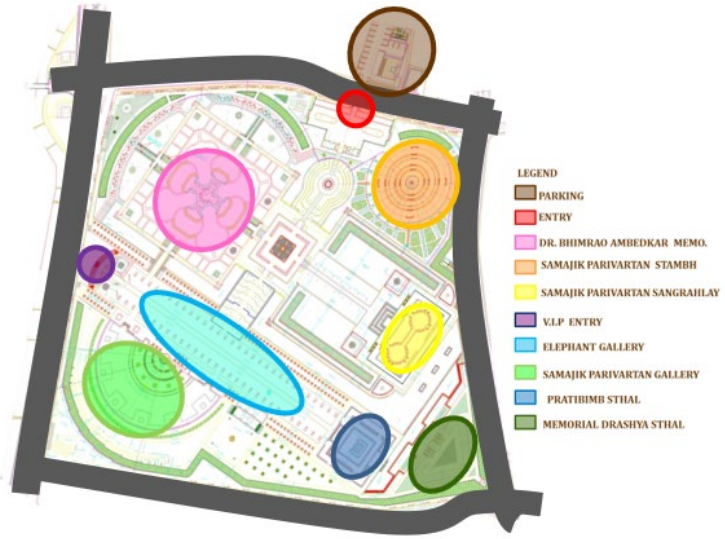

Figure 2 Site Plan, Ambedkar Park
Source Author

2) **Recreational Activities:** The Park provides ample opportunities for leisure and recreation. It encompasses small landscaped areas and walking paths. Visitors can enjoy leisurely strolls, engage in physical activities, or simply relax amidst the greenery.
3) **Educational Facilities:** The Park houses a museum, fostering learning and knowledge sharing. These facilities cater to students, researchers, and anyone interested in delving deeper into the life and works of Dr. Ambedkar and the struggles of the Dalit community.

