

LANDSCAPE PLANNING AND DESIGN APPROACHES FOR ENHANCING URBAN GREEN SPACES: THE CASE OF NARYAL PARK, GULSHAN-E-IQBAL, KARACHI

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Abstract

An important urban green space in one of Karachi's highly populated residential districts is Nariyal Park, which is situated in Gulshan-e-Iqbal Block 5, Karachi. The park improves the quality of life in the area by fostering ecological harmony and facilitating social and recreational activities for local residents. The purpose of this research is to evaluate Naryal Park's design, landscaping, and visitor behavior habits in light of their impact on the park's usability, accessibility, and upkeep. The research highlights important difficulties, such as a lack of green cover, seats, and lighting, as well as an inadequate number of pedestrian pathways, through field observation and user engagement. Regardless of these concerns, the park is still a vital community resource that promotes physical activity, socialization, and emotional health. Sustainable design options, such as native planting, shaded pathways, and community-oriented amenities, have the potential to improve landscapes, according to the study. Naryal Park can serve as an example for smaller urban parks in the quickly expanding metropolitan context of Karachi. The environmental quality and accessibility as well as usability are improved that can strengthen its role as a model for small-scale urban parks in Karachi's rapidly developing.

This design proposal focuses on the revitalization and enhancement of Naryal Park, located in Gulshan-e-Iqbal Block 5, Karachi. The park, though centrally situated within a dense residential fabric, currently lacks cohesive design, adequate facilities, and environmental comfort for diverse user groups. The proposed design aims to transform Naryal Park into a vibrant, inclusive, and ecologically sustainable public space that supports social interaction, physical activity, and urban resilience. Emphasis is placed on integrating pedestrian-friendly pathways, shaded sitting areas, and multifunctional green zones that promote comfort and accessibility for all age groups. Sustainable landscape strategies such as the use of native vegetation, permeable surfaces, and efficient water management systems. There are incorporated to address climatic challenges

and reduce maintenance costs. The proposal envisions Nariyal Park as a model neighborhood park that not only enhances environmental quality but also fosters community engagement and a sense of place within the urban context of Karachi.

INTRODUCTION

Urban green spaces are fundamental to improving the environmental quality, livability, and social unity consistency of cities. They provide ecological functions such as temperature regulation, air purification, and biodiversity enhancement, while also offering residents spaces for recreation, relaxation, and community engagement (Chiesura, 2004; Tzoulas et al., 2007). In rapidly urbanizing regions like Karachi, Pakistan, where population growth and urban expansion have placed immense pressure on open spaces, the role of neighborhood parks has become increasingly vital for maintaining environmental balance and human well-being (Hasan & Mohib, 2003; Qureshi et al., 2010). Parks not only provide opportunities for recreation and relaxation but also contribute to improving air quality, reducing the urban heat island effect, and fostering community interaction. However, many urban parks in developing metropolitan regions face challenges related to inadequate design, poor maintenance, and limited accessibility, which diminish their potential benefits (Kabisch et al., 2017; Chiesura, 2004).

Nariyal Park, located in Gulshan-e-Iqbal Block 5, Karachi, represents one such neighborhood park that serves as a critical green asset within a dense residential zone. The park contributes to environmental sustainability and offers social and recreational opportunities to local residents. However, like many small-scale parks in Karachi, Nariyal Park faces several challenges related to landscape quality, maintenance, and accessibility. Observations reveal issues such as limited green cover, inadequate seating and lighting, and poorly developed pedestrian pathways, all of which affect user comfort, safety, and aesthetic quality, reducing its effectiveness as a public open space. (Qureshi et al., 2010; Abbas et al., 2018).

Assessing the spatial layout, landscape elements, and user patterns of Nariyal Park is essential for understanding its current role within the urban fabric and identifying opportunities for improvement. Through field observation and user interaction, this study evaluates the park's functionality, design, and maintenance conditions. It further explores sustainable design interventions—such as the use of native plant species, shaded walkways, and community-oriented amenities—that can enhance both environmental performance and user satisfaction. This research aims to highlight the broader potential of neighborhood parks as tools for social sustainability, ecological resilience, and urban livability. The study understands its current performance in terms of accessibility, functionality, and maintenance in Karachi's metropolitan context. By focusing on the enhancement of Nariyal Park, the study contributes to the discourse on sustainable urban landscape planning in South Asian cities, where public open spaces are under constant threat from rapid development and inadequate urban governance (Hasan, 2015; Qureshi, 2017).

Furthermore, it explores design-based strategies for enhancing the park's landscape quality through sustainable interventions, such as the incorporation of native plant species, shaded walkways, and community-oriented amenities. The findings contribute to a broader understanding of how small-scale urban parks can be revitalized to promote sustainability, inclusivity, and well-being within Karachi's evolving urban fabric.

