Impact Assessment Report of the Pratiti: Public Park and Lake Development and Maintenance Project

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NuSocia
Impact. Evident.

Executive Summary

The assessment evaluates the impact of the UNM Foundation's (UNMF) Pratiti: Public Park and Lake Development and Maintenance Project. The Pratiti program aims to address the deteriorating quality and accessibility of urban public spaces in India by developing and maintaining high-quality, inclusive, and ecologically sound parks in partnership with the Ahmedabad Municipal Corporation (AMC) and Surat Municipal Corporation (SMC). The assessment, conducted by NuSocia, evaluates the program's effectiveness from April 2021 to December 2024, utilizing a mixed-methods approach based on the UN-HABITAT framework for public space assessment.

Scope and Scale of Intervention: The assessment covers 15 parks revamped under the Pratiti program: 12 in Ahmedabad and 3 in Surat. These interventions encompass a significant total area of 366,307 square meters (302,985 sqm in Ahmedabad and 63,322 sqm in Surat). While representing 5.4% of the total number of parks in both cities (12/276 in Ahmedabad, 3/126 in Surat), these UNMF-managed parks constitute a substantial portion of the quality public green space, covering 12.1% of Ahmedabad's and 6.1% of Surat's total municipal park area. The parks demonstrate high community value, attracting a cumulative annual footfall exceeding 5.8 million visitors across the 13 operational parks assessed.

Key Impact Metrics

- *Area Impacted:* 366,307 sqm of urban park space developed/revitalized across Ahmedabad and Surat.
- *Green Cover Enhancement:* A total of 338,988 plants (254,615 in Ahmedabad, 84,384 in Surat) were planted between 2021-2025, significantly increasing green density and achieving an average green cover of 54% across the assessed park areas.
- *Biodiversity:* Introduced and nurtured 425 unique plant species (293 in Ahmedabad, 132 in Surat), with a balanced mix promoting resilience and local adaptation (32% Native, 28% Acclimated, 40% Exotic).
- *Environmental Contribution:* Estimated cumulative carbon sequestration of approximately 16,975 metric tons by 2025. Parks implement effective waste management with regular cleaning and adequate dustbins, and community parks feature water facilities, contributing to overall environmental quality.
- *Employment Generation:* Created approximately 238 direct local jobs (around 101 security personnel and 137 gardeners).
- *Community Usage:* High utilization, with 70% of surveyed users visiting daily and significant increases in visitation frequency post-intervention.

Key Findings & Comparison with AMC/SMC Parks

The Pratiti program generally exhibit high standards compared to municipal parks across several dimensions:

- Accessibility & Connectivity: Significantly improved physical access with ramps, well-maintained pathways, and good connectivity to public transport. 92% of users find parks easily accessible.
- Maintenance & Management: High standards of cleanliness, waste management, vegetation upkeep, and facility repair are maintained through robust, multi-layered management systems involving UNMF and municipal bodies. User satisfaction with maintenance is very high (96% rated timely management as Good/Very Good).
- Design & Aesthetics: Parks feature a high standard of design with thoughtful spatial organization, diverse amenities catering to different age groups (play areas, exercise zones, seating), and enhanced aesthetic appeal. User approval for planning and organization stands at 98.5%.
- Inclusion & Safety: Parks are designed to be inclusive for various age groups, genders, and abilities, although some inconsistencies in accessibility features remain. Safety perceptions have dramatically improved due to better lighting, increased footfall, and dedicated security (94% users feel safe).
- Environmental Performance: Beyond planting numbers, the focus on species diversity, water management, and permeable surfaces contributes positively to the urban ecosystem, often exceeding typical municipal park standards.
- Socio-Economic Value: While direct commercial activities within parks are restricted by policy, the increased footfall significantly benefits nearby businesses (68% users observed this). The parks provide valuable free recreational space, saving residents travel costs and time.

The UNM Foundation's Pratiti program has demonstrably succeeded in transforming underutilized or degraded urban areas into vibrant, ecologically significant, and socially valuable public parks. The interventions have significantly enhanced urban green cover, biodiversity, and environmental quality in Ahmedabad and Surat. By setting high standards in design, maintenance, safety, and inclusivity, often surpassing typical municipal benchmarks, the Pratiti parks serve as vital community assets and replicable models for sustainable urban public space development. The program positively impacts community well-being, fosters social interaction, and contributes tangible economic benefits through job creation and support for local businesses, aligning strongly with national and global goals for sustainable urban development. Key areas for future focus include ensuring consistent universal accessibility, enhancing awareness of feedback systems, exploring cultural programming, and systematic monitoring for long-term adaptation.

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LIST OF ACRONYMS

AQI	Air Quality Index
AMC	Ahmedabad Municipal Corporation
CSR	Corporate Social responsibilities
CPCB	Central Pollution Control Board.
FGDs	Focus Group Discussions.
GIM	India's National Mission for Green India.
KIIs	Key Informant Interviews.
LEAF	Landscape Environment and Advancement Foundation.
PM2.5	Particulate Matter 2.5.
SMC	Surat Municipal Corporation.
UNMF	Shri UN Mehta Foundation of Torrent Group
UN-HABITAT	The United Nations Human Settlements Programme.
SDGs:	Sustainable Development Goals

Impact Assessment of the Pratiti: Public Park and Lake Development and Maintenance Project

1. Introduction

The UNM Foundation, named after Shri UN Mehta, the Founder of Torrent Group, a non-profit organization dedicated to creating meaningful social impact. Established with a mission to drive positive change across communities, the Foundation carries out extensive Social and Philanthropic activities with a focused approach on four key areas: Community Healthcare, Education & Knowledge Enhancement, Arts & Culture, and Ecology[1]. The Foundation's operational philosophy centers on creating sustainable impact rather than implementing temporary solutions. This approach is reflected in its strategic concentration of CSR activities primarily in locations where the Torrent Group's headquarters are situated and in areas surrounding its operations.

Over the years, UNM Foundation has developed a reputation for implementing thoughtful, well-designed initiatives that address specific community needs while ensuring long-term sustainability. The Foundation strives to ensure that the aggregate impact of its initiatives brings about lasting improvements in society, creating models that can be replicated and scaled across different contexts. Through its multifaceted approach to social responsibility, UNM Foundation has established itself as a catalyst for positive change, working closely with local communities, government bodies, and like-minded organizations to maximize the reach and effectiveness of its programs.

The Pratiti Public Park and Lake Development Programme: Concept and Vision

The Pratiti programme represents one of UNM Foundation's most significant ecological initiatives, conceptualized in 2016 to develop urban public spaces. Recognising the growing challenges faced by rapidly urbanizing Indian cities, Pratiti emerged as a response to the deteriorating quality and accessibility of public parks and green spaces in urban environments.

The Pratiti initiative was born from the recognition that while cities across India continue to expand to accommodate increasing populations, the quality and significance of public parks have been significantly neglected. This challenge is compounded by the fact that the effort to develop public parks and spaces has traditionally not been governed by trained professionals, with no consolidated model for such endeavors. The Pratiti programme was conceived to address this

[1] https://apps.torrentpower.com/unmfoundation/web/index.php/site/info/commitments

critical gap in urban planning and development. The UNM Foundation, recognizing the need for specialized expertise in this domain, formed a collaborative partnership with **LEAF (Landscape Environment and Advancement Foundation)**, the research arm of Landscape India, to create a group called **'The Park's People.'** This collective included many designers and landscape architects who shared a common vision for reimagining public spaces. The lead for this collective was Ar Aniket Bhagwat from M/s Prabhakar B. Bhagwat, India's premier landscape design firm.

Working in association with Ahmedabad and Surat municipal corporations, the Pratiti initiative was launched to transform the urban landscape through thoughtfully designed public parks.

Launched in April 2021, the project has transformed underutilized or degraded areas into vibrant green spaces that serve as community hubs, ecological assets, and models for replicable urban development.

Key Objectives of the Pratiti Programme:

- Develop and maintain common public spaces that enhance the quality of life for urban residents.
- Ensure parks are clean, green, secure, and universally accessible to all social groups, including children, women, and persons with disabilities.
- Transform parks into effective green carbon sinks to mitigate urban heat islands and improve air quality.
- Implement environmentally responsible designs and maintenance practices for long-term viability.

Geographical Scope and Implementation

Over its operational period (April 2021–December 2024), the programme revamped 12 parks in Ahmedabad and 3 in Surat, covering over 302985 sqm and 63322 sqm respectively[2]. In addition, it maintains a 52,000 sqm garden in Daman and two lakes in Zolapur and Kesardi villages

[2] Details in Table 3.1

(Ahmedabad district). The parks were categorized based on size and function as community or city parks (e.g., Parimal Garden, Victoria Park) serving as large recreational hubs; Neighborhood parks (e.g., Hebatpur, Naroda) designed for localized community use and specialized spaces (e.g., Daman Fort Garden) blending cultural heritage with ecological design.

Implementation involved collaboration with municipal authorities, environmental experts, and local communities to ensure alignment with sustainability benchmarks and user needs. Key strategies included participatory planning, eco-conscious landscaping, and technology-integrated maintenance systems.

Background to the Assessment Report

Following the conclusion of the Pratiti programme in December 2024, UNM Foundation commissioned NuSocia—a research and advisory firm specializing in social impact measurement—to conduct an independent evaluation of the initiative. This third-party assessment was designed to provide an analysis of the programme's outcomes and impact across its various implementation sites. The assessment evaluates the impact from the inception of the project, covering the period from April 1, 2021, to the present. The assessment methodology employs a mixed-methods approach to gather comprehensive data about the programme's performance and outcomes. This report synthesizes findings from multiple data sources, including surveys of beneficiaries, key informant interviews (KIIs), focus group discussions (FGDs), and analysis of secondary data. This multifaceted approach allows for triangulation of findings and a more nuanced understanding of the programme's impacts across different dimensions.

This report represents an important step in understanding the effectiveness of the Pratiti programme in achieving its stated objectives and identifying opportunities for enhancement in future initiatives. By documenting successes, challenges, and lessons learned, the assessment contributes to the broader knowledge base on effective approaches to public space development in Indian cities

2. The Impact assessment Study

2.1 Assessment Objectives

The impact assessment of the Pratiti program was designed to provide a comprehensive evaluation of the effectiveness and outcomes of UNMF's interventions in developing and maintaining public parks in Ahmedabad and Surat. This assessment serves as a critical tool for understanding the program's achievements, identifying areas for improvement, and informing future strategic decisions related to public space development.

The assessment was undertaken with three primary objectives:

1) To assess impact on urban well-being: Evaluate how parks and lakes have influenced user satisfaction and examine accessibility factors for different user groups and assess level of community engagement fostered by these spaces
2) Examine quality and inclusivity: Evaluate cleanliness, security, and accessibility of developed spaces and assess how well spaces cater to diverse social groups
3) Measure environmental impact: Evaluate effectiveness of parks as green carbon sinks and assess improvements in green cover and air quality

2.2 Assessment Framework and Research Design

The UN_HABITAT methodology for Public space site-specific assessment

For the impact assessment of the Pratiti program, a comprehensive evaluation framework based on UN-HABITAT's Public Space Site-specific Assessment methodology was adopted (UN-HABITAT, 2021)[3]. This internationally recognized framework provides a structured approach to evaluating public spaces across multiple dimensions, ensuring that the assessment captures both quantitative metrics and qualitative aspects of public space performance (Figure 2)[4]. By adopting this robust and internationally recognized framework, the assessment was able to evaluate the Pratiti program's interventions against global standards of public space quality while remaining sensitive to local contexts and needs. This approach ensured that the assessment findings would be both rigorous and relevant, providing valuable insights for program improvement and future public space development initiatives.

Key Assessment Criteria

The assessment framework employed eight key criteria to evaluate the quality and performance of the parks developed under the Pratiti program

[3] UN-Habitat, Public Space Site-Specific Assessment Guidelines (Nairobi: UN-Habitat, 2021), https://unhabitat.org/public-space-site-specific-assessment-guidelines-to-achieve-quality-public-spaces-at-neighbourhood

[4] This methodology defines public spaces as "places that are publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive," aligning perfectly with the Pratiti program's vision for inclusive urban green spaces.

1. **Accessibility and Connectivity**: This criterion examines how easily users can physically access and use the public spaces. It considers physical accessibility features such as ramps and pathways, proximity to residential areas and public transportation, and the presence of physical barriers. Connectivity aspects evaluate how well the space is integrated with surrounding urban fabric and transportation networks, including pedestrian routes, cycling paths, and public transit connections..
2. **Maintenance and Management:** The maintenance and management criterion assesses the ongoing care and upkeep of the public spaces. It examines cleanliness, waste management, vegetation maintenance, repair of facilities, and the effectiveness of management systems in place to ensure the space's long-term sustainability.
3. **Design and Layout**: The design and layout criterion assesses the spatial organization, visual appeal, and functionality of the public spaces. It examines whether the design accommodates diverse activities, provides appropriate amenities, and creates a pleasant environment for users. This includes evaluation of spatial proportions, materials used, shade provision, and overall design coherence.
4. **Inclusion:** The inclusion criterion focuses on how well the spaces accommodate diverse user groups and promote social equity. This includes:
   - ❖ Accessibility to all, including people with disabilities and mobility challenges
   - ❖ Gender inclusivity, ensuring spaces are welcoming and safe for women and girls
   - ❖ Age-friendly design, with features catering to children, youth, adults, and the elderly
   - ❖ Social equity considerations, ensuring spaces serve diverse socioeconomic groups
   - ❖ Cultural inclusivity, respecting and reflecting the diversity of local communities
5. **Environmental & Ecological Performance**: This criterion focuses on the environmental benefits provided by the public spaces, including their contribution to urban biodiversity, climate regulation, and ecological sustainability. It examines factors such as vegetation diversity and health, permeable surfaces, water management features, and the space's role as a carbon sink
6. **Social and Recreational Aspects**: The recreational aspects criterion evaluates the opportunities for leisure, play, and physical activity provided by the public spaces. It assesses the diversity of recreational facilities, their suitability for different age groups and interests, and their condition and usability.
7. **Safety and Security**: This criterion examines both actual and perceived safety within the public spaces. It considers factors such as lighting, visibility, presence of security personnel or surveillance, maintenance of facilities, and design elements that contribute to a sense of safety for all users.
8. **Economic and Cultural value**: This criterion evaluates the economic benefits generated by the public spaces, such as increased property values in surrounding areas, opportunities for small-scale commerce, and cost-effectiveness of maintenance. It also examines cultural aspects, including opportunities for cultural expression, preservation of heritage, and contribution to local identity.

A comparative framework was developed to systematically evaluate sampled parks across multiple dimensions and locations. The comparative analysis examined parks of Ahmedabad and

Surat against a structured matrix of criteria including target user analysis, accessibility features, activity zone distribution, safety infrastructure, maintenance standards, green cover quality, signage elements, and community engagement opportunities. This approach facilitated the identification of best practices, common challenges, and context-specific factors influencing park performance.