Figure 3

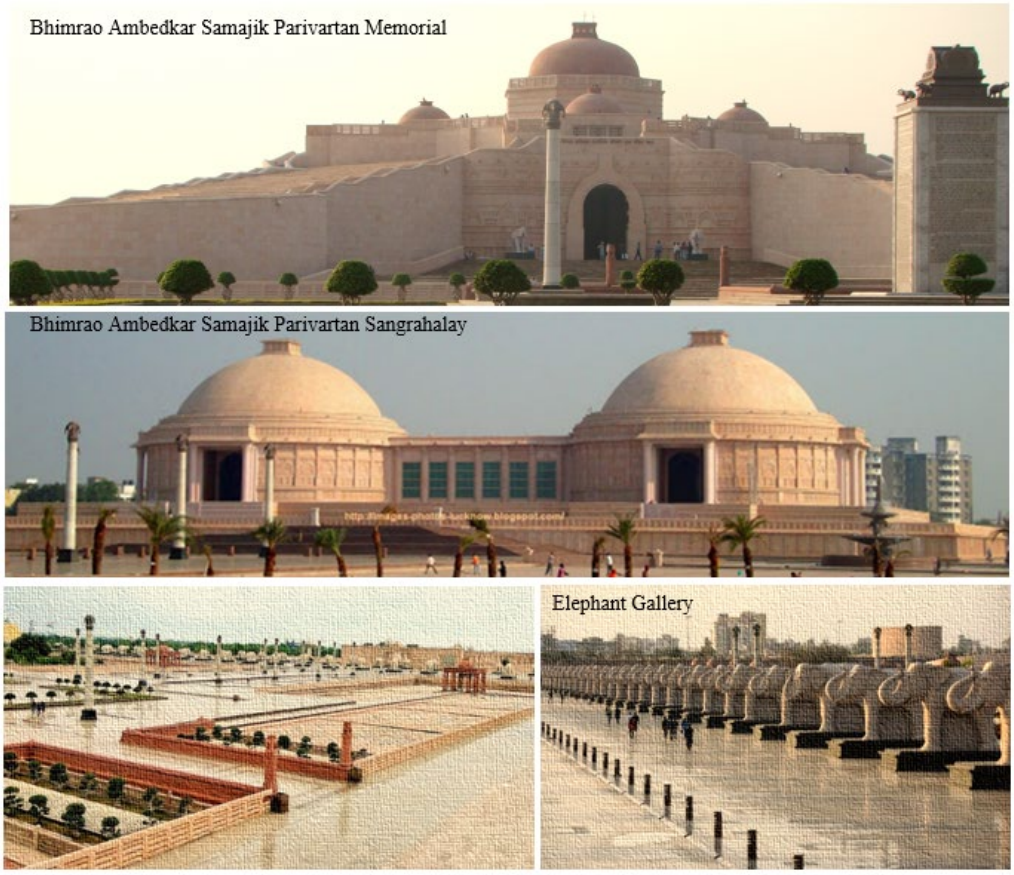

Figure 3 Glimpses of Spaces at Ambedkar Park
Source Author

4) **Event Venues:** The Park also features event spaces, hosting cultural programs, social gatherings, and public events. These events contribute to the park's vibrancy and foster a sense of community among visitors.

3. METHODS

In this exploratory research, we employed a phenomenological inquiry approach to investigate the structure and essence of lived experiences within an urban park setting. The methodology was designed to elucidate visitor experiences and perspectives to identify commonalities and divergences, while critically exploring the subjective meanings of their lived experiences and viewpoints. This study employed a mixed-methods approach to comprehensively assess the current state of Ambedkar Park, Lucknow, and propose strategies for its revitalization. The research design incorporated both quantitative and qualitative data collection methods to gain a well-rounded understanding of the park. A SWOT analysis was conducted to assess Ambedkar Park in Lucknow, identifying its strengths, weaknesses, opportunities, and threats shown in Table 1. This analysis aimed to understand the park's current state and its potential for improvement.

A comprehensive site visit was conducted to document the existing features of the park, including its layout, infrastructure, vegetation, and level of use. Detailed observations were made regarding the park's accessibility, functionality, and

aesthetics. A map of the park was created to illustrate its spatial layout and key features. Photographs and sketches were taken to capture visual data Ruppert & Lawson (2015). Researchers observed park activities and interactions throughout different times of the day to supplement the data obtained from questionnaires and interviews. Semi-structured questionnaires were administered to various stakeholders, including park users, residents in the vicinity, and local authorities during peak and off-peak hours, capturing data on usage patterns and demographics. The surveys aimed to gather insights into user preferences, perceptions of the park's state, and suggestions for improvement. Focused group discussions were held with diverse groups of park users to gain deeper qualitative data on their experiences, needs, and aspirations for the park. A sample size of 250 was deemed adequate based on established research practices Marshall et al. (2013). To ensure data representation across diverse user groups, a stratified random sampling technique was adopted. This method involved dividing the population into subgroups (strata) based on age and gender and then randomly selecting participants from each subgroup. Questionnaires were distributed during three specific time slots:

Morning: 6:00 AM - 9:00 AM

Afternoon: 12:00 PM - 2:00 PM

Evening: 4:00 PM - 6:00 PM

A total of 172 completed questionnaires were received, yielding a response rate of 69%. This, according to Boddy Boddy (2016), is considered sufficient for analysis in qualitative research. Quantitative data from the surveys were analyzed using statistical software to identify patterns, trends, and central tendencies in user preferences and perceptions. The majority of the visitors, or 54%, were female. The visitors ranged in age from 15 to 65 years old, with an average age of 46 years (Standard Deviation- 17.02).

Qualitative data from the site observations, focus group discussions, and open-ended survey questions were analyzed thematically using grounded theory approach. This involved identifying emerging themes, patterns, and relationships within the data to generate a comprehensive understanding of the park's current state and potential for improvement. A triangulation approach was employed, integrating findings from various sources to ensure the comprehensiveness and validity of the research Flick (2014).

4. ANALYSIS OF EXISTING SITUATION

4.1. CURRENT SITUATION ANALYSIS

The current situation analysis for Ambedkar Park in Gomtinagar, Lucknow, reveals a dynamic landscape shaped by evolving land use patterns in its vicinity as shown in Figure 4. Surrounded by a blend of residential, commercial, and institutional spaces, the park serves as a focal point for community engagement and leisure activities. Residential areas nearby contribute to a steady influx of visitors, seeking recreational spaces and greenery amidst urban development. Commercial establishments cater to the needs of both locals and tourists, further enhancing the vibrancy of the area. Additionally, the presence of educational institutions and administrative offices underscores the park's significance as a cultural and administrative hub. As urbanization continues, the challenge lies in preserving the park's ecological integrity while accommodating the needs of a growing population and sustaining harmonious land use practices in the surrounding areas.