HISTORICAL BACKGROUND

Nariyal Park was developed during the early phases of residential planning in Gulshan-e-Iqbal, one of Karachi's major planned neighborhoods established in the 1960s and 1970s to accommodate the city's growing middle-class

population (Hasan, 2015). The area was designed with an integrated urban layout that included community parks, schools, and public amenities to support social well-being and outdoor recreation (Qureshi et al., 2010). Within this planning framework, Nariyal Park was envisioned as a neighborhood-scale green space, providing residents. Usually, mostly families, children, and the elderly people to wants with its opportunities for relaxation, physical activity, and social interaction close to their homes.

With the passage of time, some express it in such a way the park has experienced a gradual decline in both physical condition and environmental quality. A lack of regular maintenance, insufficient funding, and weak institutional coordination between local authorities have contributed to the deterioration of its landscape and infrastructure (Abbas et al., 2018). The once vibrant open space, which played a vital role in promoting community life and neighborhood cohesion, began to lose its visual appeal and functional value.

Local residents and community activists have repeatedly expressed concern over the deteriorating state of the park. Public petitions, community-led clean-up drives, and social media campaigns have called attention to the need for urgent restoration and sustainable management. Despite these efforts, interventions from municipal authorities have remained limited and inconsistent, reflecting broader challenges in Karachi's urban governance and park management systems (Hasan, 2015; Qureshi, 2017).

The historical trajectory of Nariyal Park thus mirrors the larger pattern of urban green space neglect in Karachi, where rapid population growth, privatization pressures, and inadequate urban management have collectively undermined the quality and accessibility of public parks. Understanding this historical context is crucial for framing the current landscape assessment and proposing strategies for its revitalization through sustainable design and community participation.

EXISTING CONDITION

At present, Nariyal Park is in a visibly declined condition, reflecting broader challenges of neglect and inadequate management commonly observed in many urban parks across Karachi. Although the original spatial framework of the park remains intact with its walking tracks, benches, open lawns, and patches of tree cover. The overall quality of these features has significantly declined due to poor upkeep and lack of systematic maintenance (Abbas et al., 2018; Qureshi, 2017). The walking paths are uneven and partially damaged, making pedestrian movement inconvenient, particularly for children and the elderly. Benches and seating areas are either broken or rusted, and many of the lighting fixtures are non-functional, contributing to poor visibility and a reduced sense of safety during evening hours. Vegetation within the park exhibits signs of both neglect and imbalance. The grassy areas are patchy and irregular, with dry soil exposed in several parts, indicating insufficient irrigation and maintenance. Many of the existing trees are overgrown and unpruned, while other planted areas show a lack of biodiversity and systematic landscape planning. The dominance of a few tree species, combined with the absence of shade-tolerant and native plants, has reduced the park's ecological value and aesthetic appeal (Qureshi et al., 2010; Tzoulas et al., 2007). Additionally, waste management within the park is inadequate, with litter and debris often scattered around pathways and seating areas. The issue exacerbated by the absence of sufficient trash bins and regular cleaning services (Hasan, 2015). The nariyal park area is existing dimension 87500 sq.ft., The overall site has irregular form. The layout of their streets is in a grid iron pattern and of medium width along with pictograph signs around them as well figure,1.

