eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

Urban Ecotourism Circuit Development in NCR: Opportunities and Constraints

Vivek Pal[1] and Dr. Sushant Das[2]
[1]Department of Geography, St. John's College, Agra
[2]Assistant Professor, Department of Geography, St. John's College, Agra

Received: 20 Jan 2026, Accepted: 25 Jan 2026, Published with Peer Reviewed on line: 31 Jan 2026

Abstract

Urban ecotourism is becoming an essential approach to reconcile swift urban expansion with the preservation of natural and cultural resources. The National Capital Region (NCR), one of India's rapidly expanding metropolitan agglomerations, encompasses a variety of ecological and heritage resources, including biodiversity parks, wetlands, riverine landscapes, historic gardens, and cultural monuments. This paper examines the prospects and limitations related to the development of an integrated urban ecotourism circuit in the National Capital Region. The study employs a synthesis of secondary data, geospatial mapping and analysis of diverse case studies across globe to underscore the region's capacity for sustainable tourism circuits that link established ecological hotspots, including Yamuna Biodiversity Park, Aravalli Biodiversity Park, Okhla and Sultanpur Bird Sanctuaries, as well as heritage sites such as Lodhi Gardens and Mehrauli Archaeological Park. The results indicate substantial prospects for augmenting green infrastructure, expanding accessibility via metro and road systems, and fostering community-oriented tourist activities. Nonetheless, factors such as environmental degradation, unrestrained urban growth, insufficient waste management, and a lack of public awareness provide obstacles to the advancement of ecotourism. The research advocates for a cohesive planning strategy that merges geospatial analysis, policy assistance, and stakeholder involvement to create feasible ecotourism routes that adhere to sustainability standards. Ultimately, the establishment of urban ecotourism circuits in NCR provides recreational and educational benefits while also enhancing ecological protection and urban resilience.

Keywords: Urban Ecotourism, Ecotourism Circuit Development, National Capital Region (NCR), Sustainable Tourism Planning, Green Infrastructure.

Introduction

The NCR of National Capital Territory of India is expanding as never before. This rapid growth is changing the landscape as it is into a maze of built-up areas, degraded ecosystems, and dispersed green spaces. NCR is one of the fastest-growing in the world megaregions, and its air, water, and biodiversity are under more and more stress. Urban ecotourism, which mixes fun, learning about the environment, and protecting it inside city borders, is a promising way to reconnect city dwellers with nature in the face of these problems. Urban ecotourism is different from regular tourism because it focuses on being environmentally friendly, minimal damage, and developing awareness of local ecosystems. Regular tourism often has a large effect on the environment.

The NCR is an insignificant region that comprises Delhi and surrounding areas of neighbouring states. It has a number of urban ecological treasures. The Okhla Bird Sanctuary, Yamuna Biodiversity Park, Aravalli Biodiversity Park, and Asola Bhatti Wildlife Sanctuary are all important pieces of natural habitat that are still extant in a large city. These places are important for the environment because they clean the air, recharge groundwater, and store carbon. At the same time, they are also places for learning about the environment and having fun. Because they are close to one another and easy to go to, they offer a unique chance to establish a multi-nodal ecotourism circuit that connects natural, cultural, economic and educational activities in one region.

eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

In the last few years, both the Indian government and the NCT of Delhi government have pushed for tourism that is beneficial for the environment. They have done this through programmes like the National Strategy for Ecotourism (2022) and the Swadesh Darshan 2.0 Scheme. The Economic Survey of Delhi (2023–24) shows that Delhi's tourism policy recognises the importance of biodiversity parks and water-based recreation zones in making the city's tourism more diverse. The swift rise in tourists to environmentally sensitive locations like the Okhla Bird Sanctuary, which gets 69,000 visitors a year, illustrates that more and more people in cities want to do things that are beneficial for the environment. These advances indicate that there exists both demand and institutional preparedness for the advancement of ecotourism in the NCR through interconnected circuits.