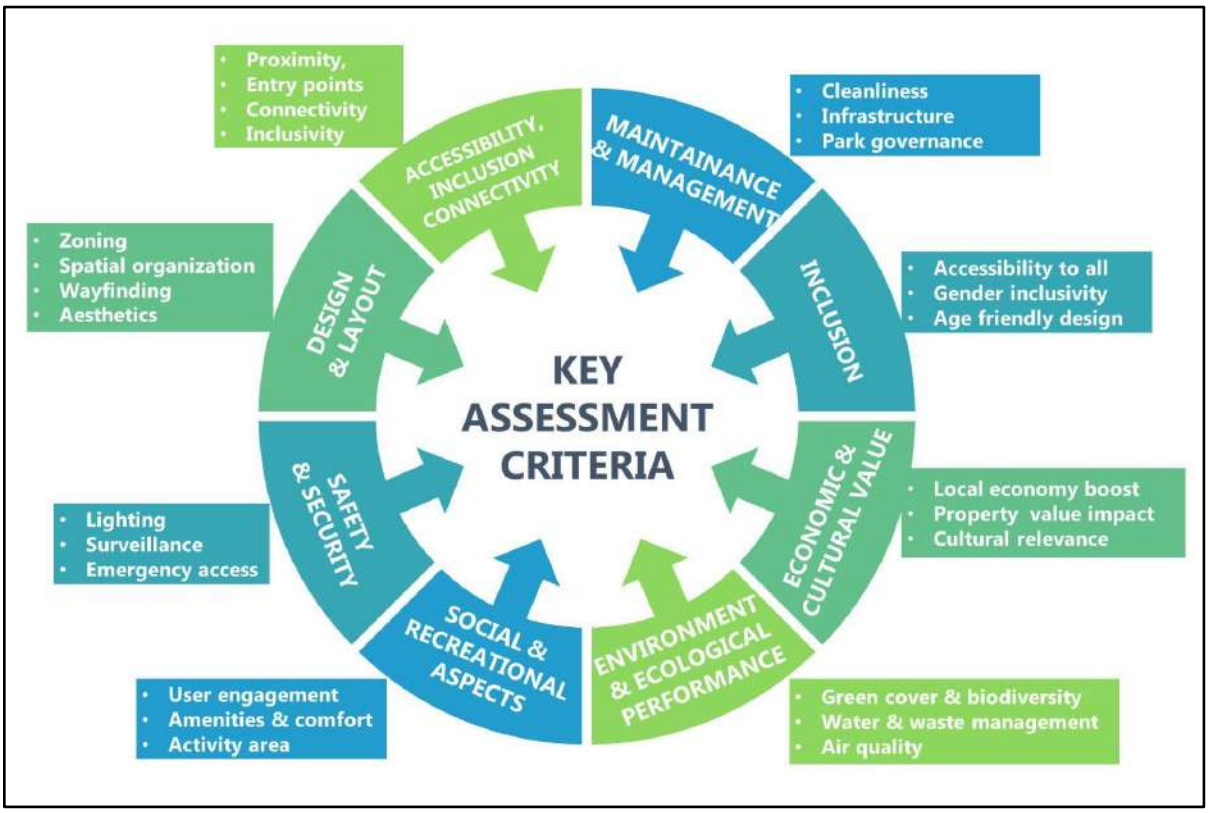


Figure 2.1: Assessment framework adopted for Pratiti program assessment

2.3 Data collection methods

The assessment employed a mixed-methods approach, incorporating both qualitative and quantitative data collection techniques to ensure a comprehensive evaluation of the Pratiti program's impact. This methodological triangulation allowed for cross-validation of findings and provided a more nuanced understanding of the program's outcomes across different dimensions. The data collection process included document reviews, expert site assessments, beneficiary (user) surveys, Key Informant Interviews (KII), and Focus Group Discussions (FGDs) (Table 1). The tools used for surveys and interviews with various stakeholders are detailed in Annex B.

Sl No	Location	Type of garden	Parks name	Surveys	FGDs
1	Surat	Neighbourhood	Jyotindra Dave Garden	27	1
2	Surat	Community	Lakeview Garden	40	1
3	Ahmedabad	Community	Parimal Garden Ambawadi	122	3
4	Ahmedabad	Neighbourhood	Naroda Park	20	2
5	Ahmedabad	Neighbourhood	Sukan Park	32	1
6	Ahmedabad	Neighbourhood	Sabarmati Park	3	
7	Ahmedabad	Neighbourhood	Ranip Park	6	
8	Ahmedabad	Neighbourhood	Swati Park	39	2
9	Ahmedabad	Neighbourhood	Sindhubhavan Park	2	
10	Ahmedabad	Neighbourhood	Hebatpur Park Hebatpur	18	
11	Ahmedabad	Neighbourhood	Thaltej Park	6	1
12	Ahmedabad	Community	Victoria Park	78	2
	Total	**3+9**		**393**	**13**

Table 2.1: Details of Data Collection in Sampled Parks

2.3.1 Project document reviews: Review of project documents was conducted to identify and synthesize information on the criteria for selection of parks, intervention elements, and expected outcomes of the Pratiti project. This review included: Selection study reports and process documents; plantation reports and plant/taxa documents; program proposals; vendor detail documents; autoCAD designs and layout documents.

The secondary research provided valuable insights into the implementation process adopted, coverage and progress of the project to date, while also helping to contextualize the need for the project for various stakeholders including user beneficiaries, municipal corporations, vendors, and the ecological and environmental relevance of the program.

2.3.2 Expert Site Assessment: The assessment incorporated expert site visits conducted by an urban design architect specializing in public spaces along with an evaluation research team to all 15 parks. These technical evaluations employed several integrated methodologies:

Spatial Mapping and Accessibility Audit: This combined approach documented park layouts, analyzed movement patterns, evaluated entry points, and assessed accessibility features including ramps, surface materials, and connectivity to key amenities for differently-abled users.

Technical Assessment Tools: The expert assessment also utilized:

- Google Maps overlay analysis for understanding location context and connectivity
- Canopy cover estimation for evaluating biodiversity and shade
- Photo documentation of spatial and material qualities
- Activity mapping of functional zones (play areas, seating, walking tracks)
- Safety and cleanliness audits using technical parameters
- Material studies assessing durability and functionality

The expert site visits covered representative parks in both cities, classifying them as Neighborhood or Major Parks based on size and function. This technical assessment complemented user-centered methods by providing objective evaluation of design elements that significantly impact user experience but might not be explicitly articulated in surveys or discussions.

2.3.3 Beneficiary (user) Surveys: Primary data was collected through user surveys using a structured questionnaire. The survey focused on understanding the current status of parks including: accessibility features and barriers; safety and security measures; social and recreational features; maintenance practices, particularly waste management; Environmental contributions (increased plants, trees, fauna). The surveys were administered by research associates who were bilingual in Gujarati and English to ensure effective communication with local respondents. A total of 393 surveys were conducted, covering 12 target parks in both Ahmedabad and Surat, as detailed in Table 2.

Profiles of Survey Respondents: The surveyed user represented a diverse demographic, with ages ranging from 18 to 80 years (Table.2.2). The gender distribution showed 70% male and 30% female respondents. The occupational profile included employed professionals, students, retired individuals, self-employed persons, and homemakers, providing a cross-section of park users from different walks of life

Sl #	Variable		# of respondents (%)
1	Gender	Men	277 (70)
		Women	116 (30)
2	Location	Ahmedabad	236 (83)
		Surat	67 (17)
3	Occupation	Employed	102 (26)
		Student	42 (11)
		Retired	113 (29)

		Self-employed	77 (19)
		Housewife	59 (15)

Table 2.2: Profile of survey participants

2.3.4 Key Informant Interviews (KII)

Primary data was also collected through Key Informant Interviews (KIIs) with stakeholders who had specialized knowledge about the Pratiti program and its implementation. These stakeholders included: Municipal Authorities (AMC, SMC); Architects involved in park design; Environmental Experts; Vendors from Ahmedabad and Surat; Pratiti Leadership Team. Given that the assessment study aimed to evaluate the overall effectiveness of developed parks on quality of life, maintenance, and environmental benefits, it was crucial to gather perspectives from diverse stakeholders involved in the project. A total of 7 interviews were conducted between 10 and 15th, April, 2025 (Table 2.3). The interviews explored stakeholders' experiences and insights into the impacts of park development interventions, providing valuable perspectives on the technical, administrative, and managerial aspects of the program.

Sl #	Type of Stakeholders	KIIs
1	Municipal Authorities (AMS, SMC)	2
2	Architect	1
4	Environmental Expert	1
5	Vendors (Ahmedabad and Surat)	2
6	Pratiti Leadership Team	2
Total		**8**

Table 2.3: Details of qualitative Interviews

2.3.5. Focus Group Discussions (FGDs): Twelve Focus Group Discussions (FGDs) were conducted with beneficiary users of the parks in April 2025. These discussions aimed to:

- Understand user satisfaction, accessibility, community engagement, inclusivity, and maintenance of public parks
- Examine the cleanliness, security, and accessibility of these spaces, ensuring they cater to diverse social groups
- Document economic, cultural, and environmental benefits of park development

- Gain insights into user perception on waste management and overall maintenance of the parks

The FGDs were conducted with diverse groups of park users representing different age groups, genders, and interests to ensure a comprehensive understanding of various perspectives. The composition of the 12 focus groups is detailed in Table 2.3.

Group #	Composition	Age Group	#of Members
1	Senior citizen men	60s & 70s	8
2	Ladies group	30-55	5
3	Ladies group	25-55	6
4	Senior citizen men	>60	6
5	Mixed gender group	20-40	8
6	Mixed gender group	50-70	4-5
7	Men group (retired government employees)	60-70	11
8	Men group	50-60	4-5
9	Women group	22-28	5-6
10	Mixed gender group	60-80	10-12
11	Mixed gender group	40-60	4-5
12	Theater group (mixed gender)	24-35	6
13	Student group (mixed gender)	20-21	5

Table 2.4: Composition of Focus Group Discussions

The FGD participants represented a wide age spectrum from young adults in their 20s to senior citizens in their 80s, with specific groups focusing on particular demographics such as senior citizens, women, and special interest groups like the theater group. While direct engagement with children was limited due to research ethics considerations, valuable insights about younger park users were captured through observations of children's activities and space usage patterns, and proxy feedback from parents and grandparents during FGDs. This diverse representation ensured that the assessment captured perspectives across different age groups, genders, and user types, providing rich qualitative insights into how various segments of the community experience and value the parks.

Park users were approached and informed about the assessment objectives and requested to participate in discussions and provide feedback. Oral consent was obtained before participation to ensure ethical research practices. FGDs provided a platform for more in-depth and nuanced discussions about park usage and impact, allowing participants to build on each other's responses and generate insights that might not emerge in individual surveys.

2.3 Data collection challenges

Several challenges were encountered during the data collection process, particularly during park user surveys:

- Many park visitors declined to participate in surveys due to time constraints. Some users were hesitant to share feedback, perceiving surveys as intrusive.
- Data collectors had to approach multiple visitors before finding willing participants. Some users provided incomplete or rushed responses due to disengagement.
- Peak hours (mornings/evenings) had high footfall but limited willingness to stop for surveys. Off-peak hours (afternoons) had fewer visitors, making data collection slower.
- Research associates had to revisit parks at different times to capture diverse user groups (e.g., joggers, families, elderly visitors). Weather conditions (heat) further limited participation rates.
- Despite these challenges, the research team was able to collect a substantial amount of data across different methods, ensuring a robust foundation for the assessment findings.

The mixed-methods approach helped to mitigate the limitations of any single data collection technique, providing a more comprehensive understanding of the Pratiti program's impact

3. Pratiti Program: Progress and Achievements

3.1 Project Implementation process[5]

The Pratiti program's vision extends beyond beautification of urban spaces. It aims to create a roadmap and replicable pathways that can inspire similar projects throughout the country. While the initiative ambitiously set out to undertake the development/ redevelopment of 100 parks in the city of Ahmedabad, the initial phase focused on 15 parks as prototypes for future development. Since April 2021, the Pratiti programme has made significant progress, successfully revamping 12 parks in Ahmedabad and 3 parks in Surat. Additionally, a 52,000-square meter garden in Daman is under maintenance as part of the programme.

Park selection process: The selection of parks for intervention was guided by four key criteria designed to ensure maximum impact and equitable distribution of resources (UNMF, 2017):

a) *Geographic Distribution*: Parks were selected to ensure uniform geographic distribution across Ahmedabad, providing equitable access to quality green spaces for residents across the city
b) *Historical Significance*: The selection process prioritized restoring parks with historical legacy to preserve cultural heritage and maintain connection with the city's past.
c) *New Urban Areas*: The programme targeted green spaces in newly developed urban areas, ensuring coverage across a variety of economic and cultural sections of the city.
d) *Size Variation:* Parks of varying sizes were selected to allow for flexible programming and functional diversity, catering to different community needs and usage patterns.

This multi-faceted approach aimed to create an inclusive, balanced network of public spaces that cater to the city's evolving needs while honoring its legacy. The selected parks vary in scale—from pocket parks (less than 5,000 sq.m) to large city parks (more than 20,000 sq.m)—allowing for diverse design approaches and programming options.

Location Context of Intervened Parks[6]: The parks developed under the Pratiti programme are distributed across Ahmedabad's and Surat's diverse urban fabric, serving neighborhoods with varying socioeconomic and spatial characteristics.

Several parks are located in high-density, mid-to-low-income residential and commercial areas, such as Sabarmati Park and Ranip Park in Ahmedabad. These parks cater to densely populated zones with mixed-use activity, providing much-needed green respite in otherwise congested urban environments. Other parks address the needs of low-density, high-income residential

[5] UNMF, 2017, Udyan Pravaha - a public space initiative Report
[6] MIS Sheet of parks, 2024, UNM

enclaves, prioritizing green spaces in affluent, less crowded sectors. Examples include Hebatpur Park, which serves a low-density, high-income residential area in Ahmedabad. A subset of the selected parks supports medium-density, mid-income areas, including rapidly developing commercial corridors. Parks like Parimal Garden and Swati Bungalow Park balance recreational needs with urban growth in these transitional neighborhoods. The selection also deliberately targets historically underserved low-income, high-density residential clusters, such as Naroda Park, ensuring equitable access to public spaces across economic strata. This approach reflects the programme's commitment to social equity and inclusive urban development. Through this carefully considered distribution, the Pratiti programme has created a network of revitalized parks that collectively serve a diverse cross-section of urban residents, contributing to more equitable access to quality public spaces across different socioeconomic contexts.

3.2 Project Coverage and Impact

Spatial Impact of UNMF Interventions in Ahmedabad and surat's Park System

Pratiti's interventions covered in this assessment include 15 parks across Ahmedabad and Surat. The total area covered by these interventions amounts to approximately 732614 Sq. mt of urban green space, representing a substantial contribution to the urban park systems in these cities. In Ahmedabad, the UNMF interventions cover 5.4% of the city's parks (12 out of 276) and 12.1% of the total park area (302,985 out of 2,200,000 square meters) (AMC, 2022)[7]. Similarly, in Surat, the UNMF interventions cover 5.4% of the city's parks (3 out of 126) and 6.1% of the total park area (63,322 out of 977,373 square meters) (Figure 3 (a) and (b)[8].

