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PROCAM

2025

BIODIVERSITY AND SUSTAINABILITY IMPACT OF THE VEDANTA DELHI HALF MARATHON





ACKNOWLEDGEMENT

We extend our heartfelt gratitude to **Dr. Ranjana Chaudhary** for graciously providing us the opportunity to be part of this meaningful project. Our sincere thanks also go to all the student volunteers from **TERI SAS** who dedicatedly supported data collection on the marathon day, working tirelessly from midnight before the event until its conclusion. Their punctuality, teamwork, and commitment were critical in ensuring simultaneous readings across multiple hotspots, greatly contributing to the success of this study.

We are deeply thankful to our professors at TERI SAS—Dr. Chandrashekhar Azad, Mr. Murugan, and Mr. Shashank—for their expert guidance, timely feedback, and constant encouragement. We also appreciate their support in providing the necessary equipment for data collection.

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BIODIVERSITY TEAM



PROF. RANJANA RAY CHAUDHURI

Project Co-ordinator
TERI SAS



ADITI SINGH

MSc ESRM



UBHANISHA SENTHILKUMAR

MSc ESRM



PAVANI MUNNURI

MSc Economics



ADARSH SINHA

BSc Environment Studies



HIYA MALIK

BSc Environment Studies

VOLUNTEERS

Students from TERI SAS volunteered tirelessly for environmental data collection, working from midnight on the eve of the marathon until the event concluded on race day. Their commitment, resilience, and professionalism were instrumental in ensuring comprehensive and high-quality data for this assessment.



Adwaiy, Amogh, Sheni Mani Deep, Arushi, Mehul, Shubhanshi, Hariharan, Asayesh, Sindhu, Indrasena Reddy, Sanskriti B, Nideesh, Ishan, Manogna, Rajashree Chand, Sriya, Tattwogya, Alekhya G, Navya, Vanshika, Ekalavya.

ON THE DAY OF MARATHON



EXECUTIVE SUMMARY

The Vedanta Delhi Half Marathon (VDHM) 2025, scheduled on October 18, 2025, at JLN Stadium, New Delhi, represented a pivotal intersection of urban sports and ecology. As marathon events surge in popularity within urban settings, they generate significant community engagement and public health benefits while placing intricate pressures on local biodiversity and ecosystems. In response to this duality, VDHM 2025 has adopted a pioneering "**net-positive**" ecological approach, moving beyond conventional event management practices.

This report introduces an advanced Environmental Impact Assessment (EIA) framework explicitly designed for mass-participation sports, focusing on critical indicators such as air quality, species diversity, habitat disruption, acoustic impact, and resource consumption. By employing systematic baseline data, the framework facilitates comprehensive tracking of environmental changes before, during, and after the event, laying the groundwork for balancing large-scale public events with the preservation of urban green spaces.

As VDHM celebrates its 20th edition, it has solidified its commitment to sustainability by integrating environmentally responsible practices into its core operations. The 2025 edition not only navigates the complexities of large-scale logistics but also sets a benchmark for sustainable event management worldwide. Preliminary assessments indicate that while the event presents temporary challenges, including fluctuations in noise levels and disturbances to local wildlife, effective monitoring and collaboration with stakeholders can mitigate these impacts.

Key milestones achieved in sustainability underscore the event's commitment to a Circular Economy, with a remarkable 100% waste diversion rate ensuring that no waste generated at the venue or along the route reached landfills. Furthermore, through waste recovery, recycling, and composting efforts, the event successfully avoided 23,011 kg of CO_2e emissions, significantly reducing its carbon footprint. Strategic partnerships, such as with Hasiru Dala Innovations, highlight the integration of inclusive circularity principles that support marginalized communities, ensuring equitable livelihoods for informal waste workers.

The VDHM 2025 sustainability strategy rests on three foundational pillars: Environmental Stewardship, Social Equity, and Community Responsibility. By prioritizing biodiversity protection, clean air compliance, and resource minimization, alongside fostering economic inclusion and cultivating a "Green Champion" mindset among participants, the event aims to drive lasting behavioral change that extends far beyond the race track.

ABOUT

The **Vedanta Delhi Half Marathon** has, since its inception in 2005, evolved from a pioneering road race into a flagship platform for sport, community, and social change in the national capital. Conceived at a time when the idea of large-scale distance running on Delhi's streets was viewed with skepticism, the event has helped transform the city's relationship with public spaces, physical activity, and inclusive participation.

Evolution and significance

Launched in October 2005 as one of India's earliest mass-participation distance running events, the Vedanta Delhi Half Marathon has grown steadily over two decades into a globally recognized race with a **World Athletics Gold Label**. What began with a relatively modest field has expanded into a movement that brings together elite athletes, recreational runners, and diverse communities, symbolizing Delhi's changing urban culture and India's growing distance running ecosystem.