Even if this is happening, there are still many problems that make it hard for NCR to become a sustainable urban ecotourism destination. These problems include ecological fragility, pollution, fragmented governance, and poor visitor management systems. This study investigates the opportunities and constraints about making of an urban ecotourism circuit connecting key eco-sites, like the Okhla Bird Sanctuary and the Yamuna Biodiversity Park. It aims to assess current visitor patterns, infrastructural preparedness, and policy alignment to formulate a framework that harmonises environmental preservation with tourism advancement. The initiative aims to demonstrate that ecotourism may be use as a potent tool for enhancing urban sustainability in the NCR, contingent upon adherence to ecological capacity requirements.

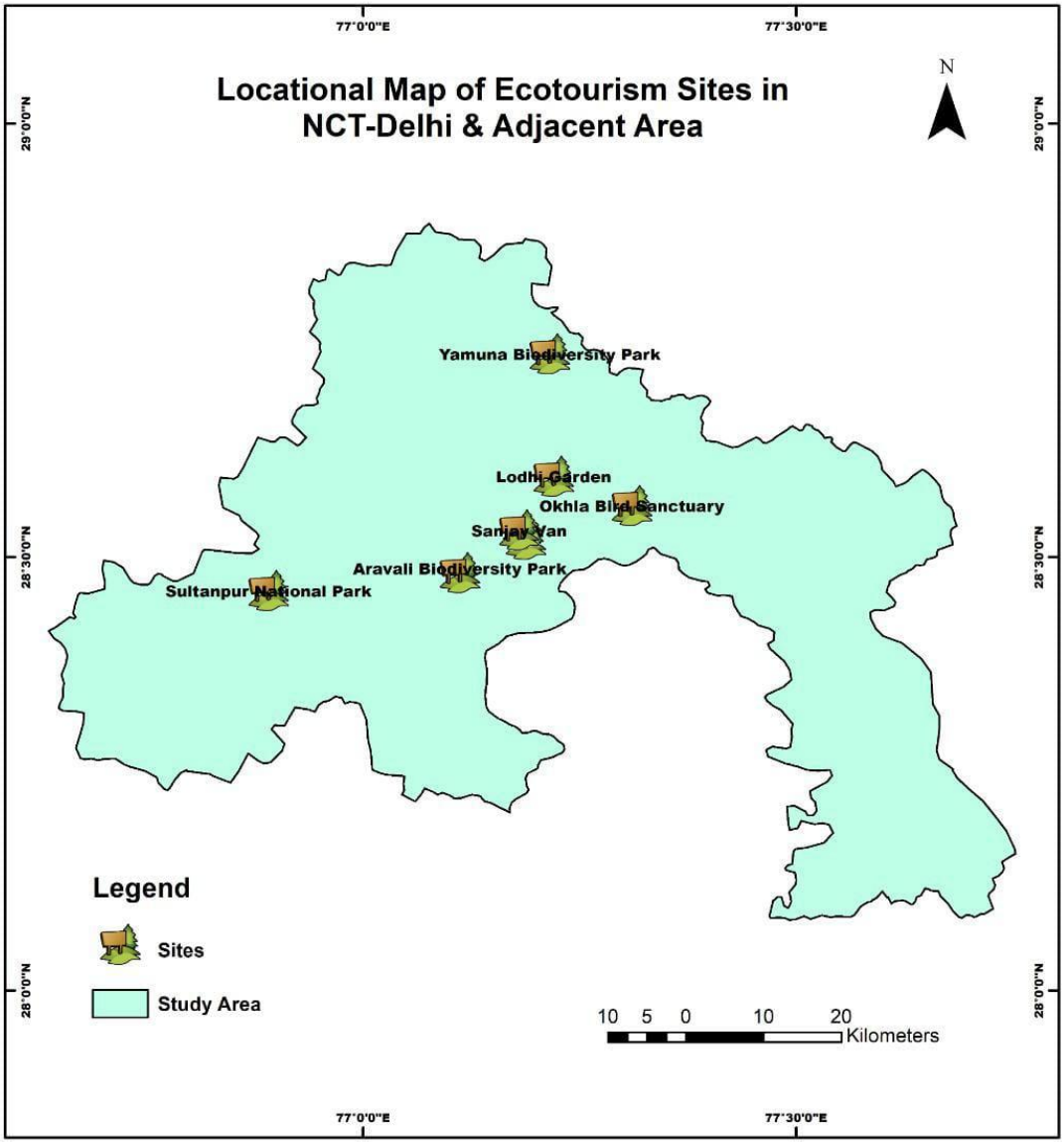
Study Area

The NCR is one of the busiest and most populated metropolitan areas in India, covering the Delhi and surrounding areas of different states. NCR covers around 55,000 square kilometres and is a complicated mix of fast-growing cities, expanding infrastructure, and damage to the environment. It is the habitat to over 58 million people, which puts a lot of stress on land, water, and biodiversity. Even yet, NCR still has areas with high ecological importance, including riverine wetlands, woodland remnants, and restored biodiversity parks. All of these places could be used as stops on an organised urban ecotourism circuit that promotes environmental awareness and sustainable leisure within minimal travel distances.