Figure 4

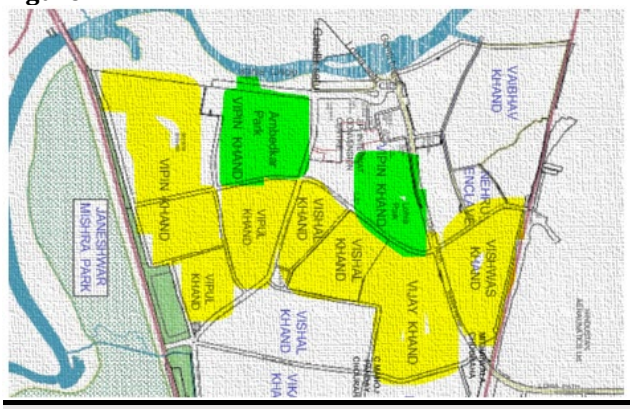

Figure 4 Land Use Pattern around Ambedkar Park
Source Google Earth/Author

4.2. BUILDING HEIGHT ANALYSIS

The surrounding areas of Ambedkar Park in Gomtinagar, Lucknow, present a diverse landscape of architectural heights as shown in Figure 5. Standing tall nearby is the Jai Prakash Narayan International Centre, boasting 16 floors, alongside the equally towering Renaissance Hotel. The Metro office, a significant presence, stands at around 3 to 4 floors, while the Taj Hotel adds to the skyline with 3 floors. Intermingled amidst these structures are residential houses ranging from 2 to 3 floors in height. On one side, Lohiya Park and UP Darshan Park offer greenery and recreational space, contrasting with the urban backdrop. Across the river, the riverfront development enhances the scenic beauty, adding a dynamic dimension to the architectural ensemble. This juxtaposition of heights creates a visually striking panorama, reflecting the multifaceted essence of modern urban living against the backdrop of natural elements.

Figure 5

Figure 5 View of Surrounding Buildings Near Ambedkar Park
Source Author

4.3. TRANSPORTATION ANALYSIS

A comprehensive transportation analysis of the surrounding areas of Ambedkar Park in Gomtinagar, Lucknow reveals a dynamic network catering to the diverse needs of residents and visitors. The Park enjoys excellent connectivity with the city and its surrounding areas, bordered by Ambedkar Park Road, Gomtinagar Extension Bypass Road, and Sahara Shahar Road. The park's strategic location ensures accessibility via multiple modes of transportation, including well-connected roadways, efficient public transit systems, and pedestrian-friendly pathways. Roads branching out from Gomtinagar provide easy access to the park and availability of public transport facilitate convenient commutes as shown in Figure 6. During peak hours at Ambedkar Park, the influx of vendors along the road intensifies, aligning with the high volume of public transportation. This simultaneous rise results in traffic congestion at the nearby roundabout, creating inconvenience and disorder for both visitors and commuters alike.

