



Critical Appraisal of Bharat Vandana Park, Sector 20, Dwarka, New Delhi

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Abstract

The study synthesizes insights from ten peer-reviewed research papers on urban parks, ecological infrastructure, and sustainable landscape planning to establish a theoretical foundation for evaluation. Using a soft-critical analytical framework, the research examines policy alignment, ecological integration, social accessibility, and governance efficiency. Urban green spaces are critical to achieving environmental sustainability and improving urban quality of life in high-density cities like New Delhi. Bharat Vandana Park, located in Sector 20, Dwarka, is envisioned by the Delhi Development Authority (DDA) as a city-level recreational landscape integrating ecological, cultural, and leisure functions across 200 acres of land. This study critically appraises the park's planning, design, and implementation through the lens of statutory frameworks such as the Master Plan for Delhi–2021 and the Draft Master Plan for Delhi–2041. The findings reveal that while Bharat Vandana Park significantly advances recreational infrastructure and contributes to Delhi's green network, it falls short in integrating blue-green ecological systems and community inclusivity. The study concludes with recommendations to strengthen ecological connectivity, participatory governance, and adaptive urban management, positioning Bharat Vandana Park as a model for resilient metropolitan open-space design.

Keywords: Bharat Vandana Park; Dwarka; Critical Appraisal; Sustainable Urban Design; MPD-2021; MPD-2041; Green Infrastructure; Delhi Development Authority (DDA)

1. Introduction

Urban parks and open spaces play a vital role in maintaining ecological balance, enhancing livability, and shaping the cultural identity of metropolitan cities. In the context of New Delhi, where rapid urbanization and population growth have increased stress on existing green infrastructure, large-scale public parks function as essential ecological buffers and social commons. The Delhi Development Authority (DDA), as the principal urban planning body, conceptualized the Bharat Vandana Park in Sector 20, Dwarka, to serve as a city-level recreational landscape integrating culture, ecology, and leisure across nearly 200 acres. The project represents one of the largest park developments in post-Independence Delhi and forms a key component of Dwarka's urban ecosystem envisioned under the Master Plan for Delhi 2021 (MPD-2021) and the Draft Master Plan for Delhi 2041.

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2. Methodology



Figure 1 Conceptual framework for critical appraisal methodology.

2.1. Synthesis of Literature Findings

Table 1 Analytical data and evaluation metrics.

Theme	Findings from Literature	Relevance to Bharat Vandana Park
Ecological Infrastructure	Green-blue networks improve resilience.	Park should connect to Najafgarh Drain and City Green Grid.
Design and Sustainability	Native vegetation and water recycling extend the park lifespan.	Align design with ecological cycles.
Public Use and Accessibility	User diversity ensures safety and vitality.	Provide inclusive paths, shaded seating, and safe edges.
Governance	PPP models need strong oversight.	Define clear DDA–private partner roles.
Evaluation Metrics	Multi-dimensional frameworks yield balanced appraisal.	Adopt integrated criteria in this dissertation.

2.2. Zoning and Land-Use Classification

- Dwarka Sub-City falls under Zone K-II, where “recreational open space” is a mandated land-use category.
- MPD-2021 prescribes a minimum of 15–20 % of urban areas for green/open uses to ensure environmental balance.
- Bharat Vandana Park’s site ($\approx 809,000 \text{ m}^2$) meets this mandate, designated as a city-level park serving the entire metropolis.

2.3. Hierarchy of Open Spaces

MPD-2021 defines an open-space hierarchy:

Table 2 Analytical data and evaluation metrics.

Level	Typical Area	Function	Example
Neighborhood Park	1–10 ha	Daily recreation	Local gardens
District Park	25–50 ha	Cluster-level leisure	DDA District Parks
City Park	> 100 ha	Metropolitan recreation	Bharat Vandana Park

Inference: Bharat Vandana Park conforms to MPD-2021’s “City Park” typology—large-scale, multi-functional, and regionally accessible.

2.4. Recreational and Cultural Mandate

MPD-2021 encourages integration of:

- Cultural and heritage themes,
- Botanical and ecological zones,
- Water bodies for micro-climatic regulation.

Bharat Vandana Park’s concept of depicting “Unity in Diversity of India” aligns symbolically, but its environmental performance requires closer appraisal.

2.5. Ecological and Climate-Responsive Urbanism

MPD-2041 calls for:

- Green–Blue Infrastructure: interlinking parks, drains, lakes, and biodiversity corridors.
- Carbon-neutral landscapes use renewable energy and water recycling.
- Community stewardship through participatory maintenance frameworks.