The Okhla Bird Sanctuary is a sightseeing site on the Yamuna River's bank between Delhi and Noida. It is one of the important wetlands in northern India; it encompasses about 4 sq. km and is inhabited by more than 300 varieties of birds who dwell there the entire year or come there in the winter to breed. Some of these birds are endangered, like the Northern Shoveller, Gadwall, and Common Teal. Over the past two years, Okhla has seen a huge rise in the number of visitors, with approximately 69,000 tourists coming to the area. This rise in visitors is because of eco-friendly infrastructure, including golf carts, boardwalks, and nature paths that explain the area's natural history. This rise shows that more people are interested in urban nature tourism, but it also shows that management based on carrying capacity is necessary to safeguard the sanctuary's delicate ecosystems from human activity.

The Delhi Development Authority (DDA) and the Centre for Management of Degraded Ecosystems at the University of Delhi worked together to build the Yamuna Biodiversity Park (YBP) along the banks of river Yamuna. The park covers around 148 hectares and has turned damaged, salty wasteland into a healthy patchwork of ponds, grasslands, and forests. It is a hub for environmental education and low-impact ecotourism. It also does vital ecological work, such as replenishing water supplies, storing carbon, and maintaining microclimates. Its architecture is based on natural ecosystems that can be found along the Yamuna's path, which makes it a great place for educational and experiential tourism. YBP is Delhi's main biodiversity park and shows how urban restoration of ecosystems may be used as a model for both conservation and tourism.

eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026



Aravalli Biodiversity Park, Tilpath Valley, Neela Hauz, and Asola Bhatti Wildlife Sanctuary are some of the natural attractions in Delhi's Natural Heritage Corridor (NCR). Along with the Garden of Five Senses and Bhalaswa Lake, these places make up a connected green network that is great for ecotourism tours. Delhi's tourist plan stresses how important biodiversity parks and urban green areas are for tourism that lasts. The NCR is a great place for urban ecotourism since it is close by, has many different habitats, and has a numerous people that want to help.

Objectives and Methodology

The NCR in India has a unique problem when it comes to the environment and cities. Its wetlands, biodiversity parks, and woods on the outskirts of cities all offer opportunities for nature-based recreation. This study seeks to incorporate these ecological resources into a cohesive urban ecotourism circuit, promoting environmental preservation and regional sustainable development goals. The study seeks to pinpoint biological nodes, examine visitor patterns, evaluate the advantages and disadvantages of circuit-based ecotourism, and formulate a strategic framework for sustainable circuit growth. The research used a hybrid qualitative-

eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

quantitative technique, incorporating document analysis and thematic analysis to elucidate the ecotourism environment in NCR. The analytical approach is founded on three dimensions: ecological, socio-economic, and institutional and policy. The research seeks to convert urban ecotourism into a sustainable circuit model for the NCR.

Opportunities for Urban Ecotourism Circuit Development in NCR

Wetlands, floodplains, and wooded ridges make up the NCR's distinctive ecosystem. This happens in one of the world's densest megacities. Okhla Bird Sanctuary, Yamuna Biodiversity Park, and Aravalli Biodiversity Park are significant for migratory and resident species. Over 300 bird species live in the Ramsar-listed Okhla Bird Sanctuary on the Yamuna River. It attracted 69,000 visitors in two years, indicating an increasing interest in nature-based entertainment.

Another example of urban rewilding is the 148-hectare Yamuna Biodiversity Park. A saline wasteland became a lush wetland, grassland, and woodland habitat. An urban ecotourism circuit is ideal since these ecological nodes are 30 to 45 km apart and connected by the Delhi Metro and national roads. Residents, students, and tourists may visit these destinations on day excursions since they're close, reducing travel carbon emissions and encouraging sustainable mobility.