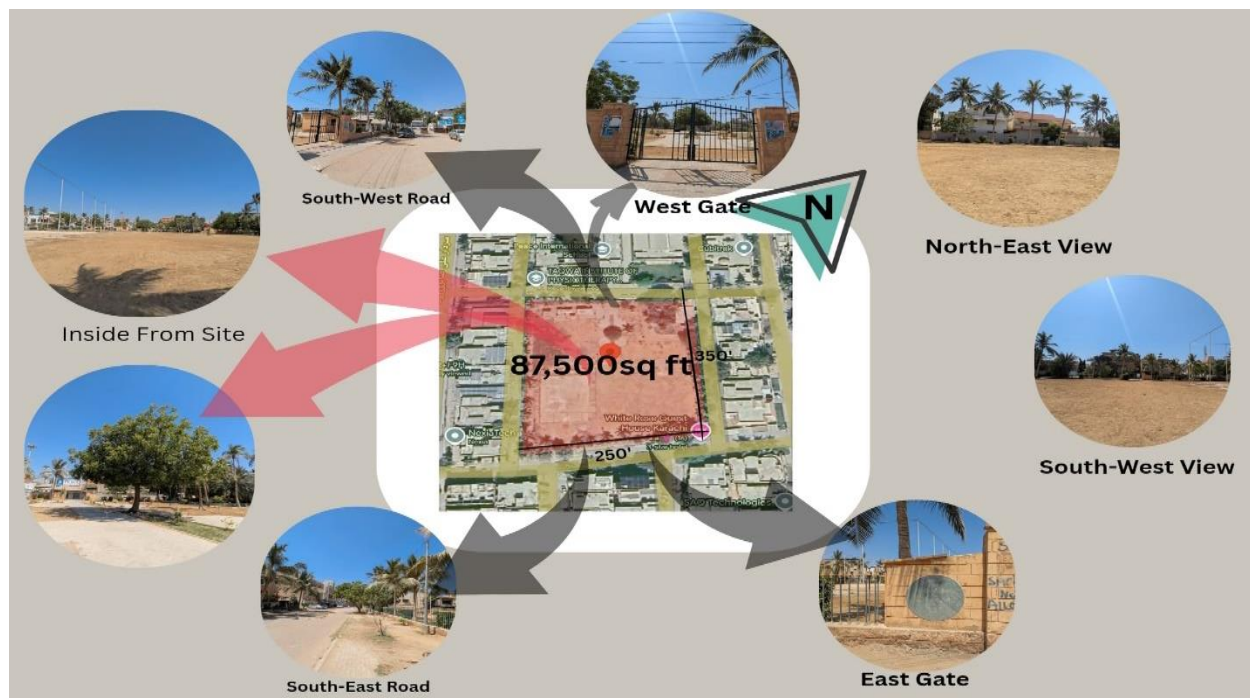


Figure 1

The park's boundary walls and fencing show visible signs of decay, further undermining the sense of enclosure and safety. Lighting infrastructure, where present, is outdated and insufficient, discouraging users from visiting after sunset and contributing to perceptions of insecurity, particularly among women and families. Similar patterns of physical decline and limited maintenance have been reported in other local parks in Karachi, highlighting systemic shortcomings in municipal park governance, resource allocation, and community engagement (Abbas et al., 2018; Qureshi, 2017).

Despite these limitations, Nariyal Park continues to attract visitors, especially in the late afternoon and evening hours. Its enduring use underscores the high demand for accessible open spaces within the dense urban fabric of Gulshan-e-Iqbal, where few alternatives exist for outdoor recreation and social interaction. The park thus retains social significance as a communal space, even in its deteriorated state, revealing both the resilience of local users and the pressing need for revitalization through sustainable landscape design and participatory management.

PROBLEM IDENTIFICATION

Urban parks serve as essential public spaces that contribute to environmental quality, physical health, and community well-being. However, in many rapidly growing cities of the Global South, including Karachi, the provision and maintenance of such spaces face persistent challenges linked to weak urban governance, limited funding, and unplanned urbanization (Hasan, 2015; Qureshi, 2017). Nariyal Park exemplifies these challenges, as its declining condition reflects the cumulative impact of inadequate management, lack of maintenance, and insufficient community participation in urban green space governance.

One of the primary issues identified is the deterioration of physical infrastructure. The park's walking tracks, seating areas, and boundary fencing are either broken or poorly maintained, reducing both functionality and user safety. Damaged lighting fixtures and limited visibility after sunset discourage female visitors and families from using the park in the evenings, thereby restricting inclusivity (Abbas et al., 2018). Additionally, the absence of proper signage and designated recreational zones results in

disorganized spatial use and diminished user experience.

A second critical problem is the degradation of the park's ecological components. The existing vegetation shows poor diversity and irregular maintenance. The lack of native species, untrimmed overgrowth, and insufficient irrigation contribute to the decline of green cover and biodiversity (Qureshi et al., 2010). This ecological imbalance also affects the park's microclimate and its potential to mitigate the urban heat island effect, which is an increasing concern in dense urban environments like Gulshan-e-Iqbal (Tzoulas et al., 2007).

The absence of proper waste management and cleaning system further intensifies the park's decline. Littering, scattered debris, and insufficient trash collection unit that contribute to both environmental pollution and negative impact surrounding residents as well as user perceptions, reducing the overall attractiveness and usability of the park (Hasan & Mohib, 2003).

Moreover, administrative challenges have including poor coordination between municipal departments, other side have limited financial resources. The lack of public accountability its hinder effective park management and long-term maintenance strategies (Qureshi, 2017). Despite repeated appeals from residents and community groups, responses from the concerned authorities have been inconsistent and insufficient, reflecting a broader pattern of neglect in Karachi's public space management system.

Finally, there is a lack of participatory planning and community engagement in the park's maintenance and development. there Studies have shown that community involvement in park management significantly improves sustainability by sense of ownership, and maintenance outcomes (Cilliers et al., 2013). In the case of Nariyal Park, the absence of structured community-based programs or public partnerships with local

stakeholders has prevented the establishment of a collective stewardship culture.