Figure 6

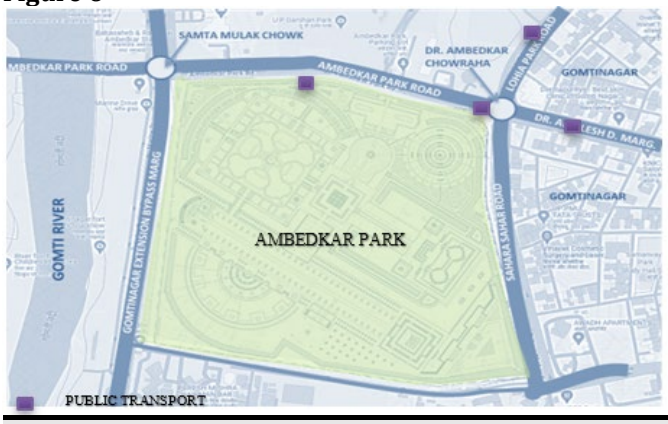

Figure 6 Transportation Analysis
Source Author

Table 1

Table 1 SWOT Analysis

STRENGTH	• It is close to the Gomti River, Lohia Park and UP Darshan Park • Well-connected through different modes of Transport • Surrounded by hotels, offices, shopping complexes, residential areas etc. • Serves as an Architectural allure contributing to the park's visual appeal. • Regular events and cultural programs held within the park enhance community engagement.
WEAKNESS	• Excessive hardscape elements compared to green spaces diminish the overall ecological balance and the park's potential as a natural urban oasis. • Parking area is available on the other side of road causing unnecessary movement on the road. • Lack of Food joints in the park causing visitors to rely on vendors. • Does not allow for different recreational activities other than sitting, eating and drinking, chatting, meeting with friends, taking photos in the area.
OPPORTUNITIES	• Potential for enhancing green areas and biodiversity within the park to create a more sustainable and ecologically balanced urban space. • Engage local communities in participatory initiatives for park development and maintenance. • Introduce additional recreational facilities to attract a diverse range of visitors and promote active lifestyles.
THREAT	• Encroachment and developmental pressures on the park's periphery may pose a threat to its existing green spaces. • Continued neglect of green spaces could lead to ecological imbalance and degradation.

5. FINDINGS OF SURVEY

5.1. PARTICIPANTS' CHARACTERISTICS

Table 2

Table 2 Demographic Structure of Participants who Participated in the Survey

Demographic Structure	Variables	Sample Percentage value
Gender	Male	49
	Female	51
Age	15-25	16
	26-35	21
	36-45	19
	46-55	18
	56-65	21
	> 65	5
Education	Primary School	8.5
	High School	35
	Secondary School	7
	Graduate	48
	Post Graduate and Higher	1.5
Occupation	Student	23
	Private Job	19
	Government Job	18
	Self Employed	7
	Housemaker	18
	Others	15
Visitors Profile	Resident	22
	Visitor	69
	Passers-by	9

In the study conducted at Ambedkar Park, Lucknow, a cohort of 250 individuals was selected to partake in a questionnaire-based survey. Out of the total invitations extended, 172 respondents demonstrated commitment by duly completing the questionnaire with earnestness. Analysis of participant demographics revealed a predominance of female representation, constituting 51% of the sample. The age distribution of visitors spanned from 15 to 65 years, with a mean age of 46 years (Standard Deviation: 17.02). Noteworthy, the proportions of local residents and transient visitors were comparable, whereas the contingent of passing through visitors was notably smaller in magnitude. Moreover, the distribution of visitors across distinct age brackets depicted varying percentages: 15-25 years (16%), 26-35 years (21%), 36-45 years (19%), 46-55 years (18%), and 56-65 years (21%), thus highlighting nuanced demographic patterns in park utilization. Refer Table 2 for the data.

5.2. FREQUENCY ANALYSIS VALUES

The survey conducted at Ambedkar Park, Lucknow, revealed distinct preferences among visitors for different seasons shown in Figure 7. Winter emerged as the most preferred season due to cold weather, which encourages outdoor activities. This season sees a peak in visitor numbers, attributed to the enjoyable weather and the allure of the park's architectural features and open spaces. Summer

was identified as the least preferable season, characterized by hot and humid conditions leading to a decrease in visitor numbers. The lack of significant greenery further diminishes the park's appeal during this season.

Analysis of survey responses revealed distinct favored time intervals for visiting Ambedkar Park among visitors shown in Figure 8 and Figure 9. The morning hours, particularly between 8:00 AM and 10:00 AM, emerged as the most preferred time slot, accounting for approximately 42% of visits. A secondary peak in visitor influx was observed during evening, between 6:00 PM and 9:00 PM, constituting around 39% of total visits. The distribution of time spent within the park exhibited a bimodal pattern, with a majority of visitors allocating between 1 to 3 hours per visit (55%) or more than 3 hours (29%). Minimal visits were recorded during midday hours, suggestive of potential climatic influences on visitor behavior.