From global perspective Singapore's Park Connector Network (PCN) illustrates,The city's natural reserves, waterfronts, and parks are connected by almost 300 km of bike and pedestrian trails. Singapore, like NCR, teaches biodiversity through entertaining activities. This illustrates how urban areas may help tourism and environmental health. Delhi may achieve the same outcomes with a green circuit connecting the Ridge, Yamuna, and Aravalli axis.

National Strategy for Ecotourism (2022) and Swadesh Darshan 2.0 Scheme in India show that theme circuits, including city eco-circuits, are excellent. The Economic Survey of Delhi (2023-24) claims biodiversity parks and eco-recreation zones are crucial to Delhi's green tourism agenda. Tourism and Transportation Development Corporation (DTTDC) conducts heritage trails and open spaces like the Garden of Five Senses. Also experienced in urban ecotourism circuits. The Delhi Development Authority's Biodiversity Parks-Yamuna, Aravalli, Tilpath Valley, and Neela Hauz; provide a framework for integrated ecotourism activities, research, and teaching. Projects under one circuit brand are easier to track and manage. Cape Town's biodiversity network concept includes the Cape Town Urban Nature Programme. It integrates protected areas with community parks for tourism and conservation. Like the DDA and DTTDC for the NCR, city agencies can lead policy coordination and site coordination using this strategy.

Urban ecotourism may educate environmental awareness and community involvement. The Yamuna Biodiversity Park is a "living laboratory" where hundreds of students, academics, and citizen organisations study ecology and biodiversity. These activities create awareness on environment, inspire community care, and foster a conservation culture in cities. Reclaimed reservoir land in London was used for London Wetland Centre. It combines wetland restoration with educational and visitor programs. The citizen research and environmental education facility attracts over 250,000 people annually. Okhla, or Yamuna Biodiversity Park, could do the same with better natural interpretive centres, interactive exhibits, and family and student friendly eco-guided paths.

In South Korea, Seoul created, Seoul Forest an ecological park with wildlife habitats, art exhibits, and schools from an industrial wasteland. It illustrates how urban ecotourism may enhance resident’s lives and attract Indian and foreign tourists. This resembles Delhi's Aravalli and Neela Hauz parks. An ecotourism circuit in NCR might enhance job generation and small company growth, notably in peri-urban Faridabad, Gurgaon, and Noida. Eco-guiding, homestays, artisan sales, and organic food stalls may help individuals make a living and promote conservation. When connected to historical and educational circuits, urban nature-based tourism may generate 15-20% of the green economy, according to UNWTO (2021) NCR might achieve economic inclusivity and ecological balance by including ecotourism into Delhi's "green economy" objective. Nairobi's Karura Forest Ecotourism Project is a government-community partnership. It has converted a threatened forest

eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

into a lucrative and long-term eco-recreation facility that employs local youth. Communities near Asola Bhatti and Okhla might gain socially and economically from tourist management while reducing vandalism and environmental stress.

The Delhi Metro, e-bus corridors, and "Dekho Meri Dilli" smartphone app make building a smart and long-lasting ecotourism circuit easy in NCR. Digital mapping, online ticketing, and real-time visitor data analytics help authorities manage visitor flow and routes. This follows the smart tourism method employed in Barcelona, Spain and Singapore, where mobile apps and IoT technology regulate crowds in dangerous locations. These opportunities position NCR to lead India's first fully integrated urban ecotourism circuit. This project is practical and desired due to natural resources, policy preparedness, visitor demand, and infrastructure. Delhi could learn from Singapore, London, Cape Town, and Seoul's urban ecotourism strategies of carrying-capacity restrictions, environmental awareness, and participatory governance. This will help urban ecotourism grow and strengthen the metropolitan ecology.