In summary, the problems facing Nariyal Park are multi-dimensional there is spanning physical deterioration, ecological imbalance, administrative inefficiency, and social exclusion. Addressing these interconnected issues requires an integrated landscape design and management. It approaches that combines sustainable planning principles, community engagement, and reform to restore the park's ecological and social value.

OBJECTIVES OF THE STUDY

The all-embracing aim of this study is to evaluate the existing condition of narial Park, Gulshan-e-Iqbal Block 5, Karachi. To propose sustainable design strategies for its revitalization as a multifunctional urban green space. In doing so, the study seeks to bridge the gap between environmental sustainability, social inclusivity, and urban livability within the context of small-Scale neighborhood parks in Karachi.

The specific objectives of the study are as follows:

To assess the spatial layout, physical infrastructure, and landscape elements of Nariyal Park in relation to its design functionally, accessibility, and user needs. This objective focuses on identifying spatial organization patterns and the condition of physical features. Like that, walkways, seating, lighting, and vegetation (Abbas et al., 2018; Qureshi, 2017). Another way, to examine user behavior, activity patterns, and perceptions regarding the parks comfort, safety, usability. Understanding user interaction provides insight into the park's social value and helps determine areas that require design improvement (Chiesura, 2004; Cilliers et al., 2013). To identify key challenges and constraints affecting the park's performance, including issues of maintenance, ecological degradation, and management. This involves evaluating systemic factors such as governance, community involvement, and urban management practices (Hasan, 2015; Qureshi et al., 2010).

To propose sustainable landscape design strategies that enhance environmental quality, promote biodiversity, and strengthen the park's role as a socially inclusive public space. The design recommendations will integrate native planting. There should be provide to propose shaded pedestrian pathways, and community-oriented amenities to improve usability and ecological resilience (Tzoulas et al., 2007). The contribute to the broader discourse on urban green space planning in Karachi, offering a model framework for the revitalization of small-scale neighborhood parks in rapidly urbanizing environments. The study emphasizes the importance of participatory and context sensitive design approaches for sustainable urban development (Hasan & Mohib, 2003).

By achieving these objectives, the research aims to not only document the present condition of Nariyal Park but also to generate actionable insights for policymakers, urban designers. The community groups seeking to improve the quality and management of public green spaces in Karachi.

RESEARCH METHODOLOGY

This study adopts a qualitative case study approach, focusing on Nariyal Park as a representative example of small-scale urban green spaces within Karachi's dense residential context. The case study method enables an in-depth understanding of spatial organization, environmental quality, and user interaction patterns, which are critical for developing sustainable landscape design strategies (Yin, 2014). The research design integrates field observation, spatial analysis, and user-based inquiry, combining both descriptive and interpretive dimensions to evaluate the park's current condition and performance.

Data Collection Methods

Data for the study were collected through primary and secondary sources to ensure a comprehensive and reliable analysis.

a. Primary Data

Important information was collected directly through field observations, photographic documentation, and semi-structured interviews with park users and nearby residents. The field Observation on-site surveys were conducted to best spatial layout, landscape elements, types of vegetation, lighting, accessibility, and maintenance conditions. Observations were made during both day and evening to understand temporal changes in park usage.

User Interaction conducted by Informal interviews and short questionnaires were administered to a diverse group of visitors, including families, children, and elderly users. To understand their perceptions, usage patterns, and satisfaction levels (Chiesura, 2004). Behavioral Mapping through Activity zones and user movement of patterns were mapped to identify popular areas, underused spaces, and potential conflict zones.

b. Secondary Data

Secondary data were collected from academic literature, municipal reports, urban planning documents, and relevant case studies on Karachi's parks and open spaces. These sources provided contextual understanding and comparative frameworks for evaluating Naryal Park within the broader discourse of sustainable urban green space management (Qureshi et al., 2010; Hasan, 2015).

Data Analysis

The collected data were analyzed using qualitative, spatial analysis techniques for true understanding and strengthening the study.

Qualitative analysis, that is, thematic analysis, was used to categorize user responses and feedback and to identify real issues related to accessibility, comfort, maintenance and care. (Braun & Clarke, 2006). Spatial Analysis with Site observations and sketches were analyzed to evaluate spatial configuration, circulation patterns, and visual connectivity. This helped identify the strengths and weaknesses of the park's existing layout and its potential for improvement. Comparative Evaluation these results were compared with

established standards and research findings on sustainable park design and management (Tzoulas et al., 2007; Abbas et al., 2018).