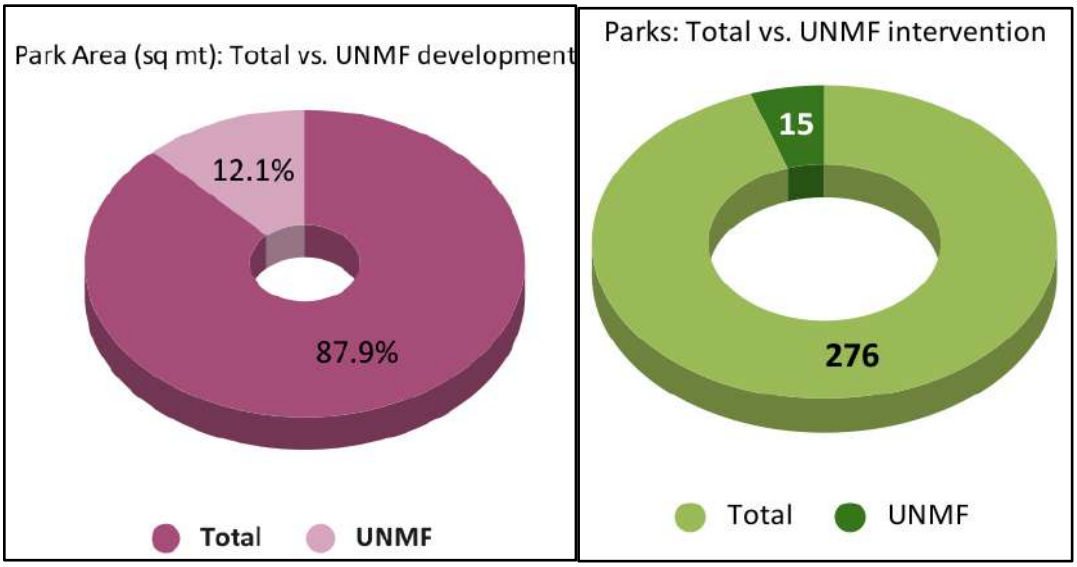


Figure 3.1 a): UNMF intervention in Ahmedabad

[7] : https://ahmedabadcity.gov.in/StaticPage/garden_dept
[8] https://www.suratmunicipal.gov.in/Services/GardenHome

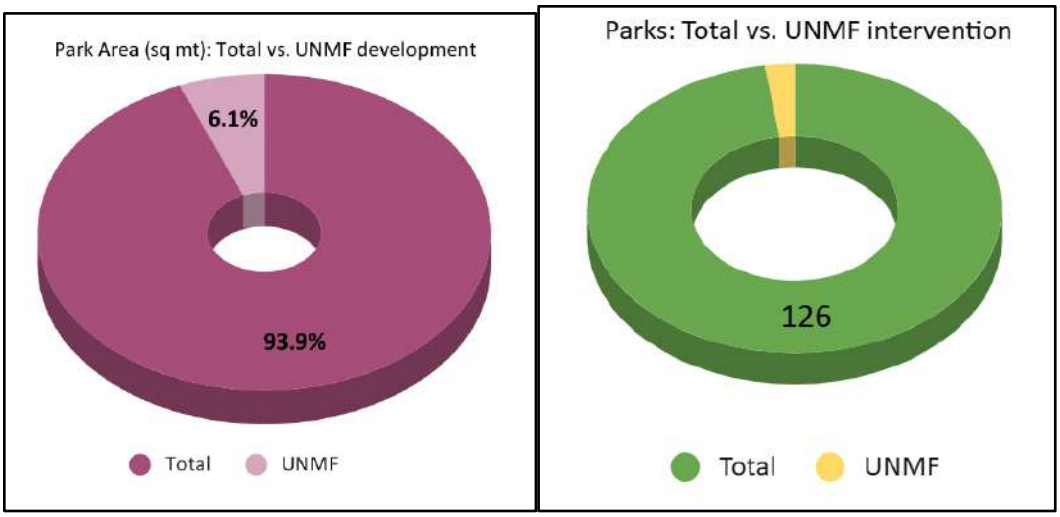


Figure 3.1 b): UNMF intervention in in Surat

Detailed Park Coverage

The parks developed under the Pratiti programme vary in scale and typology, catering to different community needs and urban contexts. Table 4 provides a comprehensive overview of all 15 parks developed under the programme, including their classification, area, and peak hour footfall data

Sl #	Park name	Type of park	Area (sq.m)	Annual Footfall[9]
Ahmedabad				
1	Adalaj Clover Leaf Intersection	Neighbourhood	165000	Under development
2	Sardar Baugh	Neighbourhood	32375	Under development
3	Sindhu bhavan Park	Neighbourhood	2751	46060
4	Swati Bungalow Park	Neighbourhood	8159	130509
5	Thaltej Park	Neighbourhood	3516	53266
6	Hebatpur Park	Neighbourhood	6984	92697
7	Sabarmati Park	Neighbourhood	740	68496
8	Ranip Park	Neighbourhood	3044	132850

[9] UNM Project documents

9	Sukan Park	Neighbourhood	8350	168875
10	Naroda Park	Neighbourhood	6766	217078
11	Parimal Garden	Community	36700	1793295
12	Victoria Garden	Community	28600	910214
Surat				
13	Jyotindra Dave Udhyan, Adajan	Community	29000	1539475
14	Lake View Garden	Community	28622	612258
15	Shri Ravi Shankar Maharaj (Vyas) Udhyan	Neighbourhood	5700	69393
	Total - 15	**5 Community 10 Neighbourhood**	**366307**	

Table 3.1: Details of parks developed under Pratiti

The parks are classified into two main categories:

1. Community Parks: These larger parks (5 out of 15) serve broader areas and typically include more extensive facilities and amenities. Examples include Parimal Garden and Victoria Garden in Ahmedabad, and Jyotindra Dave Udhyan in Surat.

2. Neighbourhood Parks: These smaller, more localized parks (10 out of 15) serve immediate residential areas and provide essential green space for nearby communities. Examples include Sabarmati Park, Ranip Park, and Sindhu Bhavan Park.

Map Showing Locations of Parks in Ahmedabad

3.3 Alignment with Global and National Priorities

The Pratiti program's park development initiatives align strategically with both global sustainability frameworks and India's national urban greening priorities. UNMF's interventions directly contribute to Sustainable Development Goal 11 (Sustainable Cities and Communities), particularly target 11.7 which aims to "provide universal access to safe, inclusive and accessible, green and public spaces" by 2030 (UN, 2015[10]; UN_HABITAT, 2018)[11]. By transforming 15 parks across Ahmedabad and Surat, the Pratiti program addresses urban challenges highlighted in SDG 11, including limited open public spaces and urban sprawl, while enhancing community resilience through improved green infrastructure. These interventions also support India's National Mission for Green India (GIM)[12] and urban greening initiatives like the Nagar Van Yojana, which aims to develop 600 urban forests and 400 urban gardens by 2026-27[13]. Through its focus on native species plantation, ecological restoration, and community engagement, UNMF's Pratiti program exemplifies how local interventions can advance broader national goals of increasing urban green cover while simultaneously contributing to global sustainability targets.

Ranip garden - Pre-development

Ranip garden - Post-development

[10] United Nations General Assembly. Transforming our world: the 2030 Agenda for Sustainable Development. A/RES/70/1. October 21, 2015

[11] UN-Habitat. SDG 11 Monitoring Framework: A Guide to Assist National and Local Governments. Nairobi: United Nations Human Settlements Programme, 2018.https://data.unhabitat.org/pages/sdgs

[12] https://www.moef.gov.in/green-india-mission-gim

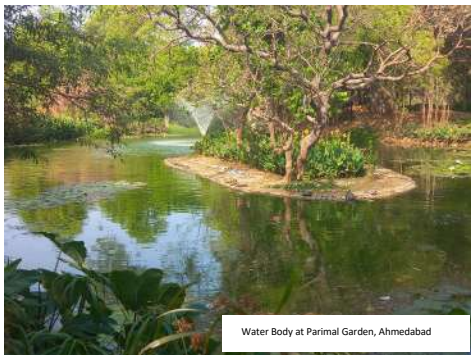
[13] https://pib.gov.in/Pressreleaseshare.aspx?PRID=1846954

Current status of developed parks

Jyotindra Dave Garden, Surat

Parimal Garden, Ahmedabad

Open area Victoria Garden, Ahmedabad



Water Body at Parimal Garden, Ahmedabad

Play Area at Parimal Garden, Ahmedabad

Dargah at Victoria Garden, Ahmedabad

4. Findings

This chapter presents the findings of the impact assessment study of the Pratiti program's park development interventions. The findings are organized according to the eight assessment criteria established in Chapter 2, integrating data from beneficiary surveys, focus group discussions (FGDs), key informant interviews (KIIs), and site inspections. Each section examines the pre-intervention challenges, post-intervention improvements, and user experiences to provide a comprehensive understanding of the program's impact.

4.1 Accessibility and Connectivity

4.1.1: Pre-Intervention Challenges

Prior to UNMF's interventions, accessibility was a significant challenge for many parks in Ahmedabad and Surat. Survey data reveals that 54 respondents (5.2%) specifically identified "no proper walking or cycling paths" as a key issue before development, while 13 respondents (1.2%) noted "lack of accessibility for elderly or differently abled" as a primary concern. These physical barriers limited the usability of these spaces, particularly for vulnerable populations.

FGD participants consistently described the poor state of accessibility before redevelopment. As one senior citizen from Community Garden recalled: *"Before redevelopment, the garden situation was very bad. We did not like to visit often. The paths had some stones on walkways which was sometimes difficult for senior citizens like us*." Another participant from Victoria Garden shared:"*Before redevelopment, the children's area was in front just next to the entry gate. We used to visit during festive seasons only because regular access was difficult.*

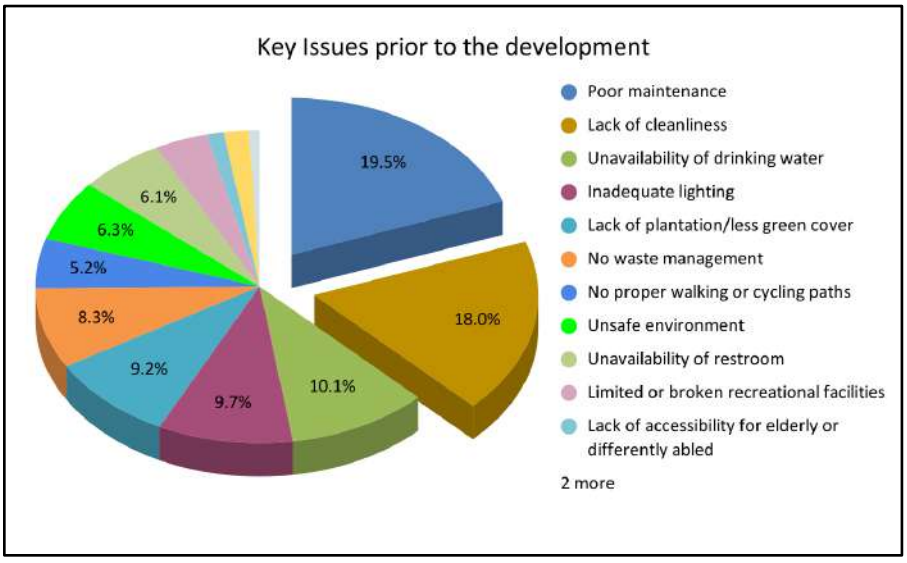


Figure 4.1: Key Issues users faced before the development of park

4.1.2: Post-Intervention Improvements

UNMF's interventions have significantly improved accessibility across most parks. Naroda Park in Ahmedabad now features well-marked entry points with good road connectivity. Sindhuvan Park has a prominent location with ramps and wide paths. In Surat, Lakeview Garden provides multiple gates that are easily reachable with wide pathways and ramps. Survey data indicates that 92% of respondents now find the parks easily accessible, with 47% living within the same neighborhood (within 500 meters) and 45% residing within 2-5 kilometers.

FGD participants consistently praised the improved accessibility. A member of a ladies group (age 30-55) stated:*"It is very comfortable to reach here. We come by walking. Yes, the garden is well connected with public transportation and a footpath is also available."*

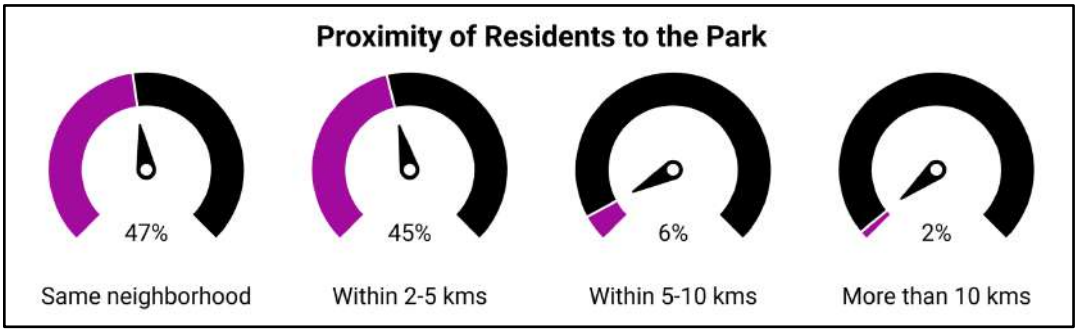


Figure 4.2: Proximity of residents to the park

4.1.3 Connectivity to Surrounding Areas

The expert site visit assessment found most parks are well-integrated with residential neighborhoods and public transportation networks. Community Garden in Ahmedabad is situated near the Urban Development Authority housing, serving both residents and workers from nearby buildings. Parimal Garden features excellent pathway gradients and clear entry points.

Public transport is easily available near Victoria Garden, Jyotindra Dave Garden, and Lakeview Garden, allowing visitors from different parts of the cities to access these spaces. Survey data shows that 70% of visitors are daily users, indicating strong connectivity to local communities.
FGD participants confirmed this improved connectivity. A theater group member (age 24-35) noted:"*The garden is close to our college, which is just 1-2 kms away, so we come to the garden and spend time.*"

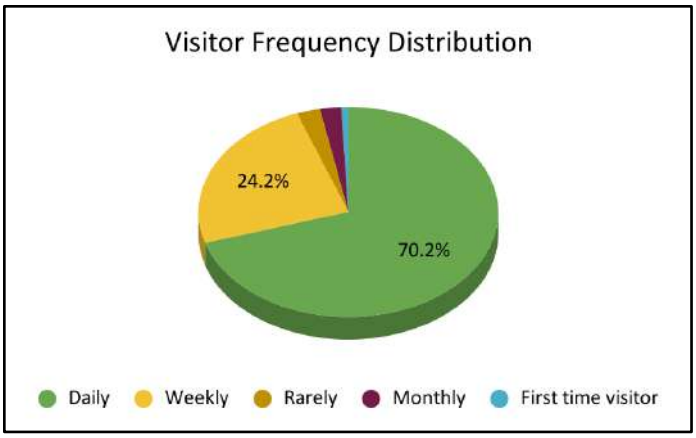


Figure 4.3: Visitor Frequency Patterns at Parks (N=393)

4.2. Inclusion

4.2.1 Gender inclusivity: In terms of gender inclusivity in park usage, survey data shows that 70% of park users are men and 30% are women. However, female FGD participants expressed increased comfort in using the parks. A member of a ladies group (age 25-55) stated:"Now we feel safe to come here even in the evening hours. Earlier we would avoid coming here after 5 PM, but now with better lighting and more people around, we feel comfortable."

Based on FGD data and survey responses, Parimal Garden and Victoria Garden in Ahmedabad show stronger gender balance in usage patterns, with spaces that women report feeling comfortable using throughout the day. In contrast, observations from field visits suggest Sabarmati Park and Thaltej Park show lower female usages, particularly in evening hours.

4.2.2 Age-Friendly Design: The parks demonstrate strong age-friendly design elements that cater to diverse age groups. Survey data shows a relatively balanced age distribution among users: 22% aged 18-30, 26% aged 31-45, 27% aged 46-60, and 24% above 60 years.

FGD participants across age groups expressed satisfaction with age-appropriate facilities. A senior citizen noted: "Yes, we all are senior citizens and as you can see we feel happy here and comfortable. For children as well, there are good play areas now."

The expert site visit assessment specifically found that Sindhuvan Park and Parimal Garden feature well-demarcated zones for play, rest, group gatherings, and solitary relaxation. The assessment notes that Jyotindra Dave Garden in Surat provides seating, amphitheater, and play areas that serve multiple age groups effectively. The expert assessment identifies these as examples of successful age-inclusive design.