Constraints and Challenges for Urban Ecotourism Circuit Development in NCR

Challenges and limitations analysis:

1. Environmental Stress and Ecological Fragility

Natural resource fragility is very significant hurdle to building an urban ecotourism circuit in the NCR. Many cities surround the Okhla Bird Sanctuary and Yamuna Biodiversity Park, which are threatened by pollution, encroachment, and water flow. Untreated sewage and industrial trash today contaminate the Yamuna River, Delhi's lifeblood. These contaminants pollute the water and threaten Okhla wetland bird habitats. Environmental connectivity is hampered and buffer zones are diminished by rapid urban expansion. The fragmentation in Delhi Ridge and Aravalli habitats hinders animal movement and ecological functions, including carbon storage and groundwater recharge. In Thailand's Bangkok Metropolitan Region, unchecked development near urban wetlands has killed the species of bird and worsened floods. Delhi requires carrying-capacity assessments and buffer zones to balance tourism and environmental protection.

2. Fragmented Governance and Complex Jurisdiction The Delhi Development Authority (DDA), the Delhi Forest Department, the Uttar Pradesh Forest Department, the Noida Authority, and local municipalities manage NCR's natural areas. This fragmented government structure makes it impossible to assign responsibilities, duplicates duties, and confuses visitor management laws. The DDA maintains Yamuna Biodiversity Park for education and conservation, while the U.P. Forest Department runs Okhla Bird Sanctuary for habitat protection. These elements not cooperating makes ecotourism circuit frameworks harder to construct. The Greater Vancouver Greenways Plan, Canada, created a Regional Green Network Authority to address similar issues across jurisdictions. This facilitated cross-city planning, funding, and branding. A comparable "NCR Ecotourism Coordination Authority" might help other states to plan, manage, and promote ecotourism.

3. Poor Infrastructure and Accessibility Gaps Despite NCR's extensive transport infrastructure, many ecotourism destinations need last-mile connectivity and guest services. For instance, Asola Bhatti Wildlife Sanctuary and Tilpath Valley feature narrow, non-eco-friendly roadways. Some biodiversity parks lack explanation centres, rest areas, and restrooms, making visitors feel uncomfortable and less inclined to learn. NCR lacks eco-certified hotels and trained guides; thus, it can't attract foreign ecotourists seeking high-quality, sustainable experiences. Green, low-impact infrastructure design that fits the environment's carrying capacity is the issue, not infrastructure itself. The UNESCO World Heritage Site Singapore Botanic Gardens combines renewable energy, smart waste management, bicycles, and electric shuttles to minimise its environmental impact. Future circuit development in Delhi can follow the DTTDC, or DDA, "green infrastructure standards."

4. Pollution and Urban Decay The NCR's air pollution makes ecotourism unattractive and unhealthy. Water from unclean drains like Shahdara and Najafgarh harms the Okhla wetland's ecosystem and makes it less inviting to visitors. In winter, high PM 2.5 levels make it tougher to watch birds and snap photos, two popular ecotourism activities. Ecotourism must be included in pollution-control efforts to preserve nature-based

eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

experiences. The issue highlights the requirement for collaboration between the DPCC, CPCB, and tourism ministries. A similar case in Beijing, China, integrated air quality monitoring and park management to promote urban green tourism and its "Blue-Sky" environmental campaign. These tourism-environment strategies are crucial to NCR's circuit's success.

5. Economic and Community Issues There isn't much study on how urban ecotourism in the NCR gets people involved in the community. In communities like Okhla, Tughlaqabad, and Asola, few individuals plan or share the advantages of natural places. This disengagement makes individuals less conscious of conservation regulations and sometimes hostile to them. For ecotourism to be sustainable, everyone needs solid jobs. Teaching local youngsters to be eco-guides, having women's groups run organic food stalls, and opening eco-craft stores near park gates can achieve this. In Nairobi's Karura Forest Ecotourism Project, community rangers and women's cooperatives serve visitors. More money and greater conservation benefits resulted. These successful models suggest that Delhi's peri-urban inhabitants, particularly those near Asola Bhatti and the Aravalli foothills, might help the NCR circuit if given training and money.

6. No Capacity-Carrying and Monitoring Frameworks Delhi has strong tourist and environmental groups but little scientific study on its ecological tourism sites' carrying capacity. Unregulated visitor numbers might hurt sensitive areas during busy times. Yamuna Biodiversity Park uses limited-entry guidance, while Okhla Bird Sanctuary and other parks lack real-time foot traffic monitoring. The Galápagos Islands ecotourism model in Ecuador is a global example. It balances tourism and conservation with strict visitation limitations, zoning, and electronic surveillance. Digital counters and real-time tracking through the "Dekho Meri Dilli" app can assist Delhi in managing it carrying capacity while remaining accessible.