“Delhi shall adopt an integrated network of green and blue assets that enhances resilience and supports public health.”
— MPD-2041, Environment and Green Infrastructure Chapter.

2.6. Relevance to Bharat Vandana Park

Table 3 Analytical data and evaluation metrics.

MPD-2041 Directive	Intended Implementation	Current Observation
Integrate drainage channels into parks	Use natural stormwater flow paths	Limited visible blue-linkage on site
Promote native vegetation	Plant drought-tolerant species	Species mix partly ornamental
Encourage public stewardship	Resident and NGO engagement	Still DDA-managed, limited community role
Strengthening biodiversity corridors	Link Sector 20 park to Najafgarh Drain	Potential but not fully executed

Soft critique: The project reflects MPD-2041’s form but only partially its ecological substance.

3. Institutional and Implementation Framework

3.1. Delhi Development Authority (DDA) Role

- Planning, funding, and execution agency under Budget Code 24503004.
- Collaboration with private landscape consultants and contractors for design/build.

- Operation and maintenance are expected via the PPP model to ensure revenue sustainability.

3.2. Governance Observations

- Centralized control limits community participation.
- Long-term maintenance funding depends on concession revenue (amusement, food courts).
- Need for integrated management with municipal and environmental agencies for sustained ecological monitoring.

3.3. Policy Compliance and Gaps

Table 4 Analytical data and evaluation metrics.

Aspect	Policy Reference	Compliance Status	Observation / Soft Critique
Land-use	MPD-2021	✅ Compliant	Zoning aligns with “Recreational Use.”
Area standards	MPD-2021	✅ Compliant	> 200 acres meets city-level requirement.
Ecological integration	MPD-2041	⚠️ Partial	Blue-linkage and biodiversity corridor weak.
Public participation	MPD-2041	⚠️ Limited	Needs structured citizen engagement.
Climate resilience	MPD-2041	⚠️ Partial	STPs proposed but renewable energy use minimal.
Governance model	MPD-2021/2041	⚠️ Evolving	The PPP framework lacks clear accountability.

3.4. Summary of Planning Alignment

3.4.1. Strengths

- Statutory compliance with MPD-2021 zoning and land-use.
- Strategic alignment with Delhi’s decentralized recreation model.
- Cultural narrative consistent with national identity themes.

3.4.2. Weaknesses (Soft-Critical Findings)

- Environmental goals of MPD-2041 under-realized: water reuse and biodiversity connectivity remain limited.
- Absence of community co-management mechanisms.
- PPP structure yet to demonstrate transparency or long-term stewardship.

3.5. Location and Site Context

Bharat Vandana Park is in Sector 20, Dwarka, New Delhi (Zone K-II).

It occupies approximately 8,09,371 sq.m (≈200 acres) of land, bounded by:

- North: Sector 19 residential area
- East: Dwarka Expressway
- South: Metro corridor and recreational greens
- West: Urban development plots

The park is strategically positioned near IGI Airport, enhancing accessibility for national and international visitors.

The project serves both local residents and metropolitan users, reinforcing Dwarka’s function as a sub-city with self-contained amenities.

3.6. Project Vision

The Delhi Development Authority (DDA) conceived the park as a national-themed landscape, celebrating India’s cultural and ecological diversity.

3.6.1. The vision includes

- Representing Unity in Diversity through landscape symbolism.
- Providing multi-purpose recreation zones for all age groups.
- Creating an eco-sensitive park model integrating water recycling, biodiversity, and art.

3.7. Land-Use and Functional Zoning

Table 5 Analytical data and evaluation metrics.

Zone	Key Features / Uses	Approx. Area
Central Core (Cultural Spine)	Amphitheatre, exhibition lawns, plazas, art installations	100,000 m ²
Recreational Zone	Boating lake, children’s play area, food courts	180,000 m ²
Ecological Zone	Wetlands, native tree plantations, biodiversity trails	120,000 m ²
Botanical and Thematic Gardens	State-wise cultural gardens, floral lawns	150,000 m ²
Utilities and Services	Parking, STPs, pathways, lighting	60,000 m ²



(Schematic plan illustrating central cultural spine, lake zone, and green buffers.)