RESEARCH FRAMEWORK

The research framework is structured around three main components:

1. Assessment of Existing Conditions i.e. Physical, ecological, and functional characteristics of the park were documented.
2. User-Centered Evaluation i.e. social behavior, activity patterns, and satisfaction levels were analyzed.
3. Design-Based Recommendations i.e. Findings from both assessments were synthesized to develop sustainable landscape strategies aimed at improving environmental quality, usability, and community engagement.

FINDINGS AND ANALYSIS

The findings of this study are derived from extensive field observations, user interactions, and spatial documentation of Nariyal Park. The analysis focuses on three major dimensions:

- a. Physical conditions
- b. Social usage patterns, and
- c. Environmental quality

The providing an integrated understanding of how the park currently functions and how it can be improved to meet community and ecological needs.

Physical and Spatial Analysis their condition of Nariyal Park reflects years of under maintenance and lack of systematic planning updates. Although the basic spatial framework was comprising walking tracks, lawns, seating areas, and tree clusters remains intact as well as many of these elements have deteriorated over time.



Figure 2

In figure 2, Layout and Circulation plan currently at nariyal park consists of simple, linear walking paths that do not provide comprehensive connectivity between different areas. The existing tracks are narrow, uneven, and in poor condition, making them uncomfortable for users i.e. specially children and elderly visitors. Poor pathway with a few mature trees and scattered shrubs, but the overall green cover is sparse and uneven. Many areas have patchy grass, and native plant diversity is limited. The lack of a proper planting plan has led to aesthetic imbalance and ecological inefficiency. Studies have shown that the use of native and drought-resistant species improves biodiversity and reduces maintenance costs (Qureshi et al., 2010; Tzoulas et al., 2007). Lighting limits evening use and creates a sense of insecurity. According to Gehl (2011), the spatial quality of public open spaces depends on how well they support human movement, interaction, and comfort.

Vegetation and green cover are dominated by Infrastructure Basic amenities such that benches, play equipment, and fencing are present but in dilapidated condition. Many benches are broken or missing, and the lighting system is partially non-functional. The park lacks waste bins, drinking water points, and signage, which negatively affects user comfort and environmental cleanliness. Similar deficiencies have been reported in several small urban parks across Karachi, where management and maintenance are often

overlooked due to resource limitations (Hasan, 2015).

Social and Behavioral Analysis Despite its poor maintenance, Nariyal Park remains an active social space for nearby residents. Observations and interviews revealed that local communities value the park for recreation, exercise, and social interaction, indicating its strong cultural and social relevance.

- a. **Demographic characteristics of users:** This park primarily attracts families, children, and elderly citizens coming from nearby blocks. Young adults mostly visit in the evenings for running or socializing. However, women's participation is relatively low, particularly after sunset, due to safety concerns related to lighting and limited visibility. This issue is consistent with gender-based usage patterns observed in other urban parks (Zhai & Baran, 2016).
- b. **Patterns of activities** include common activities such as walking, sitting, and children playing. However, due to limited facilities, activities like group exercise, sports, or cultural gatherings are less frequent. The absence of shaded seating areas reduces comfort during the day, resulting in park use being mostly limited to the early morning and late evening hours (Chiesura, 2004).
- c. **User Perception and User response** or feedback their highlighted dissatisfaction with maintenance and cleanliness. The safety with that but also emphasized appreciation for having an accessible open space in a densely built-up area. Respondents expressed a desire for better lighting, seating, and planting improvements. The results align with findings by (Abbas et al. (2018), who noted that user satisfaction in Karachi's parks is strongly

correlated with cleanliness, greenery, and accessibility.

Environmental and Ecological Analysis

Nariyal Park contributes to microclimatic regulation and serves as a small ecological refuge within a highly urbanized district. However, its environmental potential is currently underutilized.

- a. **Environmental Quality:** Their Field observations indicated that air quality and ambient temperature were noticeably better inside the park compared to adjacent streets, confirming the park's ecological role as a green buffer. Nonetheless, inadequate vegetation cover reduces its ability to mitigate heat and air pollution effectively i.e. key functions of urban green spaces (Bowler et al., 2010).
- b. **Sustainability and Maintenance:** The park lacks a clear management plan for waste disposal, irrigation, and plant care. Water wastage from inefficient irrigation practices was observed, and litter accumulation near corners and pathways suggests absence of regular maintenance routines. Sustainable landscape management approaches such as rainwater harvesting, native planting. The community participation that could enhance both environmental performance and public stewardship (Jim & Chen, 2009).