7. Institution-Policy Gaps A lot of government regulations support sustainability, yet plans for tourism growth, programs for protecting wildlife, and urban master plans don't work well together. For instance, the Delhi–2041 Master Plan emphasises environmental restoration but doesn't link to the Delhi Tourism Policy. The Swadesh Darshan plans put too much emphasis on cultural or religious circuits and not enough on natural resources in cities. Linking these policy silos makes sure that the ecotourism circuit works as a whole instead than as separate venues. Australia's Melbourne Urban Nature Network blends tourist and ecological goals into one sustainability charter. This clarifies green infrastructure, tourism education, and carbon management laws. An interdepartmental Urban Ecotourism Taskforce may help NCR draft a similar comprehensive policy.

Category	Key Challenge	Implication
Environmental	Pollution, habitat loss, ecological fragility	Threatens biodiversity and visitor appeal
Institutional	Fragmented governance and unclear mandates	Weak coordination, policy overlaps
Infrastructure	Inadequate green amenities, poor last-mile access	Limits visitor experience and safety
Social	Low community involvement	Reduces inclusivity and conservation support
Monitoring	No carrying-capacity framework	Risks ecological degradation and overcrowding

Urban ecotourism in the NCR holds great potential, but research-based, inclusive planning is necessary to address systemic issues. Global examples like Singapore's park network and Nairobi's community forest model illustrate that sustainable urban ecotourism works best with collaborative governance, data-driven visitor management, and local people as partners. Without Delhi ensuring ecological rehabilitation is in line with ecotourism policy and that all institutions work together, the planned circuit would fail instead of being a sustainable model.

Policy Brief: Urban Ecotourism Circuit Development in NCR

eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

Delhi-NCR has outstanding potential for a linked urban ecotourism circuit because of its wetlands, biodiversity parks, and peri-urban woods, like Okhla Bird Sanctuary, Yamuna Biodiversity Park, and the Aravalli Ridge system. This circuit would help one of the world's biggest megacities by encouraging conservation, environmental education, and jobs for people in the area. Development is still sluggish due to overlapping authorities, inadequate infrastructure, and a lack of control over carrying capacity, despite the fact that more people want to come and the government is supporting it (National Strategy for Ecotourism 2022, Swadesh Darshan 2.0).

The planned NCR Urban Ecotourism Taskforce (NUET) may turn these scattered resources into a model of urban sustainability and a green economy by working together, using science, and getting the community involved.

Main Policy Goals

1. Connecting for Conservation: Make wetlands, biodiversity parks, and ridge forests part of a single, easy-to-reach green network.
2. Inclusive Development: Create jobs, eco-guiding, and small business opportunities in areas on the outskirts of cities.
3. Green Mobility and Low-Impact Design: Encourage electric vehicles, bike routes, and eco-friendly infrastructure that follows carrying capacity standards.
4. Governance based on data and technology: For clear management, use unified ticketing, visitor analytics, and biodiversity monitoring.
5. Coordination across jurisdictions: Put DDA, DTTDC, forest departments, and local agencies together under one circuit mandate.

Suggestions:

1. Controlling ecological fragility through tourism based on carrying capacity: One of the most important real-time problems in NCR is that wetlands and biodiversity parks are becoming less stable because more people are visiting them, pollution is getting in, and habitats are breaking up. To fix this, all ecotourism planning needs to be based on scientific carrying-capacity studies. Time-slot entrance mechanisms, seasonal limits during bird breeding and migratory times, and zoning of core and buffer regions should all be used to control the number of visitors in sensitive places like the Okhla Bird Sanctuary. The Galápagos Islands (Ecuador) impose strict limits on visitor numbers, zoning, and mandatory guided entry to preserve delicate ecosystems. NCR can use a simpler version of this method, which includes digital ticketing and real-time counters, to protect the environment while still allowing people to use the area.