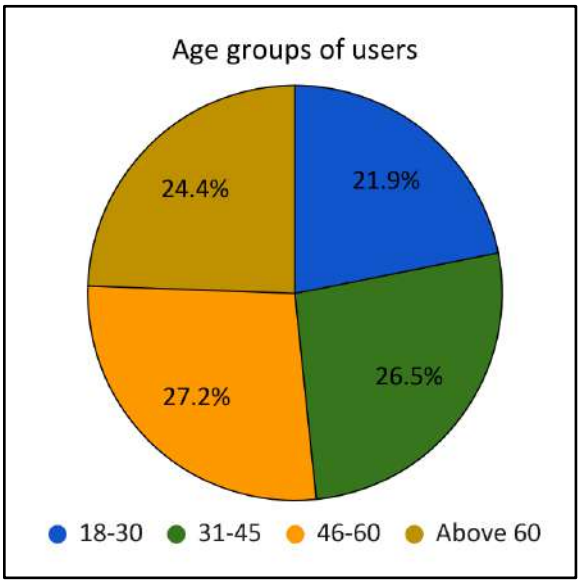


Figure 4.4: Age Distribution of Park Visitors (N=393)

Accessibility for Differently-Abled: The parks are designed for differently-abled access as an architect noted that "all parks and all spaces are designed for being age-friendly/accessible to all people of disabilities including wheelchair access, implementation varies across parks.

The expert site visit observations explicitly document that Parimal Garden demonstrates excellent pathway gradients, ramps, and legible entry points making it highly accessible and the Lakeview Garden in Surat also has wide pathways and ramps. Similarly, Naroda park has well marked entry points, proper seating, presence of a designated children's play area etc. All parks except Lakeview Garden (Surat) possess an entry ramp and some have wide and flat inclusive paths inside the park. However few parks have no inclusive paths inside the park to reach to certain areas of the park, For example, a) Thaltej Park has entry ramps, but no inclusive path b) Ravi Shankar Maharaj Garden has limited accessibility; stairs at some entries.

This variation in accessibility features is corroborated by FGD data. A senior citizen from Community Garden mentioned: "*For paths - there are some stones on walkways which is sometimes difficult for senior citizens like us. Need to improve on that part only.*"

4.3 Design and Layout

4.3.1 Spatial Organization and Functionality

The redesigned parks demonstrate effective spatial organization that enhances functionality. Survey data shows that nearly all users (98.5%) approve of the park's planning and organization, indicating high satisfaction with the design and layout.

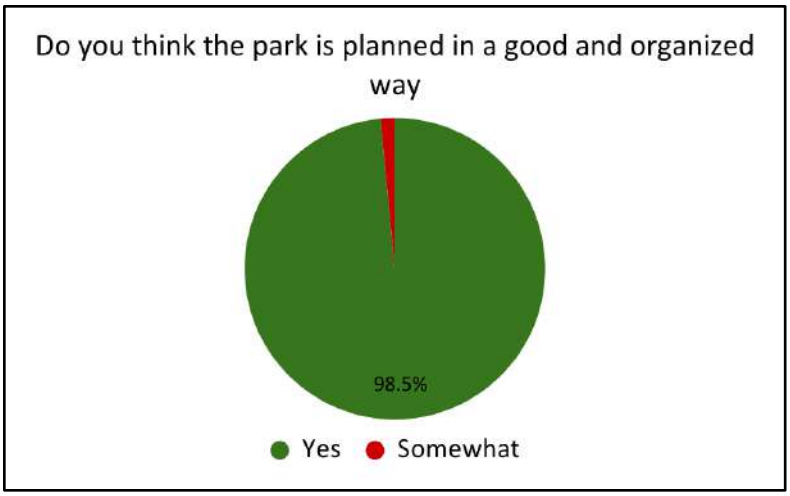


Figure 4.5: Visitor Satisfaction with Park Planning and Organization (N=393)

FGD participants frequently commented on the improved organization of spaces. A member of a mixed group (age 20-40) stated:*"The layout is very good now. There are separate areas for different activities. Children can play safely in their area while we can exercise or just sit and relax in other parts."*

Expert site visit assessment specifically documents excellent zoning with distinct areas for different user groups and well-defined circulation paths in Parimal Garden and a thoughtful spatial organization with clear activity zones and good balance between active and passive spaces in Sindhuvan Park. A portion of the Thaltej park currently serves as open ground, presenting an opportunity to expand its community utility through a children's play area or open gym.

4.3.2 Aesthetic Appeal and Design Elements

The aesthetic quality of parks has significantly improved after UNMF's interventions. Survey data indicates that 94% of respondents find the parks visually appealing, with particular appreciation for landscaping elements.

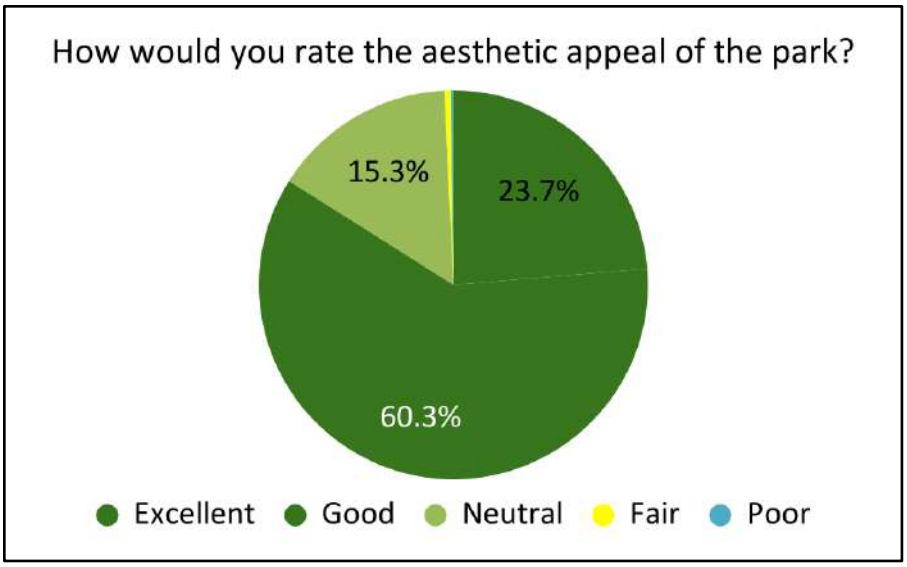


Figure 4.6: Visitor Ratings of Park Aesthetic Appeal (N=393)

Expert site visit observations specifically found that Parimal Garden features excellent use of native plants for visual interest and well-designed water features which serve as focal points. The Jyotindra Dave Garden in Surat incorporates artistic elements and murals that reflect local culture and thoughtful placement of seating with views to landscape features.

FGD participants expressed appreciation for these aesthetic improvements. A senior citizen from Victoria Garden noted: "*The garden looks beautiful now. There are colorful flowers, nice pathways, and good sitting areas. It is a pleasure to spend time here."*

4.3.3 Amenities and Facilities

The parks now offer a range of amenities that support diverse activities. Survey data shows high usage rates for various facilities: walking paths (87%), seating areas (76%), children's play equipment (42%), and exercise equipment (38%).

Expert site visit documents that Naroda Park provides comprehensive amenities including exercise equipment, play areas, and gathering spaces and the Lakeview Garden in Surat features well-distributed seating options and strategically placed huge swan structures. The gaps in amenities at some parks include shade structures in Jyothindra garden and no drinking water facilities at Ravi Shankar Maharaj Garden.

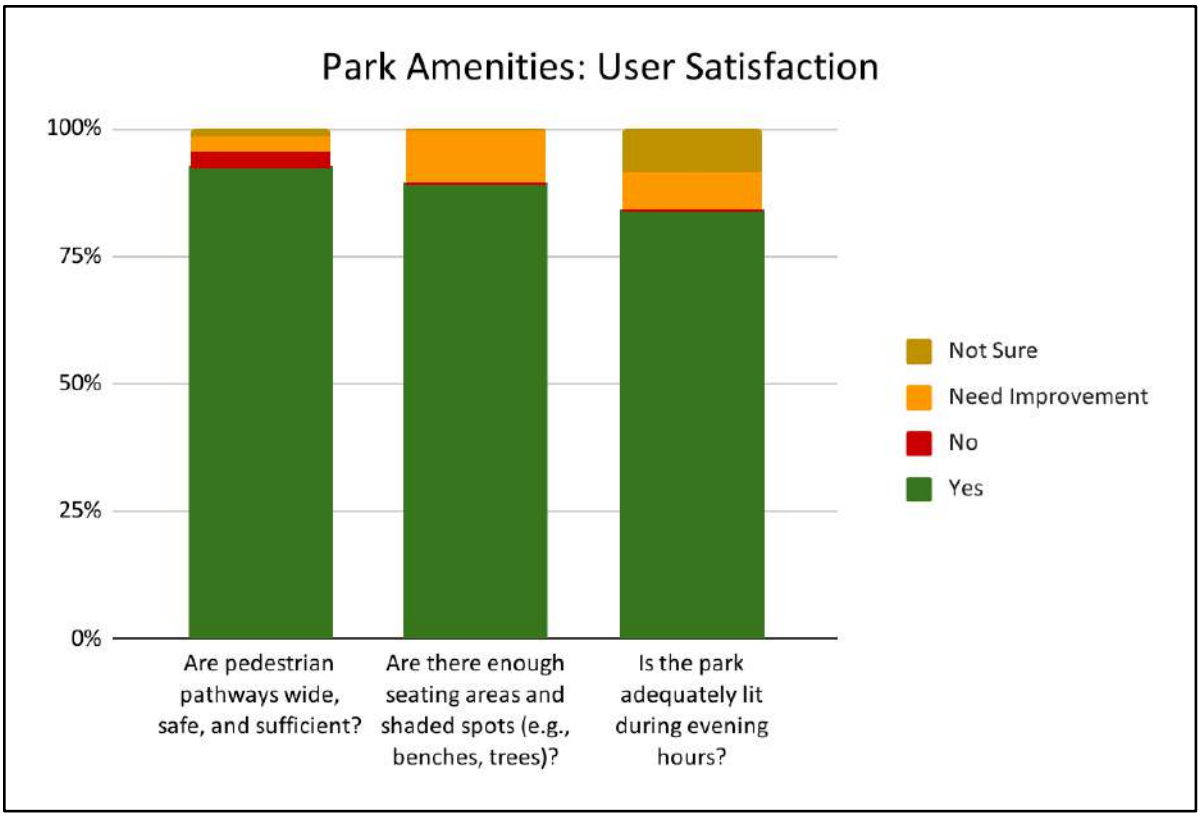


Figure 4.7: Users' Feedback on Park Amenities & safety (n=383)

Community parks are typically equipped with washrooms and drinking water facilities, as they cater to larger and more diverse user groups. In contrast, neighborhood parks often lack these amenities, as they primarily serve nearby residents who can access their homes for such needs. This distinction reflects the differing scales and intended usage of these park types.

The architect explained the contextual design approach: *"All cities have different cultural habits and expectations from the open space. Surat for example, there is a tradition that people go in groups with packed food, and have picnics in parks; this is not the case in Ahmedabad. Another point is climate- which really makes the biggest differentiator."*
FGD participants expressed high satisfaction with the new designs. A member of a mixed gender group (age 20-40) stated: *"Now the garden is a much better place to visit and sit... earlier it was not like that. The layout makes sense and there are different areas for different activities."*

Lack of Directional and Educational Signage:

Expert site assessments observed that few parks required directional signage for navigation and safety signage with emergency contacts. All of the parks clearly defined entry points, however they lack internal navigation signage particularly for bigger parks and community parks. In addition, parks like Victoria Garden, one of only three parks in India recognized as a UN Heritage

Site, has a prominent internal plaque to highlight its historic and cultural significance. While, Ravi Shankar Maharaj Garden, a site of cultural and historical importance, would benefit from additional cultural signage and history boards. Signages are important particularly for community gardens as they are big in size and important for navigation (UN - HABITAT, 2017).

4.3 Environmental & Ecological Performance

The parks developed through the intervention demonstrate significant environmental and ecological benefits, contributing to urban biodiversity, climate regulation, and ecological sustainability. This analysis examines vegetation diversity, permeable surfaces, water management features, and the parks' role as carbon sinks.

4.3.1 Efforts to improve Biodiversity: Selection of plants

Analysis of the plant inventory across the intervention parks shared by UNMF suggest that careful selection of trees, plants & shrubs species was undertaken. With an aim to establish a healthy system, selection criteria for Plant material in gardens involved preparation of exhaustive list of more than 200 plants species and these tabulated under their various usage/ attributes such as medicinal, fruit, nesting, foraging, fragrant flowers, scented leaves ornamental etc (UNM Plant inventory, u.d.).

The diverse selection of plants in Ahmedabad and Surat parks serves multiple ecological, aesthetic, and functional purposes, tailored to the region's semi-arid climate and urban needs. Species like Conocarpus erectus (planted in large quantities) and Bambusa vulgaris provide robust shade and soil stabilization, critical for Ahmedabad's hot summers. Fragrant plants such as Jasminum sambac and Cestrum nocturnum enhance sensory experiences in public spaces, while Stenotaphrum secundatum (grass) and Vetiver grass combat soil erosion—a key concern in monsoon-prone Surat. Ornamental species like Heliconia and Bougainvillea add vibrant colors to parks like Victoria Garden and SindhuBhavan Park, boosting visual appeal. Medicinal plants like Adhatoda vasica and Ocimum sanctum (Tulsi) align with India's traditional wellness ethos. Drought-tolerant varieties (Leucophyllum frutescens, Zephyranthes) reduce water dependency, supporting sustainability goals in both cities. Fruit-bearing trees like Muntingia calabura attract biodiversity, while Sansevieria and Areca palm improve air quality—a priority for Ahmedabad's pollution mitigation. The inclusion of rare species (Adansonia digitata, Couroupita guianensis) in parks like Parimal Garden showcases conservation efforts. Collectively, this curated mix addresses microclimate moderation, cultural relevance, and low-maintenance landscaping, making these parks resilient community assets (Source: UNM' MIS-Plantation sheet u. d.).

Abundance and species richness

The interventions significantly enhanced urban biodiversity, introducing:

- 293 plant species across Ahmedabad's parks, creating resilient ecosystems.
- 132 species in Surat, tailored to local coastal and semi-arid conditions.

These efforts transformed parks into thriving habitats for pollinators, birds and native flora[14].

Native, Acclimated, and Exotic Species Distribution

Analysis of the plant inventory across the intervention parks (shared by UNMF) reveals a thoughtfully curated mix of species

Native Species (32%): Indigenous plants like Neem (Azadirachta indica), Banyan (Ficus benghalensis), Peepal (Ficus religiosa), and Jamun (Syzygium cumini) form the backbone of the parks' ecological structure. These species are well-adapted to local conditions and provide optimal habitat for native fauna.

Acclimated Species (28%): Plants that have adapted well to Gujarat's climate over decades or centuries, such as Gulmohar (Delonix regia) and certain bamboo varieties (Bambusa vulgaris), complement the native species while adding aesthetic and functional diversity.

Exotic Species (40%): Carefully selected non-native ornamentals enhance visual appeal and extend flowering seasons, creating year-round interest while serving specific ecological functions.