Summary of Key Findings

Aspect	Findings	Implications
Spatial Layout	Basic layout functional but lacks connectivity and maintenance	Requires reorganization and repair of pathways
Vegetation	Sparse, unplanned planting	Introducing native species and structured green zones
Amenities	Benches and lighting in poor condition	Upgrade facilities and improve safety
User Behavior	Active community use despite poor conditions	Indicates strong local attachment and potential for revitalization
Environmental Role	Provides limited ecological benefits	Needs ecological restoration for improved climate resilience

Interpretation

The analysis reveals that Nariyal Park functions as a socially valuable but physically and environmentally weak public space. Its deficiencies stem primarily from lack of maintenance, poor infrastructure, and weak management frameworks. However, the high community engagement and strategic location provide opportunities for transforming it into a model sustainable neighborhood park through landscape renewal, participatory planning, and environmental stewardship.

DESIGN CHALLENGES AND OPPORTUNITIES

The study of Naryal Park uncovers a multitude of design obstacles that obstruct its functional, aesthetic, and ecological performance. But these limits also provide up big chances for change through sustainable landscape design, citizen involvement, and better management of cities. Understanding both the limitations and the possibilities facilitates the development of pragmatic and context-sensitive strategies for park restoration.

1. Design Challenges

Deteriorated Infrastructure and Poor Maintenance is one of the major challenges facing Nariyal Park is the physical deterioration of its infrastructure, including damaged pathways,

broken seating, inadequate lighting, and poorly maintained vegetation. The park's existing design lacks a systematic approach to materials, layout, and maintenance, leading to inconsistent quality across spaces. The absence of designated zones for play, rest, and community gathering results in overlapping uses and visual disorder. Similar issues have been reported in other urban parks in Karachi, where maintenance neglect and fragmented management systems compromise long-term functionality (Hasan, 2015; Abbas et al., 2018).



Figure 3

Limited Accessibility and Wayfinding
Accessibility within the around the park is

limited due to poorly defined entrances, uneven walking paths, and lack of clear circulation hierarchy. Wayfinding is also weak, as there are no directional or informational signages guiding visitors. According to Gehl (2011), figure 3, the accessibility and legibility of public spaces directly influence the quality of user experience and encourage greater public use.



Figure 4

In figure 4, Lack of Shade and Climatic Comfort Karachi's hot and humid climate demands shading and cooling strategies within public spaces. However, Nariyal Park lacks adequate shaded areas, especially along pathways and seating zones. The absence of large canopy trees and shaded structures reduces the usability of the park during daytime hours. Studies have shown that thermal comfort and microclimatic regulation are essential components of urban park design in warm climates (Nikolopoulou & Steemers, 2003; Bowler et al., 2010).



Figure 5

In figure 5, Poor Management Environmental sustainability remains a challenge due to insufficient waste disposal facilities, inefficient irrigation practices and lack of biodiversity. These shortcomings have led to soil compaction, patchy grass growth, and visual degradation. A lack of awareness and community participation further limits the park's ability to sustain itself ecologically (Qureshi et al., 2010).

Safety and Social Inclusion that the Perceptions of safety are low, particularly during evening hours, due to poor lighting and lack of visual surveillance. This restricts use by women and families, limiting inclusivity. As Jacobs (1961) emphasizes, "eyes on the street". In this case, the park is vital for creating a sense of safety and community belonging. The absence of gender-sensitive design elements further reduce the park's social diversity.

2. Design Opportunities

Despite these challenges, Nariyal Park holds significant potential for ecological restoration, social activation, and sustainable urban design. Its location in the heart of a dense residential area provides a strong foundation for community-oriented redevelopment. Spatial Reorganization and Functional Zoning, Redesigning the park to include clear functional zones.



Figure 6

In figure 6, There have restoration and keep up design opportunities such as children's play areas.

like this children swings, relaxation lawns, jogging tracks, and societal get-together spaces. Thereby, that can improve spatial efficiency and quit effectiveness enhance user experience. Presenting a hierarchy of circulation paths and accessible entry points would improve movement and inclusivity in the park (Gehl, 2011).

Ecological Restoration and Native Landscaping, the park can be transformed into a small urban ecosystem by integrating native plant species, rain gardens, and shaded tree corridors. Native vegetation not only requires less water and maintenance but also enhances biodiversity and local identity (Tzoulas et al., 2007). Replacing exotic or non-adaptive species with indigenous and drought-tolerant flora would improve resilience to Karachi's climatic conditions (Qureshi et al., 2010).



Figure 7

Sustainable Design Interventions have some opportunities to implement low-cost, sustainable interventions such as Solar-powered lighting systems to enhance safety and reduce energy use. In figure 7, to maintain the pathetic condition should be Permeable paving materials to manage stormwater and improve groundwater recharge. Rainwater harvesting systems to support irrigation. Recycling and waste separation bins to promote environmental awareness. Such strategies align with global practices for sustainable urban parks (Jim & Chen, 2009; Chiesura, 2004).