2. Combining pollution control with ecotourism planning: Ongoing air and water pollution, particularly near the Yamuna floodplains, significantly hinders NCR's ecotourism potential. Therefore, we need to link ecotourism development to pollution control plans at the watershed level. Upgrading wastewater treatment plants, intercepting drains, and closely monitoring industrial outflow upstream of tourist areas are all part of this. In Beijing, China, urban nature tourism sites were only brought back to life after being included in the city's "Blue Sky and Clean Water" programs, which tied park administration to environmental quality goals. The NCR has the ability to establish baseline standards for air and water quality, which are essential for the growth of ecotourism.

3. Fixing Governance Fragmentation by Creating a Unified Authority: The fragmented institutional structure of NCR-spanning Delhi, Haryana, and Uttar Pradesh leads to inconsistent policies and poor coordination. It is necessary to set up a permanent NCR Urban Ecotourism Taskforce (NUET) with legal power to make rules, budgets, and visitor management techniques consistent throughout all areas. The Greater Vancouver Greenways Network (Canada) solved the problem of multiple municipalities working against each other by creating a regional coordination body with agreed-upon goals and financial sources. A similar governance architecture can help NCR make sure that circuit management works smoothly across administrative lines.

eISSN 2581-8996
ONLINE
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN MULTIDISCIPLINARY SCIENCES (IJARMS)
A BI-ANNUAL, OPEN ACCESS, PEER REVIEWED (REFEREED) JOURNAL
Volume 09, Issue 01, January 2026

4. Improving Green Infrastructure and Last-Mile Connectivity: NCR has good regional connectivity, but getting to ecotourism spots is still inadequate and often bad for the environment. Using electric shuttles, bike lanes, pedestrian boardwalks, and nature trails can cut down on pollution from cars and make the experience better for visitors without adding to the infrastructure. The Park Connector Network in Singapore shows how green mobility corridors may connect parks, wetlands, and homes while also making them more fun to visit. NCR can do the same thing by connecting metro stations to biodiversity parks with bike paths and electric feeder services.

5. Improving Community Involvement and Integration of Livelihoods: People who live around Okhla, Asola Bhatti, and the Aravalli foothills generally don't get any of the benefits of ecotourism, which makes it harder to get support for conservation. Structured frameworks for community involvement, such as educating local youngsters to be eco-guides, helping businesses run by women, and sharing profits, are important for long-term sustainability. The Karura Forest Ecotourism Project in Nairobi, Kenya, successfully combines community rangers and cooperatives into tourism management. This has led to better conservation results and economic benefits. NCR can change this model by making community roles more official inside site management units.

6. Increasing Environmental Education and Citizen Science: People who visit cities often don't know much about the environment, which leads to pollution, off-trail movement, and disturbing wildlife. Improving interpretive centres, guided walks, school outreach programs, and citizen science projects can turn visitors who are passive consumers into active contributors to conservation. Anyone can learn and assist in counting birds and monitoring water quality at the London Wetland Centre (UK). The Okhla and Yamuna Biodiversity Parks might benefit from citizen science programmes like these, which would improve monitoring and get more people involved.

7. Using Digital Technology for Smart Visitor Management: The absence of real-time monitoring and data integration hinders NCR's adaptive management. Digital tools should be used for online reservations, analysing tourist flows, reporting biodiversity, and getting feedback, which will help people make decisions based on facts. Barcelona, Spain utilises smart tourism platforms to monitor population density and redirect individuals from areas experiencing excessive congestion. NCR can add similar options to the current Dekho Meri Dilli platform to help with the extra stress that sensitive sites get during busy times.

8. Making urban ecotourism more resilient to climate change: Climate extremes, including heatwaves, floods, and less available water, are new risks to NCR's ecological sites. Planning for ecotourism must include climate-resilient landscape design, restoring wetlands, adding native plants as buffers, and changing activities based on the season. Rotterdam (Netherlands) uses urban wetlands as part of its flood management plans and encourages recreation. Like the Yamuna floodplains in NCR, they can serve as both biological buffers and controlled ecotourism areas.

9. Synthesis and Policy Implication: The immediate challenges confronting NCR- pollution, fragmented governance, infrastructural deficiencies, and social exclusion are not singular; they reflect issues faced by prominent global cities. International case studies clearly demonstrate that the amalgamation of conservation, governance, community livelihoods, and technology into a cohesive operational framework leads to the flourishing of urban ecotourism. NCR can turn its ecological stress areas into major sustainability assets by adopting these best practices from around the world to the local ecological and institutional circumstances. This will make Delhi a leader in urban ecotourism for the Global South.