Year-wise Plantation Data

A strategic, multi-year greening resulted in achieving a cumulative total of **338,988 plants** planted across various gardens in both cities, with Ahmedabad (254,615) and Surat (84,384). Peak execution happened in 2024–25 with 164,969 plants. The year-wise breakdown is as follows:

Sl #	Year	Ahmedabad Gardens	Surat Gardens	Total plants
1	2021-22	45255	2435	47690
2	2022-23	66660	3931	70591
3	2023-24	54768	980	55748
4	2024-25	87931	77038	164969
Total		**254615**	**84384**	**338988**

Table 4.1: Yearwise plantation details

[14] Confirmed by user's feedback

4.3.2 Carbon Sequestration Contribution of Planted species

Urban trees play a vital role in sequestering atmospheric carbon dioxide. Based on international averages (EcoTree[15] and For Tomorrow[16]), a single mature tree is estimated to absorb approximately 25 kg of CO2 per year on average. This is a generalized estimate, as actual sequestration depends on tree species (fast-growing vs. slow-growing), age (young trees absorb less than mature ones), and local conditions (climate, soil quality, maintenance). Assuming all planted vegetation species survive and reach maturity, and applying the 25 kg/year estimate uniformly (though sequestration increases as vegetation grow), the total cumulative CO2 sequestered by the 338,988 plant species planted between 2021-22 and 2024-25 is estimated to be approximately 16,974,950 kg (16,975 metric tons)[17]. This is equivalent to **~84,875 round-trip flights** between **Delhi and Mumbai** for **one passenger**.[18]

Year Planted	Trees Planted	Growth Years (2021–2025)	CO_2 Absorbed per Tree (kg)	Total Cumulative CO_2 (kg)
2021-22	47,690	4	25 × 4 = 100	47,690 × 100 = 4,769,000
2022-23	70,591	3	25 × 3 = 75	70,591 × 75 = 5,294,325
2023-24	55,748	2	25 × 2 = 50	55,748 × 50 = 2,787,400
2024-25	164,969	1	25 × 1 = 25	164,969 × 25 = 4,124,225
Total	**338,988**			**16,974,950 kg (16,975 metric tons)**

Table 4.2: Approximate cumulative carbon sequestration achieved

Key Metrics:

🌿338,988 Planted	🌳 425 Species	🌎 ∞16,975MT CO_2 Sequestered

[15] https://ecotree.green/en/how-much-co2-does-a-tree-absorb
[16] https://www.fortomorrow.eu/en/blog/co2-tree
[17] Note that these are approximations based on averages
[18] Average CO_2 emissions per passenger per round trip ≈ 0.2 metric tons (200 kg) (This includes both legs of the flight and accounts for Indian carrier fuel efficiency and average load factors.)

BEFORE JYOTINDRA DAVE UDHYAN, SURAT

AFTER

BEFORE NARODA PARK, AHMEDABAD

AFTER

BEFORE SARDAR BAUGH, AHMEDABAD

AFTER

4.3.3 Green cover

Based on analysis of AutoCAD drawings, the green cover within the assessed UNM Foundation parks ranges significantly, from 40% in Sabarmati Park to a high of 78% in Sukun Park, with an average of 54% across the 11 parks with available data (Table 4.3)). The total green cover area created from all parks amounts to 38192.29 sq m. While specific international standards for within-park green cover percentage vary depending on park type and function, the average of 54% indicates a strong commitment to vegetation, balancing green space with active recreation areas and other amenities.

Sl #	Park name	Pathways, Trails, Kid's play area with Sand, Open spaces (sq. mts.)	Green Cover area in sq mt	Percent of green cover (%)
1	Sindhu bhavan	1141	1610	59%
2	Swati Bungalow	3972	4187	51%
3	Hebatpur	3885.44	3100	44%
4	Sabarmati	449.51	302.82	40%
5	Ranip	1,545.80	1,498.38	49%
6	Sukan	1500.09	5357.214	78%
7	Naroda	2,200.00	4329.5307	66%
8	Parimal Garden	21395.79	15284	42%
9	Victoria Garden	12,194.89	16073.54	57%
10	Jyotindra Dave Udhyan	14,166.76	16,808.47	54%
11	Shri Ravi Shankar Maharaj Udhyan	2,550.91	2243.35	47%
			38192.29	**54% (Avg.)**

Table 4.3: Percentage of green cover in Parks

4.3.4 Water and Leaf Litter-waste Management

- The parks incorporate features designed for rainwater harvesting and groundwater recharge Recharge Wells: All parks, except the Sabarmati Park which utilizes river water, are equipped

with borewells and recharge wells to enhance groundwater replenishment (site visit assessment)

- The parks implement on-site management for organic waste such as leaf litter management: Dedicated areas and procedures are in place for managing dry leaves through composting, avoiding the detrimental practice of burning (see picture below). Compost sites are available in Jyotindra Dave Garden, Lakeview Garden, Sukan Park, Parimal Garden , Victoria Garden

4.3.5 AQI Trends Around UNMF Parks:

Studies indicate that urban vegetation can reduce local PM2.5 concentrations by 7-24% (Nowak et al., 2013; Yang et al., 2015). While UNMF's interventions have significantly enhanced green cover and biodiversity in parks across Ahmedabad, the AQI data between 2020 and April 2025 shows an overall increase in pollution levels near several intervened parks. For example, AQI rose from 85 to 108 near Ranip Park and from 76 to 127 near Parimal Garden (Satellite).

However, it is important to note that urban air quality is influenced by multiple factors — including increased vehicular traffic, urban construction, industrial activity, and population growth. As such, it is not possible to attribute changes in AQI directly to park interventions alone. The parks likely contribute positively to local air quality on a microclimatic level, especially through carbon sequestration and particulate settling, but these effects may be localized and overshadowed by broader citywide trends.

To better assess impact in the future, setting up longitudinal air quality monitoring within park boundaries and comparing it with control areas (no green intervention) may offer more precise insights into the environmental benefits of the interventions.

AQMS Location	Nearest Garden	2020[19]	2025 (MAY 1ST)[20]
Navrangpura	Ranip park	85	108
Pirana	Parimal	115	140
Rakhiyal	Naroda Park	86	102
Raikhad	Sardar park, Victoria Park	125	
Chandkheda	Adalaj Clover Leaf Intersection	104	128
Bopal	Thaltej,Swati Bunglow, Sindhu bhavan	79	126
Satellite	Parimal	76	127
Airport	Naroda Park	106	121

Table 4.4 Air Quality Index (AQI) Trends near UNMF-Intervened Parks (2020 vs 2025)

4.5 Social and Recreational Aspects

The preferred social and recreational usage by users of the park included

- Walking/Jogging: The most frequently mentioned activity across all groups, with many using gardens for daily walks or relaxation.
- Social Gatherings: Spaces for community events (e.g., music performances, theater rehearsals) and informal meetups with neighbors/friends were highly valued.

[19] https://ahmedabadcity.gov.in/ViewFile/ViewFile?TYPE=FileRepository,332
[20] https://www.aqi.in/uk/dashboard/india/gujarat/ahmedabad

- Children's Play Areas: Parents emphasized the importance of free, accessible play zones, though some requested more equipment (e.g., swings).
- Seating & Shaded Areas: Elderly users and groups highlighted the need for shaded seating spaces to socialize or rest.
- Yoga/Cultural Activities: Some groups used gardens for yoga or cultural practices (e.g., street plays), but noted gaps in dedicated infrastructure.

> "If this garden wasn't here, we would have to go all the way to Law Garden or Kankaria Lake, which means spending on auto rickshaw fare. Those places also have too many mosquitoes and are quite dark. We usually come to the garden to recharge ourselves." - Victoria park user
>
> We usually come here for gatherings or our theatre group meetings (at the time of FGD this group was having a meeting for their street play act)
>
> We come for walking and sometimes for social gathering, events.
>
> Our children play in play areas and we generally sit here after a long day. Now we have proper walking tracks, exercise equipment, and play areas for children - Survey and FGD participants

The assessment found high usage rates across different recreational facilities. The survey results indicate that seating areas and walking & jogging paths are the most commonly used facilities, each accounting for 30% of the responses. Children's play areas (16%) and restrooms (12%) are moderately used, while water facilities (10%) and other amenities (2%) are less frequently utilized.

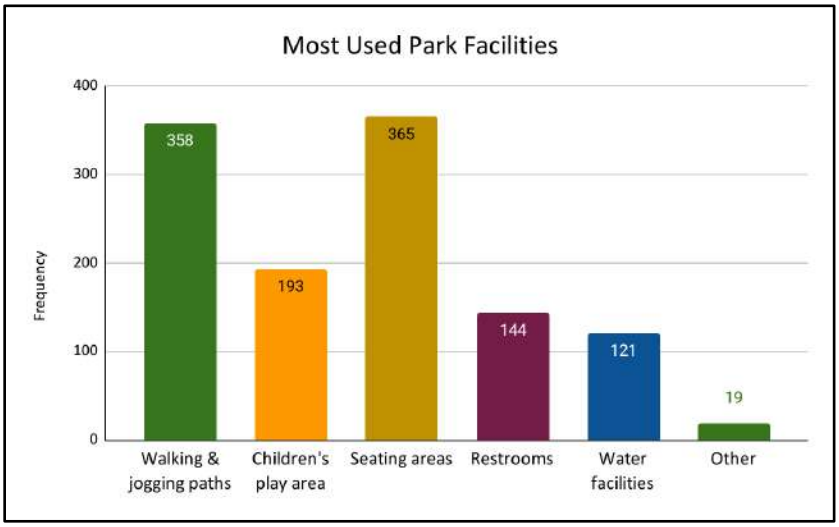


Figure 4.8: Park Facility Usage Frequency Reported by Users (n=383)

Usage Patterns

Survey data shows that 70% of respondents visit the parks daily, while 24% visit weekly, indicating regular use of recreational amenities. The usage pattern shows a clear improvement after the intervention, with daily visitors increasing significantly from 200 to 276. Weekly and monthly visits also rose slightly, while the number of rare visitors decreased from 12 to 10. This suggests

that the park developments made the spaces more attractive for regular use. This high usage rate confirms the popularity and utility of the recreational facilities provided.

Overall UNMF's interventions have significantly enhanced recreational opportunities in the parks catering to different age groups and interests. The inspection report documents various amenities including play areas, exercise equipment, walking paths, and seating areas across the parks.

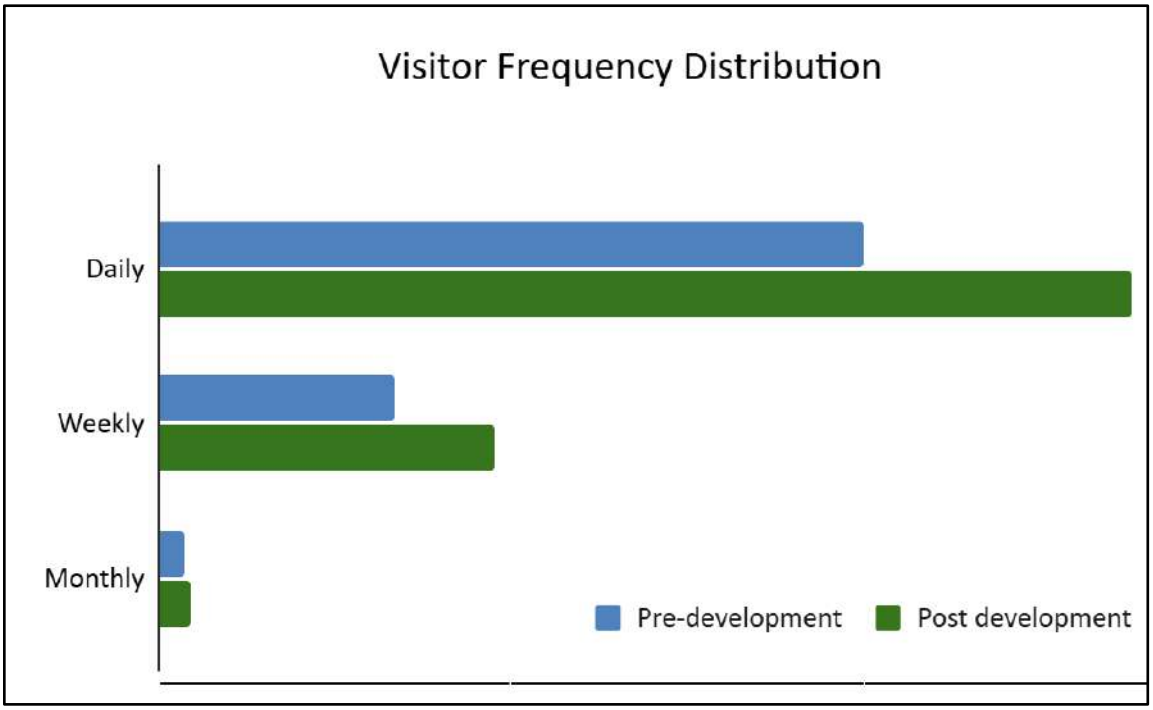


Figure 4.9: Improved Park Visitation Frequency Post-developments

4.6 Safety and Security

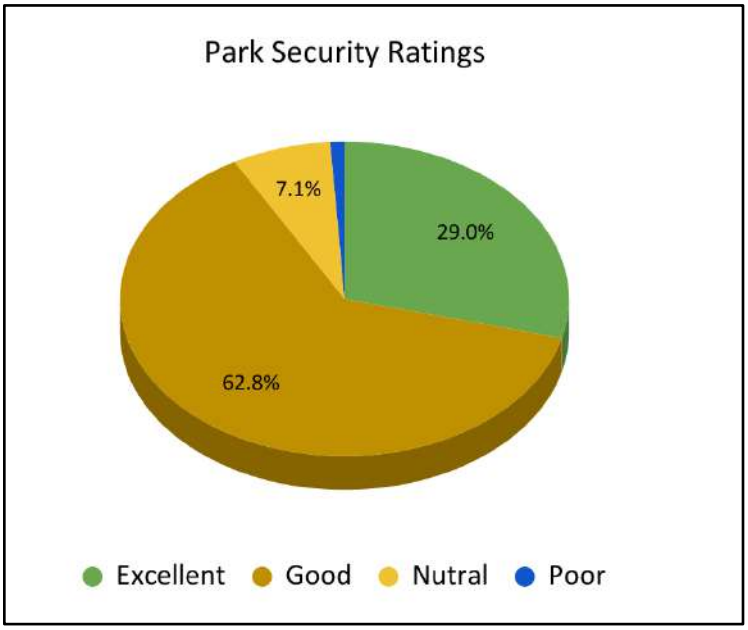
Safety was a major concern in parks prior to UNMF's intervention, primarily due to poor lighting and low footfall. Respondents shared that they avoided visiting after evening hours. A female participant recalled: Earlier we would avoid coming here after 5 PM because it didn't feel safe. There was poor lighting and not many people around."

Post-intervention, there has been a marked improvement in safety conditions, with better lighting, enhanced visibility, and in many cases, the presence of security personnel etc. Interactions with officials of AMC and SMC suggested that these parks have robust security systems in place for the parks round-the-clock security through a three-shift guard system (morning, afternoon, night).

Community members now feel more confident visiting parks, even during late hours. FGD participants consistently reported feeling safer in the redeveloped parks. A member of a women's group (age 22-28) stated: *"Now we feel safe to come here even in the evening hours. The lighting is good and there are always other people around."* Similarly, Victoria Garden has undergone a remarkable transformation (according to FGD participants) —from a space previously with illegal activities and predominantly male presence, it is now a welcoming and safe environment. The redevelopment has encouraged many women and children to visit, offering them a peaceful and relaxing space outside their homes.

> Guards are available in the garden throughout the day. And it is safe in this garden. Even the police station is near the garden. - User, Lakeview Garden- Surat

Overall, the assessment found substantial improvements in safety and security post development of parks.