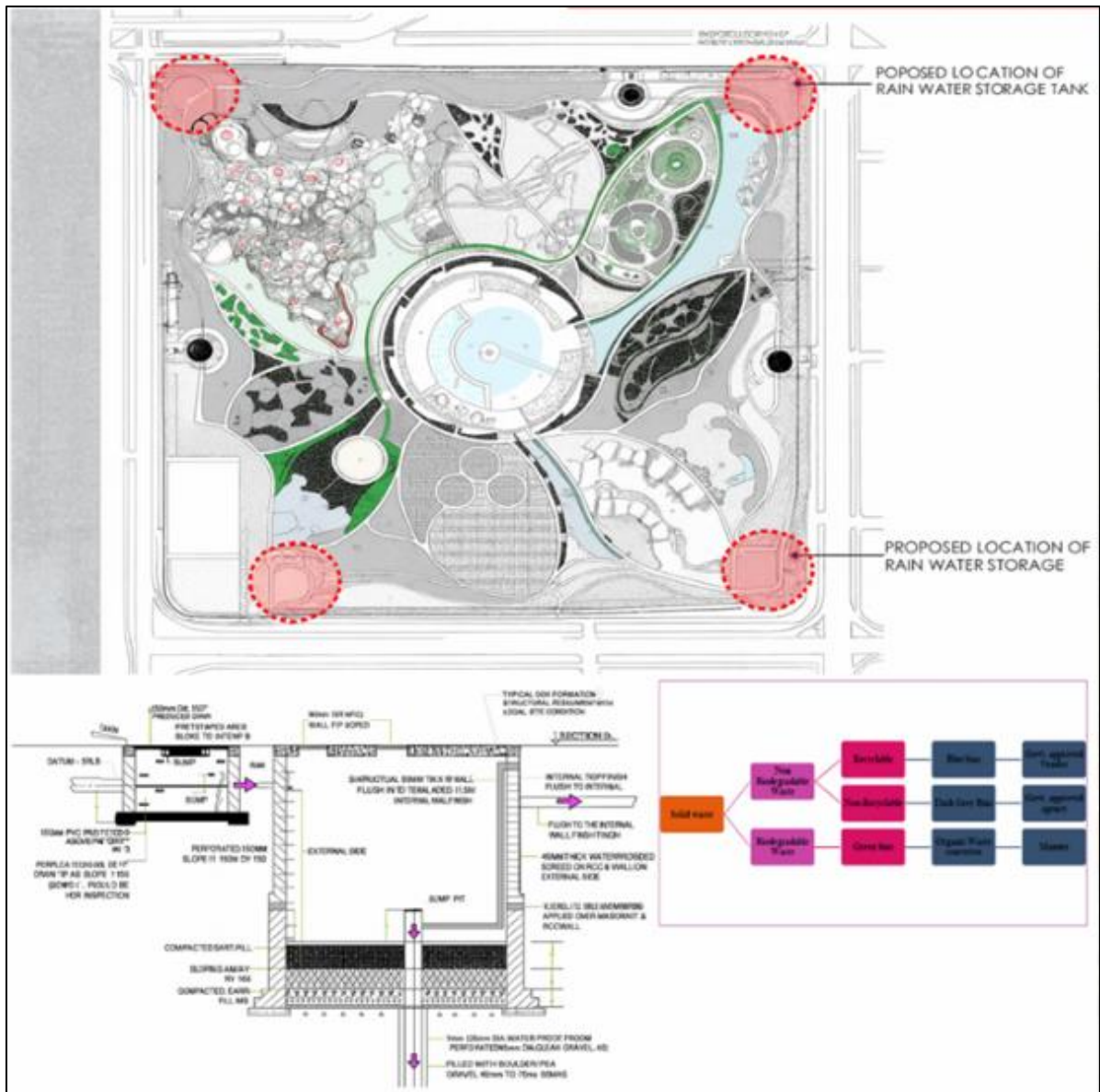
Figure 2 Schematic zoning and environmental systems of Bharat Vandana Park.

4. Environmental and Infrastructure Systems

4.1. Water Supply and Management

- Total water demand: ~3,052 KLD

- Fresh water: 350 KLD
- Recycled water: 2,702 KLD (via STPs)
- STPs proposed: 5 units $\times$ 200 KLD = 1,000 KLD
- Rainwater harvesting ponds: integrated into lake and bioswales.



(Diagram showing treated water reuse for irrigation and lake recharge.)

Figure 2 Schematic zoning and environmental systems of Bharat Vandana Park.

4.2. Solid Waste Management

- Source segregation planned; ~1.5 tonnes/day estimated.
- Organic waste composted onsite; recyclables managed via authorized vendors.

4.3. Energy Management

- LED lighting and solar lamps are proposed.
- Renewable energy shares minimal — needs expansion for full climate compliance.

4.4. Landscape and Planting Strategy

- Approximately 9,400 trees were proposed.