Figure 7

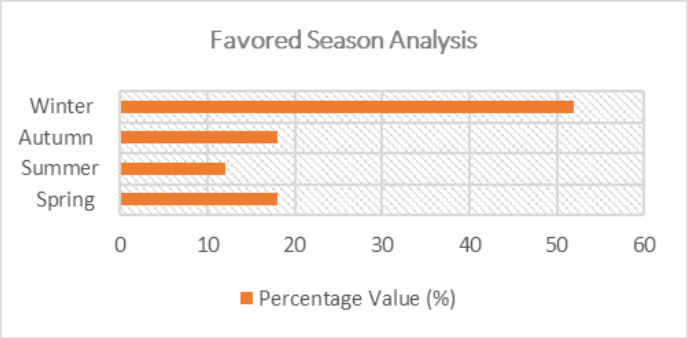

Figure 7 Favored Season Analysis

Figure 8

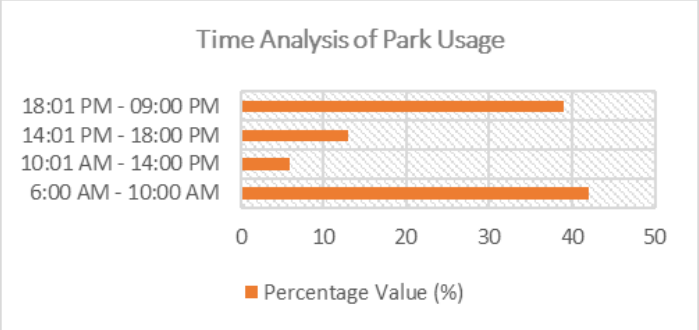

Figure 8 Time Analysis of Park Usage

Figure 9

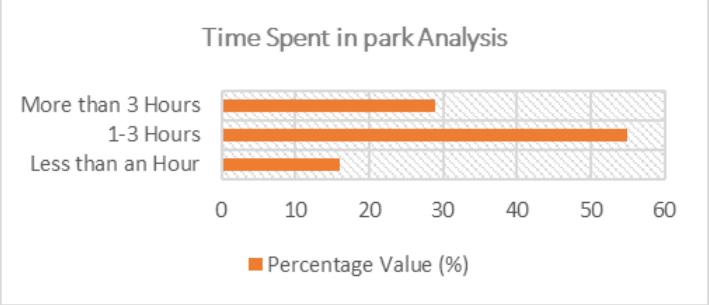

Figure 9 Analysis of Time Spent in Ambedkar Park

Figure 10, indicates that the park is predominantly utilized for walking, exercise, and yoga, comprising 24% of the activities. Family trips and educational activities/museum visits also contribute significantly at 17% and 18% respectively. However, playing activities constitute only 2% of park usage, possibly due to limited green spaces and more hardscape areas, which could deter recreational activities. This emphasizes the need for enhancing green covers and diversifying recreational facilities to accommodate a broader range of activities and attract more visitors for leisure and relaxation.

Figure 10

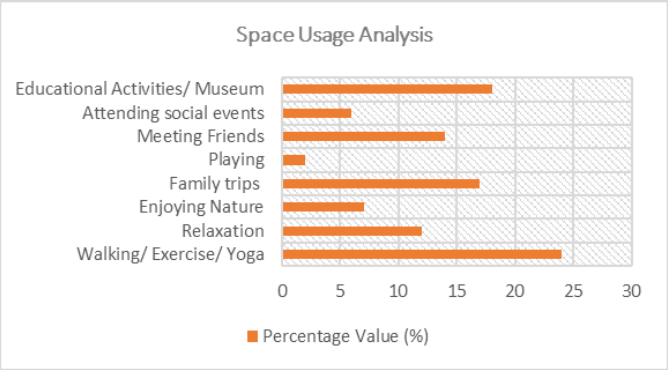

Figure 10 Space Usage Analysis at Ambedkar Park

Figure 11, indicate generally positive perceptions among users. The Park scores well in terms of safety, suitability for all age groups, and accessibility. However, concerns arise regarding visual and thermal comfort, as well as the amount of hardscape compared to greenery. Users appreciate the park's safety measures and its inclusivity, but there's a call for improvement in providing more green cover to mitigate discomfort during the summer months. Additionally, enhancing visual aesthetics and introducing more interactive spaces could further enhance the park's appeal and user experience.

Figure 11

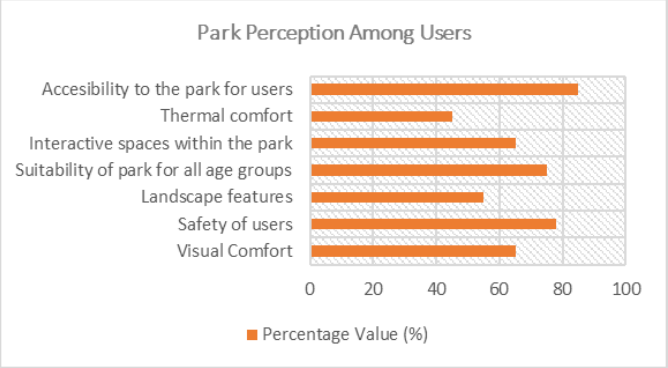

Figure 11 Park Perception among Users at Ambedkar Park

Users have proposed several enhancements for Ambedkar Park to enrich its appeal and functionality shown in Figure 12. Among these suggestions, a prominent emphasis is on increasing greenery within the park premises, with a proposed allocation of 35% of the area for planting more trees, shrubs, and flowers. Additionally, there's a call for a reduction in hardscape elements, aiming for a 25%