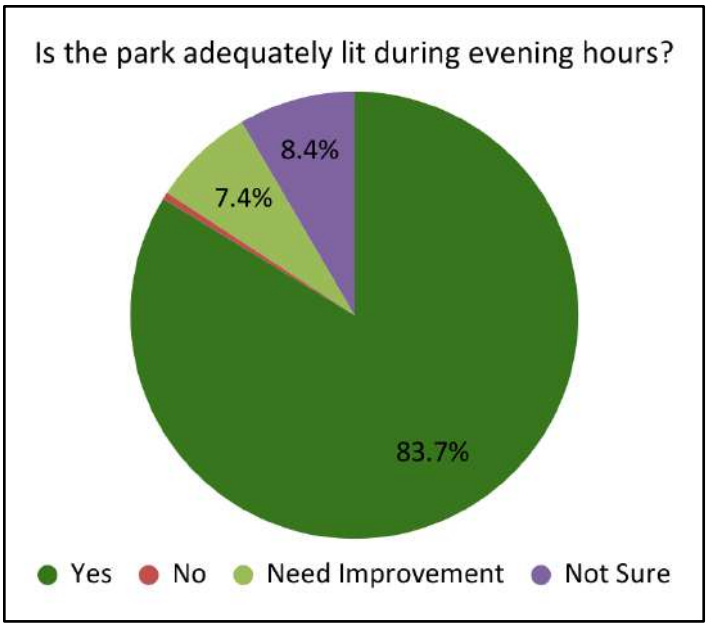


Figure 4.10: Users' Perceptions of Park safety and Security

4.7 Maintenance and Management

4.7.1 Cleanliness and waste management

The survey data reveals that cleanliness and waste management were significant issues before the park redevelopment interventions, with 18% of respondents identifying "lack of cleanliness" and 8% highlighting "No waste management" as key problems. This is corroborated by qualitative data from the FGDs, where one Naroda Park resident mentioned that before redevelopment, the area *"was used as a garbage bin as nearby societies were throwing garbage on the ground. It was dirty."* However, the current status shows significant improvement in cleanliness. A Victoria Garden resident stated, *"Yes, we see cleaning staff most of the time maintaining it regularly and Garden is always clean."* Similarly, a Parimal Garden resident confirmed that *"They are maintaining regularly and also doing cleaning daily."*

The management's commitment to cleanliness is also evident as the SMC official explained, "*we make surprise visits and inspect , and make sure the maintenance and cleanliness is happening in a timely manner."*

Pathways and restroom facilities are also kept clean according to residents. A Naroda Park resident mentioned, "*Pathways are decent and walkable. No need to add anything. They regularly clean the garden and maintain it,"* while a Victoria Garden resident simply stated, "*Restroom is there and it is clean" and "Washrooms are clean and water facilities are there.*"

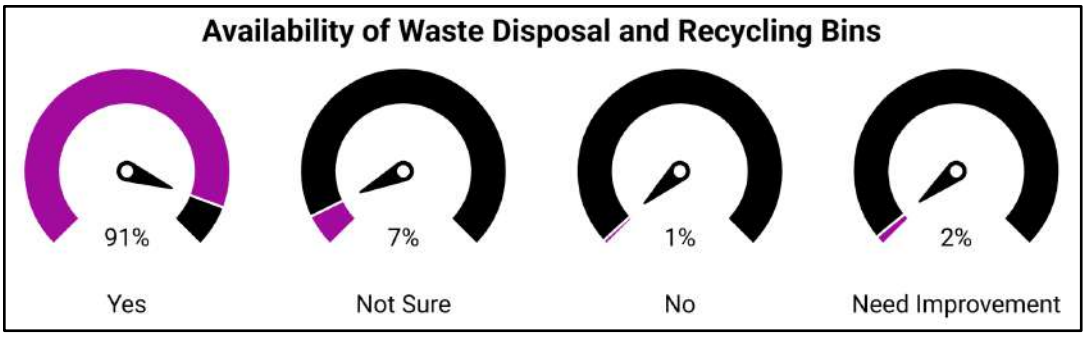


Figure 4.11: User Perceptions of cleanliness and Waste Management in Parks

4.7.2 Vegetation Maintenance

Prior to redevelopment, 9% of survey respondents identified "Lack of plantation/less green cover" as a key issue. The current status of vegetation maintenance appears to be positive across most parks. Residents from various parks expressed satisfaction with plant maintenance:

"Plants, Lawns and other things are maintained" - Parimal Garden resident
"All plants are in good condition. We see there are enough open space for us along with plants & tree"- Victoria Garden resident
"They do it regularly" - Naroda Park resident

4.7.3 Repair of Facilities

The current status shows a clear facility maintenance across all parks. Residents expressed satisfaction with the condition and maintenance of amenities: - "All amenities are maintained regularly by authorities" (Parimal Garden resident). Amenities are enough. It is 100% better than earlier what else we needed" (Victoria Garden resident)- "Yes, all facilities are enough. No additional benches required" (Naroda Park resident). However, some areas still need improvement, particularly pathways. A Parimal Garden resident noted, "For paths - there are some stones on walkways which is sometimes difficult for the senior citizens like us.Need to improve on that part only."

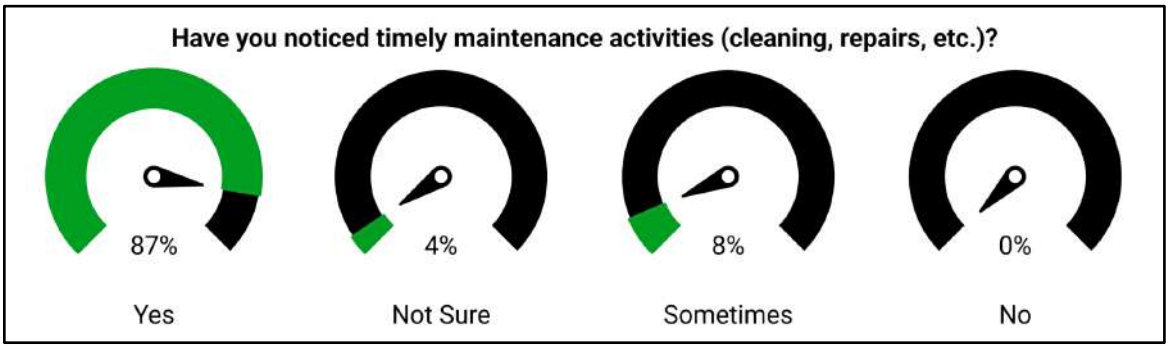


Figure 4.12: User's Perception on Timely Management of Parks

4.7.4 Management Systems

The current management structure appears to be well-organized with clear oversight mechanisms from all parties. The municipal authority has established a systematic approach to monitoring park maintenance. The AMC official explained, "*we have area supervisors zone/ward wise who visit each allocated garden everyday. Then we receive reports*." Similarly the SMC official stated that, *"We visit the garden, surprise inspection takes place and we make sure the maintenance and cleanliness is happening timely manner*." The SMC official further noted that "*the Torrent group has very strict norms with regard to the garden management*." UNM CSR team lead also mentioned that there will be *surprise inspection happens by the UNM and torrent team*. In terms of security management, security presence is there throughout the day in 3 different shifts. An SMC official mentioned “even if any crime situation or any violence or medical related incidents happens in the park, the guards can directly call the police."

4.7.5 Feedback Mechanisms

Our interaction with AMC revealed that the municipal authority has implemented a formal digital feedback system using QR codes, though awareness of this system appears limited among residents. The AMC official explained, *"We have kept QR code signage in all gardens through which visitors can complain and we have a mechanism of solving them within 3-15 days."* They provided an example of the system's effectiveness: "*For instance, we received a complaint about the lack of water sprinkling on the walking path in the morning, which was causing dust clouds and making it difficult to walk. We communicated this issue to Torrent, and they have now started sprinkling water before 6 a.m., ensuring a more pleasant walking experience for everyone."*

Despite this formal system, most residents appear to rely on informal, guard-centered feedback channels. When asked about complaint mechanisms, residents provided varied responses: "We generally do it to guard whenever we face any issues" (Parimal, victoria, naroda Garden residents) - "We don't have such ideas about feedback mechanism" (Naroda Park resident)
These responses suggest that while a formal QR code-based feedback system exists, there is limited awareness among users, with most preferring to use informal channels through security guards.

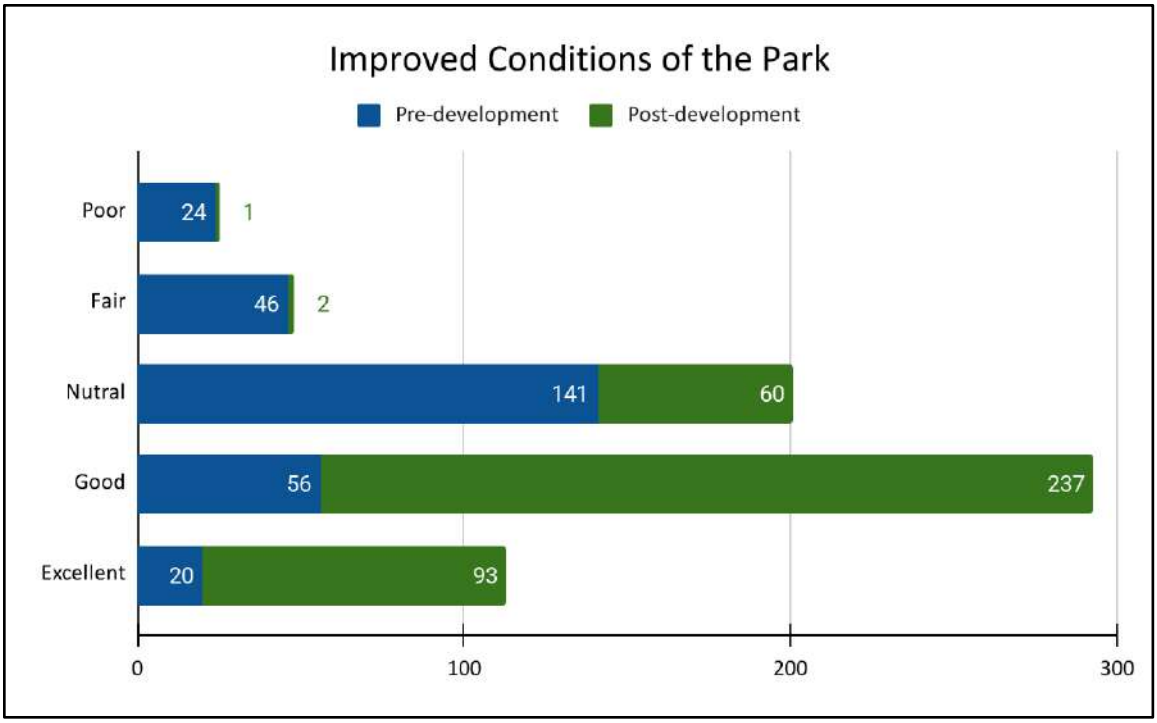


Figure 4.13: Maintenance quality before and after intervention as perceived by users

4.8 Economic and Cultural Value

4.8.1 Property Values

The data reveals that except for Naroda Park, most FGD participants reported no significant property value increases or were uncertain about changes in property values following park development: In Parimal Garden, one resident stated, *"Not really. Cost had remained around the same only," indicating no observable impact on property values*. Similarly, a Victoria Garden resident noted, "*Not really. But it is good that it is near our house. If that comes in working condition then maybe our property rate can increase*," suggesting that while the park itself hadn't affected property values, other future developments might potentially have an impact.

Only residents from Naroda Park reported positive impacts: *"Yes, in the next year our property price will increase more, we will receive a good amount,*" and another resident confirmed, "*Yes. We observed an increase in property value and we think that it will increase more.*" This suggests that property value impacts are largely limited to specific locations, with most areas not experiencing significant property value increases as a result of park development.

4.8.2 Small-scale Business Opportunities

The data indicates limited opportunities for small-scale commerce within the parks due to policy restrictions. This restriction appears to be a deliberate policy choice by the Torrent group, as SMC

officials noted, *"Torrent groups have very strict norms with regard to commercial activity (such as icecream parlour or tea parlour) on the garden property."*

While commercial activities inside the parks are restricted, survey data strongly indicates that businesses located outside and near the parks are benefiting significantly from increased visitor traffic following park development. When asked "Have you noticed any local businesses or vendors benefiting from the park?", 68% of respondents (266 out of 393) answered "Yes," while only 19% answered "No" and 13% were "Not Sure." This demonstrates that the high visitation rates post developments are generating substantial economic spillover effects for small shops and businesses in the vicinity of the parks, even though no commercial activities are permitted within the parks themselves.

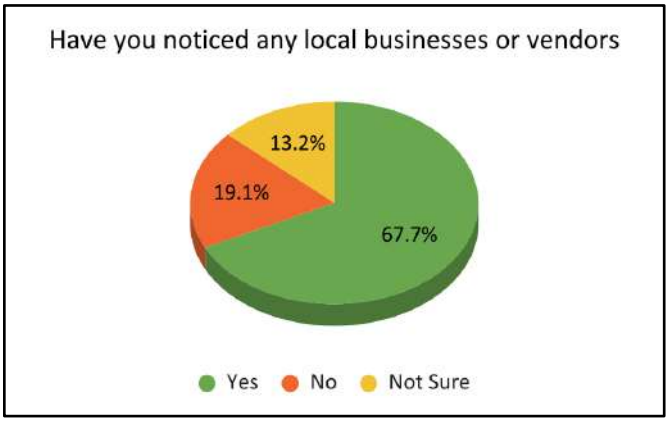


Figure 4.14: Community Perceptions Impact of Park Development on Local Businesses

4.8.3 Employment Generation

The park interventions have created significant employment opportunities in the local community. According to project document reviews, approximately 101 (71 for Ahmedabad; 30 for Surat) people were employed as security personnel and 137 as gardeners (101 for ahmedabad and 36 for Surat) across the parks. These employment opportunities represent a direct economic benefit to the local community, providing stable jobs in security and maintenance sectors.

4.8.4 Community Economic Impact

The parks provide economic value to the community by offering accessible recreational spaces that reduce transportation costs. Survey data shows that 92% of respondents live within 2-5 km or in the same neighborhood as the park (45% within 2-5 km, 47% in the same neighborhood).
A Victoria Garden resident highlighted this economic benefit: "*If this garden was not there then we had to visit Law garden & Kankaria lake for which we had to pay auto rickshaw charges & there are too many mosquitoes in those gardens and too dark.* We generally come to this garden

only." This statement illustrates how local parks reduce transportation expenses for residents while providing quality recreational spaces.

4.8.5 Cultural Value

The parks serve as venues for various cultural activities and events, enhancing their value as community cultural assets. A Parimal Garden resident described, "*We come for walking and sometimes for social gathering, events. People take permission and organise events. Last month, we had a music event in the garden*." Another resident from the same park mentioned, "cultural events happen but it is by Abhivyakti cultural group" indicating organized efforts to promote local arts and culture. Other cultural activities include yoga classes (by Anjuman school in Victoria Garden) and reading programs (e.g. Parimal garden has books for visitors to read).