Enhancing Climatic Comfort through a human-centered and ecologically informed design approach. Nariyal Park can evolve into a model neighborhood park that balances recreation, ecology, and social well-being. The opportunities for re-zoning, green infrastructure integration, and participatory governance offer a framework for replicable small-scale park renewal in other dense neighborhoods. The presenting shade structures, pergolas, and large canopy trees along pathways. The seating areas would significantly improve thermal comfort and encourage daytime use. Studies confirm that landscape elements like trees and water features can lower surface temperatures and create pleasant microclimates in urban parks (Bowler et al., 2010).

Community Engagement and Stewardship there is critical opportunity lies in involving the local community, schools, and resident associations in the park's design, management, and maintenance. Participatory design processes can increase a sense of ownership and stewardship, reduce vandalism and improve long term sustainability (Whyte, 1980; Abass et al., 2018). Establishing community led "Friends of Naryal Park" initiatives could be instrumental in sustaining these improvements.

3. Design Recommendations and Strategies

Ground Based on the assessment of Naryal Park's existing conditions are some challenges, and opportunities. This piece of segment presents a series of design recommendations and strategies aimed at enhancing the park's environmental performance, usability, and social value. The approach focuses on sustainability, inclusivity, and ecological resilience, aligning with contemporary principles of urban landscape design and local community needs. Spatial Reorganization and Functional Zoning, A reorganized spatial framework is fundamental to improving the park's usability and visual coherence. Zoning the park into distinct functional areas such as children's play zones, community gathering areas, jogging tracks, and quiet green spaces. There would ensure more efficient use of space and reduce conflicts between different user activities.

The central open lawn should serve as a flexible multi-purpose area for social events, small gatherings, or informal sports. The edges of the park can accommodate shaded sitting spaces and walking paths to encourage perimeter movement and surveillance (Gehl, 2011). The design should ensure universal accessibility, with smooth, barrier-free pathways suitable for people of all ages and physical abilities (Marcus & Francis, 1998).



Figure 8

Pathway and Circulation Enhancement, Improving the connectivity and legibility of pathways will enhance comfort and encourage physical activity. Introduce a primary loop trail around the park for jogging and walking, complemented by secondary pathways connecting key activity nodes. Use permeable paving materials (e.g., interlocking tiles, compacted gravel) to support groundwater recharge and reduce surface runoff. Integrate solar-powered lighting along pathways for energy efficiency and safety during evening hours. Include directional and interpretive signage to assist navigation and promote awareness of local flora and park etiquette (Qureshi et al., 2010).

4. Ecological Restoration and Planting Design

The vegetation strategy should prioritize biodiversity, shade provision, and low-maintenance sustainability. Introducing native and drought-tolerant species such as *Conocarpus erectus*, *Neem* (*Azadirachta indica*), *Gulmohar* (*Delonix regia*), and *Alstonia scholaris*, which are well-suited to Karachi's semi-arid climate. Develop

layered planting zones including groundcovers, shrubs, and canopy trees to improve aesthetics and microclimate regulation (Tzoulas et al., 2007). Create tree-shaded corridors along walkways and resting areas to increase thermal comfort.



Figure 9

In figure 9, Incorporate seasonal flower beds and small rain gardens to manage stormwater naturally and enhance biodiversity. Establish a plant nursery corner within the park for community-led maintenance and replanting.



Figure 10

In figure 10, Amenity Improvement and User Comfort, Upgrading and diversifying amenities is essential for improving user satisfaction and increasing visit. Replace damaged benches, play equipment, and fences with durable, eco-friendly materials such as recycled plastic or treated wood. Provide gender-sensitive facilities, including safe

seating areas for women and child-friendly play zones. Add drinking water points, trash bins, and shaded gazebos to enhance comfort and cleanliness. Design multi-functional furniture that can serve both as seating and informal play elements. Establish a small community café or kiosk to activate space and promote social interaction (Whyte, 1980).

Climate-Responsive Design to improve environmental performance and year-round usability. The park should adopt climate sensitive strategies like this, install pergolas, tensile fabric canopies, and green walls to provide shade and reduce solar exposure. Propose water features such as small fountains or misting zones to improve microclimatic comfort. Position pathways and seating to take advantage of prevailing wind directions, facilitating natural ventilation. To Use light colored paving and reflective materials to minimize the urban heat island effect (Nikolopoulou & Steemers, 2003).

Sustainable Management and Maintenance, Long-term success depends on sustainable and participatory management. Implement a community stewardship program such as a “Friends of Nariyal Park” initiative to involve residents in maintenance and decision-making. Adopt eco-friendly maintenance practices, including composting organic waste and using recycled water for irrigation. Introduce waste segregation bins and signage to promote environmental awareness among users. Collaborate with local schools and NGOs for educational workshops on urban ecology and sustainability (Jim & Chen, 2009).