decrease in concrete pathways and artificial structures to preserve the park's natural ambiance. To enhance visitor comfort, the inclusion of more rest areas and seating arrangements is recommended. Suggestions also include the introduction of food kiosks offering local cuisine and incorporating water features like fountains or ponds to enhance aesthetics and attract birds. Ensuring accessibility for all visitors, including wheelchair-friendly pathways and facilities, is emphasized. Finally, safety measures such as adequate lighting and surveillance cameras, with a focus on 24-hour security, are highlighted to ensure visitor safety within the park premises.

Figure 12

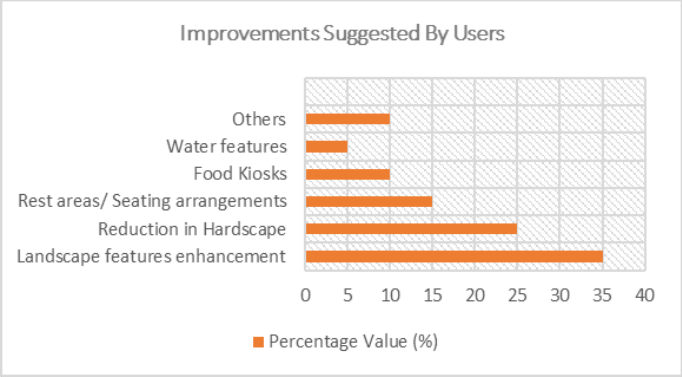

Figure 12 Recommendations suggested by Users at Ambedkar Park

6. CONCLUSION AND RECOMMENDATIONS

The comprehensive study of Ambedkar Park in Lucknow has provided valuable insights into its current state, challenges, and opportunities for revitalization. The Park, despite its vast size and significant amenities, faces issues such as excessive hardscape, lack of greenery, and limited recreational activities, which diminish its potential as a vibrant urban green space. However, the study also identifies several strengths, including its strategic location, connectivity, and cultural significance. The suggestive recommendations are:

- **Increase Greenery:** Prioritize planting native trees, shrubs, and developing gardens within the park to enhance its ecological balance, aesthetics, and biodiversity. Introducing green infrastructure like rain gardens and permeable pavements can further contribute to sustainable park design.
- **Diversify Recreational Facilities:** Expand the range of recreational activities by introducing facilities for sports, cultural events, and interactive spaces. This can attract a more diverse visitor demographic and promote active lifestyles.
- **Improve Accessibility:** Ensure accessibility for all visitors, including the elderly and differently-abled, by providing wheelchair-friendly pathways and facilities. Enhance safety measures with adequate lighting and surveillance to ensure a secure environment for visitors.
- **Enhance Visitor Comfort:** Increase the number of rest areas, seating arrangements, and introduce amenities like food kiosks to enhance visitor comfort and satisfaction. Creating shaded areas and water features can mitigate thermal discomfort during hot seasons.
- **Community Engagement:** Engage local communities in participatory initiatives for park development and maintenance. Collaborate with

stakeholders, including residents, businesses, and authorities, to ensure the park meets the diverse needs of its users while fostering a sense of ownership and pride.

Implementing these recommendations can transform Ambedkar Park into a vibrant and sustainable urban green space that promotes health, well-being, and community cohesion. By leveraging its strengths and addressing existing challenges, the park can serve as a model for revitalizing green spaces in densely populated urban areas, contributing to the creation of more livable and resilient cities. Future research should focus on the long-term impacts of these proposed changes, exploring how they contribute to the park's sustainability and user satisfaction. The integration of technological advancements in park management, such as smart irrigation systems and real-time visitor feedback mechanisms, can also be examined. Comparative studies with other successful urban parks worldwide could provide valuable insights and best practices that can be adapted to the local context. By continuously evaluating and adapting these strategies, Ambedkar Park can serve as a model for urban green spaces, enhancing the quality of life for the residents of Lucknow and beyond.

CONFLICT OF INTERESTS

None.

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