Visit by Hillary Clinton in 2023 at Victoria Garden

5. Assessment of Park interventions and areas for improvements

5.1: Assessment of Park Interventions and Performance Rating

This section provides a qualitative assessment of the performance of the UNMF's park interventions across the key evaluation criteria used for this assessment (Chapter 2). The assessment rates the performance of each criterion as Strong, Medium, or Weak based on the findings presented in Chapter 4. This assessment provides a systematic evaluation of the program's impact across different dimensions of park quality and performance summarized in Table 5.1,

Criteria	Sub-Indicator	Performance Rating	Supporting Remarks
Accessibility & Connectivity	Proximity to Users	Strong	Parks primarily serve nearby residents (92% within 2-5 km or the same neighborhood), indicating good locational strategy.
	Physical Accessibility (Ramps)	Medium	Most parks have ramps at entry, but Lakeview Garden lacks them. Some internal pathways need improvement for universal access (e.g., stones on walkways).
Design & Aesthetics	Overall Aesthetics & Layout	Strong	Parks exhibit thoughtful spatial organization, particularly in well-zoned examples like Parimal Garden. Aesthetic appeal is generally high, with positive user feedback on design. Some parks (e.g., Naroda) started basic but improved. Layouts effectively integrate key amenities and facilities.
	Functionality & Amenities	Strong	Well-zoned parks (Parimal) cater to diverse needs. Most amenities (play areas, seating, paths) are well-utilized, though some requests for more equipment exist.
Community Engagement	Usage Rates & Frequency	Strong	High usage rates (70% daily, 24% weekly) indicate strong community connection and successful revitalization. Significant increase from pre-development levels.
	User Satisfaction	Strong	Overwhelmingly positive feedback from users across FGDs and surveys regarding improved conditions, safety, and amenities.

	Feedback Mechanisms	Medium	Formal QR code systems exist but have limited awareness/use. Most residents rely on informal feedback via guards.
	Community Events & Activities	Medium	Parks used for physical exercises and yoga and not used for social gathering or cultural activities. Potential for more structured community events noted (e.g., Parimal Garden cultural potential).
Environmental & Ecological	Biodiversity & Species Richness	Strong	Significantly enhanced biodiversity (425 unique species total; 293 AHM, 132 Surat). Good mix of native/acclimated/exotic species, better than typical municipal parks.
	Green Cover	Strong	Substantial planting (338,988 trees 2021-25). Dense green cover in several parks (Victoria, Parimal, Sukun). (Specific area data pending).
	Water Management	Strong	All parks use recharge wells . Efficient rainwater harvesting. Sabarmati park depend on AMC water supply.
	Waste Management	Strong	Dedicated on-site composting for leaf litter avoids burning, promoting sustainability.
	Climate Regulation & Air Quality	Strong	Significant carbon sequestration (est. 16,975 MTCO2).
Social & Recreational Aspects	Variety of Activities & Zones	Strong	Caters well to diverse age groups and interests (walking, play, seating, yoga, events). High usage of walking paths and seating areas.
	Inclusivity	Strong	High perceived accessibility (96% survey respondents). Parks cater to different groups including elderly, children, women.
	Cultural Expression & Identity	Medium	Parks like Piramal and Swati parks facilitate cultural activities through UNM cultural programme Abhivyakti and contribute positively to local identity, though potential for more cultural programming exists.

Safety & Security	Lighting	Strong	Significant improvement post-intervention. 84% users perceive adequate lighting during evening hours.
	Surveillance & Security Personnel	Strong	Including 24/7 security guards (three shifts). Users report feeling much safer.
	User Perception of Safety	Strong	Marked improvement from pre-intervention concerns. 92% rate security as Good or Excellent. Residents feel safe visiting, even during late hours.
Maintenance & Management	Cleanliness & Waste Disposal	Strong	Significant improvement from pre-development. Regular cleaning, sufficient bins (91% mentioned availability). Management commitment noted.
	Vegetation Maintenance	Strong	Generally positive status, regular upkeep of plants and lawns noted by residents.
	Repair of Facilities	Medium	Amenities well-maintained. Some pathway repairs needed, particularly for senior citizens. Timely maintenance perceived positively by 87% of users.
	Management Systems	Strong	Well-organized structure with clear oversight (AMC/SMC, UNMF). Systematic monitoring, surprise inspections, and clear responsibilities ensure long-term sustainability.
Economic & Cultural Value	Property Value Impact	Mixed	Increases reported/expected mainly near Naroda Park. Most other areas show no significant impact or uncertainty.
	Local Business Benefits	Strong	Significant positive spillover effect on nearby businesses due to increased visitor traffic (68% survey respondents noticed benefits).
	Employment Generation	Strong	Direct employment for ~238 people (security, gardening,housekeeping etc), providing local economic benefits.

Table 5.1 Assessment of park interventions and performance rating

5.2 Overall Assessment

The UNM Foundation's park redevelopment interventions have demonstrably transformed underutilized or neglected public spaces in Ahmedabad and Surat into valuable community assets. The assessment across multiple criteria reveals a largely successful initiative with significant positive impacts, particularly in enhancing the social, recreational, and environmental quality of the neighborhoods served.

5.2.1 Key Strengths:

Enhanced Usage and Community Engagement: The most striking success is the significant increase in park usage (70% daily visitors post-intervention) and overwhelmingly positive user satisfaction. This indicates the interventions effectively met community needs for accessible, safe, and engaging recreational spaces.

Improved Safety and Security: Addressing pre-intervention safety concerns through improved lighting, security presence, and surveillance has been highly effective, with residents reporting feeling significantly safer.

Strong Maintenance and Management: The implementation of robust management systems, regular maintenance schedules, and dedicated staff has resulted in high levels of cleanliness, well-maintained vegetation, and functional facilities, contributing significantly to user satisfaction and long-term sustainability. The PPP model appears effective in ensuring consistent upkeep.

Significant Environmental Enhancements: The interventions have made substantial contributions to urban biodiversity, green cover, climate regulation, and sustainable water/waste management. The introduction of diverse plant species, rainwater harvesting, and composting practices represent significant ecological improvements. Positive Social and Recreational Impact: The parks successfully cater to diverse user groups and activities, fostering community interaction, promoting physical activity, and providing spaces for cultural expression.

5.2.2 Detailed Architectural Design Assessment

Further analysis based on architectural design principles reveals deeper insights into the parks' design quality, addressing specific criteria.

Spatial choreography: Thoughtful planning of movement and experience is evident. Parks like Parimal Garden, Sindhubhavan Park, and Jyotindra Dave Garden feature layouts with clearly defined zones for play, rest, gathering, and movement, using elements like built edges, view corridors, and intermediate nodes to enhance legibility and structure.

Scale of spaces: The design appropriately adjusts scale for comfort and function. Larger community parks like Parimal, Victoria, and Lakeview accommodate bigger groups with expansive paths and lawns, while neighborhood parks such as Naroda and Ranip offer a cozier,

more personal feel with elements like low walls and small gazebos. Vertical elements (pergolas, trees, lighting) add perceived volume even to flat areas.

Circulation logic and variability: Path networks often exemplify good design, organizing circulation through varied widths, materials (including Charu paths), and articulated edges. Parks like Parimal and Lakeview Garden showcase well-designed curves and nodes reflecting pedestrian behavior, while others like Thaltej could benefit from refined logic, alignment, and wayfinding infrastructure.

Determination of spaces based on small and big groups or more passive/active spaces: Parks successfully create a privacy gradient, offering diverse zones from quiet corners for individuals to semi-private areas for small groups and public spaces for larger events. Parks like Sindhubhavan and Jyotindra Dave Garden effectively use layered planting, screens, and level changes to buffer between active and passive zones.

Materiality: Material selection defines identity and experience, emphasizing locally sourced, climate-appropriate options like stone, red oxide flooring, granite kerbs, and ferrocement seating. The integration of Charu paths adds textural depth and reinforces the landscape's architectural intent through distinct, crafted pedestrian routes.

Plant material and diversity: The extensive plant diversity (425 species across 15 parks) serves functional architectural roles beyond aesthetics, contributing strategically to microclimate control, shade hierarchy, view framing, and reinforcing regional identity while balancing ecological purpose with compositional beauty.

Surface distribution from soft/permeable/hard: A balanced mix of surface types articulates spatial purpose. Soft zones (grass, soil) allow for rest and absorption, semi-permeable paths (Charu paths, sand) facilitate circulation while allowing water penetration, and hard surfaces (tiles, concrete) cater to intensive use areas like playgrounds. Charu paths enhance this by providing visually distinct, permeable walkways that aid stormwater management and reduce heat.

Maintainability: Design prioritizes longevity and ease of upkeep through durable choices like rust-resistant fittings, washable surfaces, and robust plant palettes. The modular construction of elements like Charu paths allows for localized repairs, aligning with adaptive, cost-effective detailing while maintaining aesthetic consistency.

Sustainability: Architectural sustainability is integrated through passive design, local material sourcing, and natural systems. Key contributions include significant carbon sequestration (est. 16,975 MTCO2 2021-25), water conservation via recharge wells (in most parks), on-site composting of leaf litter, and high species richness adapted to the local climate, making the parks self-sustaining elements.

Social function and acceptability: Designs successfully accommodate diverse socio-cultural practices like yoga, reading, festivals, and community gatherings. Inclusive features such as

gender-sensitive lighting, group seating, and performance corners foster active civic life, evident in how spaces like Parimal Garden naturally host spontaneous cultural events.
Users Perception: The combination of visual coherence, clear spatial logic, and material comfort shapes positive user perceptions, associating the parks with well-being, safety, and familiarity. Further enhancements in wayfinding and storytelling could evolve this connection.

5.2.3 Areas for Improvement

Universal Accessibility: While basic accessibility (ramps at entry) is addressed in all parks, further improvements are needed for universal access within some parks, particularly regarding pathway surfaces for senior citizens and potentially adding ramps in parks like Lakeview Garden.
Feedback Mechanism Awareness: The formal QR code feedback system, while a good initiative, suffers from low user awareness. Bridging this gap could enhance responsiveness to user needs.
Cultural Programming: While parks host informal cultural activities, there is potential to enhance structured cultural programming and interpretation, especially in parks identified with high cultural potential like Parimal Garden.
Regular monitoring, evaluation and reporting: Implementing a systematic, ongoing monitoring, evaluation and reporting system would help track the long-term impact of the interventions, particularly of environmental parameters like air quality, biodiversity, and water management would provide concrete data on the parks' ecological impact over time and inform adaptive management. This should include regular user surveys, environmental monitoring, and community feedback mechanisms.

Overall, the UNM Foundation's park interventions represent a successful model for urban green space revitalization. They have created well-managed, safe, ecologically valuable, and highly utilized community spaces that significantly enhance the quality of life for residents. Addressing the identified areas for improvement, particularly around universal accessibility and feedback awareness, can further strengthen the long-term success and inclusivity of these valuable public assets.

5.3. Comparative Analysis: UNM Parks vs. AMC/SMC Parks

Urban parks developed by UNMF in Ahmedabad and Surat stand out for their higher ecological quality, richer biodiversity, and stronger community engagement. These parks outperform typical municipal parks in user footfall, species richness, planting density, and functional environmental benefits.

Feature	UNM Foundation Parks	AMC Parks[21]	SMC Parks[22]
Type of parks	Neighbourhood/community parks	Residential/Neighbourhood parks	Neighbourhood/community parks
Park User Numbers	High user engagement (e.g., 70% daily visitors reported in surveys) 4000/day for a community park in Ahmedabad Surat ~700/day (for a garden size of 5700 sq.ft in Surat)	Approx. 3,000/day (per AMC Garden Director)	500/day (for a Garden size of 9,000 sq. mt.)
Species Diversity	High: ∾50 species in 3,000 sq. ft. (Ahmedabad); ∾84 species in 5,700 sq. ft. (Surat)	Lower or same	30 (Veer Savarkar Garden 9,000 sq. mt.)
Planting Quantity	Significantly Higher ∾5000 numbers for a garden size of 3000sq. Ft, in Ahmedabad ∾ 11999 or a garden size of 5700 sq.ft in Surat	50% Lower quantity per garden (e.g., ~150 if UNM plants 300)	550 (Veer Savarkar Garden 9,000 sq. mt.)
Biodiversity Function	Strong: Diverse planting supports multiple functions, Enhances pollinator attraction, habitat creation, microclimate regulation	Lower: Less diverse planting likely offers fewer ecological niches and reduced functional benefits compared to UNM parks.	Moderate: Less diverse planting likely offers fewer ecological niches

UNM parks demonstrably prioritize higher species richness and planting density, contributing to enhanced biodiversity functions like pollinator attraction, habitat provision, and local climate regulation compared to standard municipal parks.

[21] Based on recent communication with the AMC Garden Director by the UNMF team
[22] Based on UNM's interaction with SMC officials

5.4. Comparative Assessment: Ahmedabad vs. Surat (UNM Parks)

While the interventions have yielded positive results in both Ahmedabad and Surat, a comparative assessment reveals nuances in their characteristics, performance, and context-specific adaptations (Table 5.2).

Strengths of Ahmedabad Parks:

Ahmedabad parks, particularly Parimal Garden, often showcase higher levels of design sophistication and established infrastructure, benefiting from potentially longer operational histories or different initial briefs. They boast significantly higher overall plant species richness (293 unique species). Parks like Parimal and Sindhubhavan demonstrate high community engagement and serve as important social hubs. The positive impact on property values, although limited overall, was primarily noted in Ahmedabad (Naroda Park). Challenges/Variations: Performance across Ahmedabad parks shows some variability. While Parimal is highlighted for excellence, others like Naroda started with more basic infrastructure. Some Ahmedabad parks (e.g., Sabarmati, Hebatpur, Thaltej, Swati) are noted as having sparser green cover compared to the denser parks like Victoria, Parimal, and Sukun. Signage/interpretation is largely absent or minimal across most Ahmedabad parks assessed in the comparative table.

Strengths of Surat Parks:

Surat parks appear well-adapted to local coastal and semi-arid conditions, reflected in their plant selection (132 species). Parks like Ravi Shankar Garden demonstrate excellent maintenance and well-lit conditions. Lakeview Garden features specific amenities like open gyms and shaded areas, catering well to families and young people. The interventions seem consistently applied regarding features like recharge wells. Challenges/Variations: Accessibility is a concern in at least one Surat park (Lakeview Garden lacking ramps). Community engagement levels are rated lower ("Low") in the comparative table for Surat parks compared to the "Moderate" to "High" ratings in Ahmedabad, although overall usage rates (from Chapter 4) remain strong across both cities. Similar to Ahmedabad, signage/interpretation is noted as lacking.

Key Comparative Insights:

Biodiversity Strategy: Ahmedabad focused on maximizing species count, while Surat's selection appears more tailored to specific environmental conditions. Infrastructure & Design: Ahmedabad exhibits greater variation, from highly designed (Parimal) to more basic, while Surat parks show consistency in certain features (e.g., recharge wells) but may lack the high-end design elements of Ahmedabad's best examples. Community Engagement: While overall usage is high everywhere, the comparative table suggests potentially higher levels of active community interpretation and engagement in some Ahmedabad parks (Parimal, Sindhubhavan) compared

to Surat parks. Maintenance: Both cities demonstrate strong maintenance practices overall, though specific parks in each city might excel (e.g., Parimal in Ahmedabad, Ravi Shankar in Surat).

In summary, while both sets of parks represent successful interventions, they reflect different approaches and potentially different starting points. Ahmedabad showcases higher species diversity and examples of high-end design, while Surat demonstrates strong adaptation to local conditions and consistency in certain infrastructural elements. Both cities benefit from the robust management and maintenance framework implemented through the partnership

Green Gradient: Dark to Light: Indicates excellent to good performance in the category, with dark green being the best. Orange: Highlights areas where things are functional but need improvement to reach optimal standards. Red: Signals basic or inadequate conditions, requiring upgrades.