Conclusion

The National Capital Region (NCR) has great potential to lead the way in developing urban ecotourism circuits in India, according to this study. There are a number of biological resources in NCR that may contribute to a long-term ecotourism strategy, including as the Okhla Bird Sanctuary's wetlands and the Yamuna and Aravalli Biodiversity Parks. NCR has many ecological assets, like the wetlands of the Okhla Bird Sanctuary and the

Yamuna and Aravalli Biodiversity Parks, that may all work together to support a sustainable ecotourism framework. This situation is despite the area's high population density, industrial pressures, and fragmented urban structure. These places serve as biodiversity reservoirs, green lungs, educational resources, and community spaces in a city that is growing quickly.

The study reveals that the strategic link, policy preparedness, and increasing demand in nature-based experiences are NCR's strongest development prospects. Ecotourism in Delhi has a solid foundation thanks to the city's Metro system, digital platforms like Dekho Meri Dilli, and influential government agencies like the DDA and DTTDC. Such circuits may be effective when community engagement, accessibility, and ecological integrity are prioritised; examples from across the world include the Park Connector Network in Singapore and the Urban Nature Programme in Cape Town. The analysis also identifies critical issues that require resolution prior to implementing the plan. There are big problems with ecological fragility, inter-agency fragmentation, inadequate last-mile infrastructure, and the lack of carrying-capacity frameworks. Ecotourism projects will likely fail if the governments of Delhi, Haryana, and Uttar Pradesh don't work together under one set of rules. Pollution, ecological fragmentation, and a lack of local involvement make NCR's green zones even more vulnerable. To make the dream of a strong urban ecotourism circuit come true, the area has to use a science-based, community-focused, and policy-linked strategy. Setting up the NCR Urban Ecotourism Taskforce (NUET), doing studies on ecological carrying capacity, and launching a trial circuit that connects Yamuna Biodiversity Park, Okhla Bird Sanctuary, and the Aravalli Biodiversity Park are all beneficial places to start. Delhi-NCR can be a model for other Indian cities that want to attain a balance between conservation and enjoyment if it has effective monitoring systems, eco-friendly infrastructure, and inclusive ways for people to make a living. Ultimately, NCR's urban ecotourism future depends on how well it can combine environmentalism with entertainment. This will turn leisure into rehabilitation. A well-planned and well-managed urban ecotourism circuit may not only change the way people perceive tourism in Delhi, but it can also show how India is moving towards more sustainable, climate-friendly, and participatory urban development.

Reference

1. Boo, E. (1990). Ecotourism: The potentials and pitfalls. World Wildlife Fund.
2. Ceballos-Lascurain, H. (1996). Tourism, ecotourism and protected areas: The state of nature-based tourism around the world and guidelines for its development. IUCN-The World Conservation Union.
3. Das, R. (2021). Urban biodiversity parks and sustainability: A study of Delhi's ecological initiatives. Indian Journal of Environmental Geography, 28(2), 44-53.
4. Das, S., Moses, S. & Eusebius, N. (2025). Forest Fire Risk Mapping and Its Impact on Biodiversity Conservation. Idealistic Journal of Advanced Research in Progressive Spectrums, 4(8), 203-207.
5. Delhi Development Authority (DDA). (2023). Yamuna Biodiversity Park: Ecological restoration and management report (CMDE-University of Delhi Collaboration).
6. Delhi Government. (2024). Economic Survey of Delhi 2023-24 (Chapter 10: Tourism, Art and Culture). Planning Department, Government of NCT of Delhi.
7. Kumar, S., & Sharma, N. (2023). Urban green infrastructure and ecotourism in Indian cities: Challenges and opportunities. Journal of Urban Sustainability Studies, 12(1), 23-39.
8. Ministry of Tourism, Government of India. (2022). National strategy for ecotourism: Guidelines for sustainable tourism and community participation. New Delhi: Ministry of Tourism.
9. Das S. & Jain, S. (2025) Role of Artificial Intelligence in Optimizing Renewable Energy Systems. Idealistic Journal of Advanced Research in Progressive Spectrums, 4(9), 33-47.