- Mixed palette: native species (Neem, Arjun, Amaltas) + ornamental (Palm, Bougainvillea).
- Dense plantation along periphery to buffer noise.
- Seasonal flowering clusters for biodiversity and aesthetic variation.

4.5. Parking and Access

- Total parking: 1,634 cars (surface + semi-basement).
- Two main entry gates (east and north) are connected by pedestrian promenades.
- Internal non-motorized paths and electric carts for elderly and differently abled.

4.6. Budget and Implementation

- Budget Head: 24503004 (Development of Bharat Vandana Park, Sector-20, Dwarka).
- Estimated cost: ₹550 crore (approx.).
- Executive agency: Delhi Development Authority (DDA).
- Consultant: ARCOP Associates Pvt. Ltd. (design development).
- Project duration: ~36 months (phased completion).

4.7. Soft-Critical Observations

Table 6 Analytical data and evaluation metrics.

Aspect	Observation	Appraisal
Land utilisation	Balanced cultural + ecological zones	Positive
Water reuse	Planned STPs and harvesting	Strong initiative
Renewable energy	Minimal implementation	Needs improvement
Vegetation palette	Mix of native and ornamental	Should prioritise native species
Accessibility	Adequate but limited shaded rest points	Can improve user comfort
Governance	DDA-led, PPP in OandM phase	Monitor accountability

Summary

Bharat Vandana Park represents a milestone in Delhi’s landscape planning, combining cultural symbolism with ecological ambition. However, implementation gaps—especially in renewable energy integration, community participation, and long-term management—require attention to ensure sustainability and alignment with the MPD-2041 vision. Bharat Vandana Park, though impressive in vision and scale, must be examined beyond its physical form. The effectiveness of a large-scale urban landscape depends on how well it fulfills policy objectives, environmental performance, user inclusivity, and governance sustainability. This chapter undertakes a multi-dimensional critical appraisal of the project, structured across five domains:

- Policy Alignment
- Ecological and Environmental Performance
- Social and Cultural Accessibility
- Design and Spatial Quality
- Governance and Management

4.8. Policy Alignment

Table 7 Analytical data and evaluation metrics.

Parameter	Policy Reference	Appraisal
Land-Use Compliance	MPD-2021	Fully compliant; zoned as “Recreational.”
Scale and Hierarchy	MPD-2021	Meets “City Park” category (>100 ha).
Ecological Vision	MPD-2041	Partial; blue-green linkages weak.

Public Participation	MPD-2041	Limited; mostly top-down planning.
Climate Strategy	MPD-2041	In progress, there is limited renewable integration.

4.8.1. Soft Critique

Bharat Vandana Park aligns structurally with MPD directives but not fully strategically—its ecological and participatory dimensions remain underdeveloped. The policy intent of resilience and inclusivity is visible in concept but thin in implementation.

5. Ecological and Environmental Performance

5.1. Strengths

- Water demand is largely met via recycled sources.
- Rainwater harvesting and bioswales are integrated.
- Extensive plantation (9,400 trees) improves local microclimate.

5.2. Weaknesses

- Renewable energy installations are minimal (<10%).
- Blue infrastructure (lake, wetland connectivity) is not ecologically continuous.
- Biodiversity corridors remain ornamental, not functional.



Figure 3 Radar chart comparing ecological performance indicators.

Schematic radar chart comparing water, vegetation, energy, and waste performance.

6. Conclusion

The Critical Appraisal of Bharat Vandana Park, Dwarka demonstrates that Delhi's largest city-level park successfully translates policy vision into physical reality — but not yet into ecological and social resilience. As a project, it embodies a paradigm shift in metropolitan open-space planning under the Delhi Development Authority (DDA). However, its deeper sustainability lies in how effectively it evolves beyond construction — through maintenance, inclusivity, and ecological coherence.

Key conclusions drawn from this study include

- Statutory and Strategic Success
 - The project complies fully with the MPD–2021 zoning and open-space hierarchy.
 - It advances MPD–2041’s intent of green–blue network development.
- Ecological Performance (Partial)
 - STPs and water recycling indicate environmental awareness, yet renewable energy and biodiversity integration remain underdeveloped.
- Social Integration (Limited)
 - The park’s cultural identity is strong, but everyday accessibility, shading, and inclusive amenities need improvement.
- Design and Spatial Quality (High)
 - Spatial organization and symbolic design convey national identity effectively, but micro-scale comfort features are fewer.
- Governance and Maintenance (Evolving)
 - DDA’s PPP approach ensures financial sustainability but risks commercialization if not transparently monitored.

In summary, Bharat Vandana Park stands as a landmark of symbolic success but still needs to become a benchmark of sustainable practice.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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