Park Name (Type)	Target Users	Accessibility	Activity Zones	Safety	Infrastructure	Maintenance	Green Cover	Water Mangt.	Community Engagement	Suggestions
AHMEDABAD										
Naroda Park (Neighborhood)	Nearby residents	Ramp at entry only	Play, seating	Lit, no signage	Moderate	Regular	Moderate	Recharge well	Moderate	Add toilets, signage
Victoria Garden (Community)	All age groups	Ramp at entry only	Multi-use	Lit, no CCTV	Moderate	Regular	Dense Diverse	Recharge well	Cultural potential	Cultural signage, CCTV
Parimal Garden (Community)	All age groups	Excellent ramp + paths	Well-zoned	Lit, well-designed..	Excellent	Very good	Dense, diverse	Recharge well	High	Murals, events, CCTV
Sukan Park (Neighborhood)	Nearby residents	Ramp at entry only	Play, seating, walking path	Moderate light (inside the park, walking path)	Good	Regular	Dense, diverse	Recharge well	Moderate	Lights,
Ranip Park (Neighborhood)	Nearby residents	Ramp at entry only	Play, seating , walking path	Moderate light	Moderate	Regular on the paths, seating area, but cutting of grass & garden waste cleaning not done	Some trees	Recharge well	Moderate	Upgrade play area, signage
Sabarmati Park (Neighborhood)	Nearby residents	Ramp at entry only	Minimal zones	Fair lighting	Good	Regular	Sparse		Moderate	Lighting , cleaning

Hebatpur Park (Neighborhood)	Nearby residents	Ramp at entry only	Open Gym, jogging track	Fair lighting	Good	Regular	Moderate	Recharge well	Positive feedback	Add toilets, lighting
Thaltej Park (Neighborhood)	Nearby residents	Ramp at entry only	Ground & walking path	Fair lighting (no lights on seating area)	Limited	Regular	Sparse	Recharge well	Moderate	Improve access & greenery
Swati Park (Neighborhood)	Nearby residents Older adults	Ramp at entry only	Play, Seating, walking path	Adequate lighting	Good	Regular	Sparse	Recharge well	Moderate	Add play facilities
Sindhubhavan Park (Neighborhood)	Nearby residents	Ramp at entry only	Play, seating , walking path	Lit, CCTV needed	Good	Regular	Moderate	Recharge well	Moderate	Art, CCTV, tree shade
SURAT										
Lakeview Garden (Community)	Families, student groups, young families	No Ramps at entry or exit	Open Gym, seating area, children playing area	Lit	Rich (open gym, seating area, shaded area)	Good	Moderate	Recharge well	Low	Add signage, ramps
Ravi Shankar Garden (Neighborhood)	Nearby residents	Ramp at entry only	walking, children playing area sports area	Well-lit	Excellent	Excellent	Moderate	Recharge well	Moderate	Add toilets
Jyotindra Dave Garden (Community)	Students, families, near by residents	Ramp at entry only	Amphitheater, play, multi purpose lawn, children playing area	Well-lit	Excellent	Excellent	Dense, diverse	Recharge well	Positive feedback	Cultural corners

Table 5.2: Comparative Analysis of UNM intervened Parks in Ahmedabad & Surat

6. Conclusions

The comprehensive assessment of the UNM Foundation's park redevelopment interventions in Ahmedabad and Surat reveals a highly successful initiative that has demonstrably transformed underutilized or neglected urban spaces into vibrant, valuable community assets. Across multiple evaluation criteria—including accessibility, design, community engagement, environmental performance, social impact, safety, maintenance, and economic value—the interventions have yielded significant positive outcomes, substantially enhancing the quality of life in the neighborhoods served.

A primary success is in the dramatic increase in park users. Post-intervention, the parks experience high usage rates, with 70% of surveyed users visiting daily, indicating that the redesigned spaces effectively meet community needs for accessible and engaging recreation. This is strongly corroborated by overwhelmingly positive user satisfaction regarding improved conditions, amenities, and particularly, safety and security. The implementation of enhanced lighting and dedicated security personnel has successfully addressed pre-intervention concerns, fostering a strong sense of safety among residents, even during evening hours.

Environmentally, the parks represent significant ecological enhancements boasting substantially increased biodiversity, featuring 425 plant species across the assessed parks, far exceeding typical municipal park standards. The designs incorporate substantial green cover (averaging 54% of the park area), sustainable water and waste management practices like recharge wells, permeable surfaces, leaf litter management, and contribute measurably to climate regulation through ambient cooling, and considerable carbon sequestration. These features establish the parks as vital components of the cities' green infrastructure.

From a design perspective, the parks generally exhibit thoughtful architectural and landscape planning. Detailed assessment confirms strong performance in spatial choreography, appropriate scaling for different user groups, logical circulation patterns (often utilizing innovative Charu paths), effective zoning for varied activities and privacy levels, and the use of durable, locally sourced materials. The diverse plant palette serves both aesthetic and functional roles, contributing to microclimate control and regional identity. This cohesive design approach positively shapes user perception, associating the parks with well-being and familiarity.

The parks successfully cater to diverse age groups and interests, fostering community interaction, promoting physical activity, and providing venues for cultural expression and local events.

Economically, the parks create positive spillover effects for nearby businesses, generate direct local employment opportunities in security and gardening, and offer accessible recreation that reduces residents' travel costs.

The assessment identifies areas for potential enhancement. Further improvements in universal physical accessibility, particularly pathway surfaces, are recommended. Increasing user awareness of the existing QR code feedback system could improve responsiveness, while exploring more structured cultural programming could maximize the parks' community role. Additionally, implementing systematic monitoring and evaluation, including environmental tracking and user feedback, would strengthen long-term adaptive management and impact assessment.

In conclusion, the UNM Foundation's park interventions serve as an exemplary model for urban green space revitalization. Through thoughtful design, strong community focus, robust management, and a commitment to environmental sustainability, the initiative has created safe, engaging, ecologically valuable, and highly cherished public spaces. Addressing the identified areas for improvement will further solidify the long-term success and inclusivity of these vital urban assets, ensuring they continue to benefit the communities of Ahmedabad and Surat for years to come.

Project Documents reviewed

- UNMF, u.d. Development details of Parks
- UNMF, u.d Inventory of Plantation
- UNMF u.d. MIS sheet- Year Wise details of plantation
- UNMF, u.d selection criteria for plant species
- UNMF, UNMF, 2017, Udyan Pravaha - a public space initiative Report
- UNMF, u.d Biodiversity highlight at Surat Parks
- UNMF, Plant descriptions for Surat Parks

References

- https://apps.torrentpower.com/unmfoundation/web/index.php/site/info/commitments
- Kongsager, R., Napier, J., & Mertz, O. (2013). The carbon sequestration potential of tree crop plantations. Mitigation and Adaptation Strategies for Global Change, 18, 1197-1213.
- Nowak, D. J., Crane, D. E., & Stevens, J. C. (2007). Air pollution removal by urban trees and shrubs in the United States. Environmental Pollution, 146(3), 637-644.
- Yang, J., McBride, J., Zhou, J., & Sun, Z. (2015). The urban forest in Beijing and its role in air pollution reduction. Urban Forestry & Urban Greening, 14(3), 652-661. https://doi.org/10.1016/j.ufug.2015.06.008
- https://www.aqi.in/uk/dashboard/india/gujarat/ahmedabad
- https://ahmedabadcity.gov.in/ViewFile/ViewFile?TYPE=FileRepository,332

ANNEXURE

Annexure A: About NuSocia

NuSocia is an impact advisory firm, headquartered at Pune and having its consultants working across Delhi, Mumbai, Bangalore, Kolkata and Pune and at locations outside India at Dubai, Toronto and Muscat.

Established in 2017 and incubated at IIM Bangalore NSCRCEL, NuSocia is working with the mission to enable the Social ecosystem with impact that is evident. The team comprise of consultants, researchers, social sector professionals and data scientists with a common passion to generate ideas that matter for the people and the planet. It work with Corporates, Governments, Foundations, and Non-profits to help them maximize, manage, measure, and communicate their social impact.

Clients select us for our expertise to bring the best of the global framework and marry it with the ability to connect at the grassroots level and thus creating and delivering practical solutions to the unique client requirements. As a knowledge driven organization, NuSocia focus on research and collaboration to design innovative solutions and work across the entire social impact lifecycle offering services in CSR strategy, needs assessment, program design, implementation, monitoring & evaluation, impact assessments, communication, and more.

With a global consulting team, localized partnerships and 60% female workforce, NuSocia is known as a social impact advisory built on the core pillars of design thinking, collaboration, and knowledge-sharing.

Annexure B: Sample of interview schedule

Interviews	Sample questions
Municipal Authorities KII	• How does the municipality collaborate with UNM Foundation in the development and management of parks?when the collaboration started with them? • What is the scope of the MoU signed between the municipal authority and the UNM Foundation? • Can you briefly describe the municipality's role in planning, developing, and maintaining parks and lakes in the city? • What percentage of the municipal budget is allocated for parks and green spaces? Has this changed over the past five years?What are the key policies or frameworks guiding urban green space development in the city? • Since maintenance is handled by another party, what is the municipality's oversight role in ensuring maintenance and service quality • Are there any ongoing or planned initiatives to enhance pedestrian and cyclist access? • How does the municipality coordinate with maintenance and security vendors to address security concerns? • What are the key terms in the contract with vendors regarding upkeep and service standards? • How does the municipality ensure that maintenance partners meet agreed standards for cleanliness and infrastructure upkeep? • What are the channels for citizens to report maintenance issues, and how does the municipality coordinate with the responsible party for resolution? • What mechanisms are in place for monitoring and evaluating park conditions over time? • What are the key challenges faced in coordinating with multiple stakeholders, and how are they addressed? • What lessons have been learned from previous park development projects that could guide future initiatives?
Vendors KII	• How did your agency get involved in the Pratiti Programme? • What was the selection process for becoming a maintenance partner? • What are your key responsibilities in maintaining these parks?Are there any specific guidelines or standards set for maintenance? • What routine maintenance tasks are performed daily, weekly, and monthly? • How do you handle seasonal changes in park maintenance?How do you ensure cleanliness and hygiene in the parks? • What measures are taken for waste disposal and management? • How do you maintain pathways, seating areas, and recreational structures?" • How many housekeeping staff, gardeners, and cleaners are employed for park

	maintenance?How do you ensure adequate staffing across different parks? ● Are staff members trained for specialized maintenance tasks? frequency of training for staff? ● What security measures are in place to ensure visitor safety? How is surveillance and lighting managed in the parks?How do you handle incidents such as vandalism, unauthorized activities, or accidents? ● What are the biggest challenges in maintaining these parks?Is there any feedback mechanism in place? How do you incorporate visitor feedback into maintenance improvements? ● Are there any gaps in the current maintenance approach that need attention? ● What improvements would you suggest for ensuring long-term sustainability?
Pratiti Team KII	● How do these projects align with the broader mission of the foundation? ● What impact do you hope these green spaces will have on the local community and environment? ● How does the foundation engage with local communities and stakeholders in the planning process? ● How would you describe your experience collaborating with the municipal corporation and other agencies? ● Can you share an example of a park or garden project that was particularly challenging and how you overcame those challenges? ● How do you ensure financial sustainability beyond the initial funding phase? ● What governance and oversight mechanisms are in place to ensure project accountability and transparency? ● Looking ahead, what are some emerging trends or challenges in urban green space development? ● What is your vision for the foundation's impact over the next 5-10 years in this space?
Beneficiaries FGD	● Name, Age-group. number of members? Where do you live? near by park/garden, neighbourhood? ● How was it before the re-development? Do you remember when the park was re-developed? ● Are you aware of the organization responsible for developing and maintaining the park?How often you visit this garden? ● How easy is it for you to reach this garden?What mode of transport do you use to come here? (Walking, cycling, public transport, private vehicle, etc.) ● Do you feel the garden is well connected to surrounding areas?"Are the entry and exit points sufficient and convenient? ● Is the garden accessible for senior citizens, children, and people with disabilities?

	• What activities do you usually engage in when you visit the garden? (e.g., jogging, yoga, social gatherings, reading, playing, cultural events) • Are there any specific spaces or activity areas in the park that require a payment or entry fee, such as the indoor gymnasium or open theater?" • Do you think there are enough amenities like benches, shaded areas, open gyms, and play areas?What is the condition of these amenities, and are they maintained regularly? • "Have you noticed security measures such as guards, cameras, or emergency services?Do you feel safe while visiting the garden at different times of the day?Have there been any crime incidents in the park/garden? • How are the pathways, seating areas, and water bodies maintained? Have you observed regular cleaning and upkeep?Are restrooms available in the garden? If yes, are they accessible to all groups, including differently-abled individuals, and are they well-maintained? • Are you aware of any feedback or complaint mechanism for the park? If you need to report an issue with facilities or park staff, where would you go to file a complaint? • What improvements would you suggest to enhance your experience? (e.g., better lighting, extended hours, more activities, better security)
Beneficiary Survey	• Location • Name of the Park • Are you aware that this park/garden developed and maintained by UNM Foundation? Yes, NO • Name • Gender • Age • Have any mobility challenge or physical disability? • Occupation Student Employed Housewife Self-employed Retired • Where do you live? Same neighborhood as the park (within 500 mts) Within 2-5 kms Within 5-10 kms More than 10 kms Other city/town

	Other. If Other ,Please specify Pre-Development Questions ● Had you visited the park before the re-development? Yes No If Selected No, Please skip Q 9A to 9C ● How frequently did you visit the park before redevelopment? Daily Weekly Monthly Rarely Not visited ● What were the key issues you observed before redevelopment? (multiple options) Poor maintenance Lack of cleanliness Inadequate lighting Limited or broken recreational facilities Unsafe environment unavailability of drinking water unavailability of restroom Lack of plantation/less green cover No waste management No proper walking or cycling paths Lack of accessibility for elderly or differently abled All of above Other. If Other, Please specify ● How would you rate the condition of the park before redevelopment? (1- Poor2-Fair ,3- Neutral, 4-Good and 5-Excellent) Post Development Questions ● How often do you visit this park/garden? Daily Weekly Monthly Rarely First time visitor ● How do you usually reach the park? Walk

Cycle
Private Vehicle
Public Transport
Other

If Other, Please specify

- Is the garden accessible to all people including differently abled people?
  Yes
  No
  Not Sure
  Not accessible for differently abled people

- What time of the day do you usually visit the park?
  Morning
  Mid Morning (9am to 12 pm)
  Afternoon (12 pm to 3pm)
  Morning and Evening
  Evening

- Are there any restrictions on when you can visit the park?
  Yes, the park is open only during specific hours
  No, the park is accessible anytime
  Not Sure
- What facilities do you use in the park/garden?
  Walking/jogging paths
  Children's play area
  Seating areas
  Restrooms
  Water facilities
  Other. If Other, Please specify

- Do you think the park is planned in a good and organized way
  Yes
  No
  Somewhat
- Are there clear and visible signages for navigation and information?
  Yes
  No
  Need Improvement

	● How would you rate the security of the park? (1- Poor 2-Fair ,3- Neutral, 4-Good and 5-Excellent)" ● Are there sufficient security personnel in the park? Yes No Not Sure ● Are there enough lights in the park during the evening? Yes No Need Improvement Not Sure ● How would you rate the cleanliness of the park? (1- Poor 2-Fair ,3- Neutral, 4-Good and 5-Excellent)" 1 ● Are the pathways, seating areas, and restrooms facilities well-maintained? Yes No Needs Imrpovement Not Sure ● Do you think the park is well-managed in collaboration with the municipal authorities? Yes No Not Sure If No, Please Ask following question ● What areas do you think need improvement? Safety & security Cleanliness Maintenance Recreational facilities Accessibility More Green cover Other. If Other, please specify

Annexure C: Assessment team

Manju Menon	Overall guidance
Nisha Poojari	Project Manager
Nikita Patel	Project Coordinator
Namrata Shinde	Lead Research Design
Ar. Amruta Shinde	Assessment of design and layout of parks
Poornima Sheelanere	Data analysis and compilation of assessment report