Safety and Inclusivity Measures, Design strategies should enhance the sense of safety, visibility, and inclusivity for all user groups. Provide adequate lighting in key activity areas and along pathways. Ensure clear sightlines across open spaces by pruning overgrown vegetation and maintaining open visual connections. Incorporate gender-sensitive design principles, including well-lit, socially active areas that encourage women’s participation (Zhai & Baran, 2016). Use CPTED

(Crime Prevention Through Environmental Design) principles like that, such as active edges, visibility, and social surveillance as well as to improve perceived and actual safety.



Figure 11

In figure 11, Community Engagement and Programming, Sustaining the park’s social vibrancy requires ongoing community participation. Organize seasonal events, art installations, fitness workshops, and environmental awareness programs to foster a sense of belonging. Encourage local schools and youth groups to participate in tree planting and maintenance activities. Establish a community board within the park to share information about activities, park rules, and environmental tips (Chiesura, 2004).

Smart and Sustainable Technology Integration in line with modern park management trends, integrating smart technologies can enhance efficiency and user engagement. Install solar-powered smart lighting with motion sensors. Use digital counters or Wi-Fi sensors to collect visitor data for performance monitoring. Introduce QR-coded signage to provide educational content about plants and ecology. Explore the use of based irrigation systems for water conservation (Abbas et al., 2018).

Conceptual Design Framework the overall vision for Nariyal Park should be that of a “Community-Centered Green Oasis”. A park that integrates

ecological balance, social inclusivity, and modern sustainability. This conceptual framework may include for Ecological essential Central green lawn with biodiversity focused by aesthetic planting. Social spine is a modern line that features a shaded walking loop connecting play areas, seating, and event spaces. That can be used as a Community Nodes for Small gathering spots for informal meetings, exercise, and learning. Sustainability as a Integration of solar, water, and waste systems supporting circular resource use.

CONCLUSION AND OPINION

The study of Nariyal Park reveals the critical role that small scale urban green spaces play in enhancing the quality of life within dense residential environments such as Gulshan-e-Iqbal, Karachi. Despite its modest size and deteriorated condition, the park continues to serve as an essential recreational and social space for the surrounding community. However, field observations and user feedback clearly indicate that the park's infrastructure, vegetation, and amenities are in decline, primarily due to inadequate maintenance, poor management practices, and a lack of long-term planning.

The analysis highlights multiple challenges, including insufficient green cover, degraded pathways, limited accessibility, and inadequate lighting, all of which collectively reduce the park's usability and safety. Yet, these challenges present valuable opportunities for revitalization through sustainable landscape design. Implementing strategies such as functional zoning, native planting, solar lighting, shaded walkways, and community participation can transform Nariyal Park into a model example of a resilient, people-centered urban park.

From an ecological standpoint, the introduction of native vegetation and green infrastructure can help restore biodiversity, improve microclimatic comfort, and reduce maintenance costs. Socially, the park can become an inclusive and vibrant public space through gender-sensitive design, universal accessibility, and participatory management. Economically, low-cost and

sustainable design interventions can ensure long-term viability without overburdening municipal resources.

In essence, the study reaffirms that well-designed urban parks are not mere aesthetic features but vital components of sustainable urban systems. The supporting environmental health, social well-being, and community identity. The revitalization of Naryal Park, therefore, represents not just a local improvement but also a broader step toward achieving Karachi's urban sustainability goals.

OPINION

In my professional view, Naryal Park possesses immense potential to evolve into a model neighborhood park that exemplifies sustainability, inclusivity, and community resilience. The park's enduring use by residents, even in its neglected state, reflects the strong social attachment and cultural value it holds for the community. This underscores the urgency for action and the importance of designing with people in mind rather than merely focusing on form or aesthetics. Urban green spaces in Karachi often suffer from fragmented planning and lack of stewardship. Therefore, the future of Naryal Park depends not only on physical redesign but also on the institutional and social frameworks that sustain it. The establishment of a community led management model, in collaboration with local authorities and landscape professionals, could ensure continuous care and shared responsibility.

A comprehensive revitalization plan should prioritize environmental sensitivity, accessibility, and public safety, making the park a healthy, comfortable, and engaging environment for all age groups. Integrating smart technologies like that as solar lighting and digital monitoring that can further improve management efficiency and user experience. Ultimately, the success of Naryal Park's transformation will lie in its ability to become a living landscape. one that not only beautifies the neighborhood but also educates, inspires, and connects people with nature. Through thoughtful design and active community participation, Naryal Park can serve as a

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