Philanthropy and community outreach

Beyond sport, the marathon serves as one of India's largest philanthropic platforms linked to a single sporting event, partnering with NGOs, corporates, and individual donors. Through its structured charity programme, it has raised more than INR 84 crore over the years, supporting a wide range of social causes and converting participation on race day into long-term community benefit.

Course, participation, and performance

The race is held on a fast, largely flat course that starts and finishes at Jawaharlal Nehru Stadium, passing key central Delhi landmarks such as Kartavya Path and India Gate, and benefiting from favourable autumn running conditions. In addition to the flagship half-marathon, the event offers multiple categories, including a 10K, the Great Delhi Run, a Senior Citizens' Run, and a Champions with Disability category, thereby encouraging broad-based and inclusive participation.

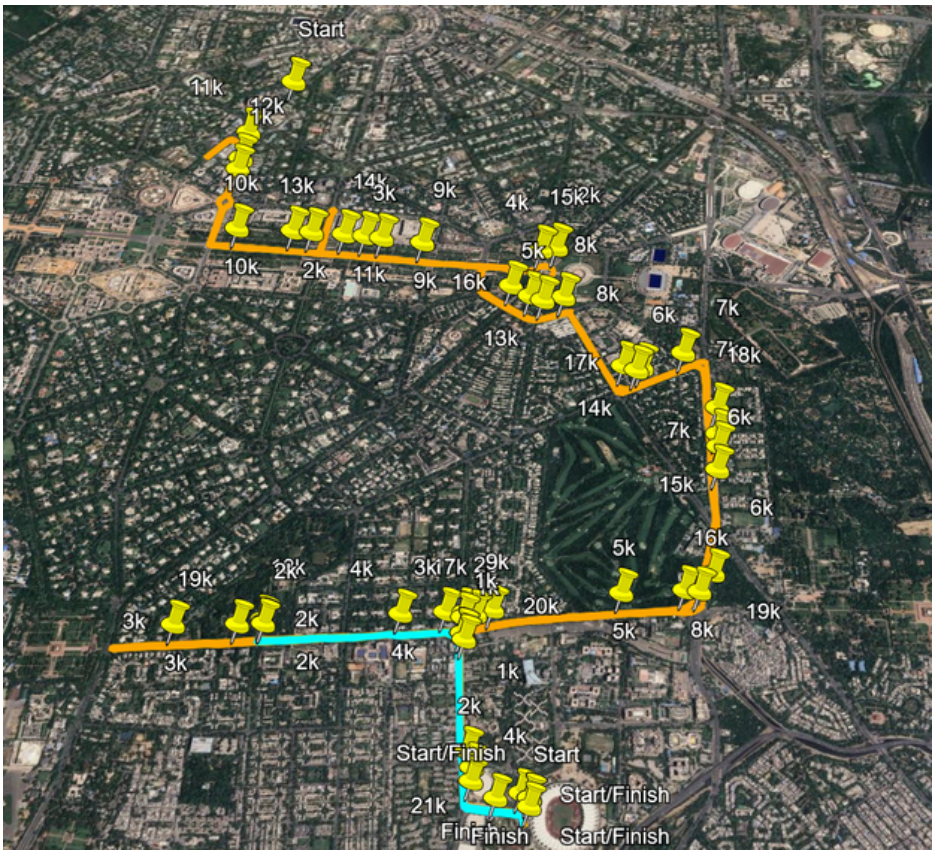
Elite competition and records

Over the years, the Vedanta Delhi Half Marathon has attracted many of the world's leading distance runners and produced several world-class performances. Notable achievements include Olympic champion Eliud Kipchoge's 59:44 run in 2016 and course records set in 2020 by Amedework Walelegn and Yalemzerf Yehualaw, while Indian athlete Avinash Sable made history by becoming the first national runner to break the 61-minute barrier on this course.

Symbol of Delhi's transformation

As it marks its **20th edition**, the event is widely viewed not only as one of the world's most prestigious half marathons but also as a symbol of Delhi's evolving identity as an active, inclusive, and socially engaged city. For this report, the Vedanta Delhi Half Marathon can thus be understood as a long-running urban intervention that integrates sport, public health, philanthropy, and civic pride, embodying the message of "**breaking barriers**" in both athletic and societal terms.


vedanta
delhi half marathon
12 october, 2025
GENERIC VENUE MAP
FROM METRO STATION
BHISHMA PITAMAH MARG
BARAPULLAH FLYOVER
HOLDING AREAS & OTHER FACILITIES
GATE NO: 8 ENTRY & EXIT
GATE NO: 13 ENTRY ONLY
GATE NO: 5 ENTRY & EXIT
GATE NO: 17 ENTRY & EXIT
GATE NO: 16


Start
11k
12k
1k
10k
13k
14k
3k
9k
4k
15k
2k
8k
5k
10k
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21k
Start/Finish
Finish
Start/Finish

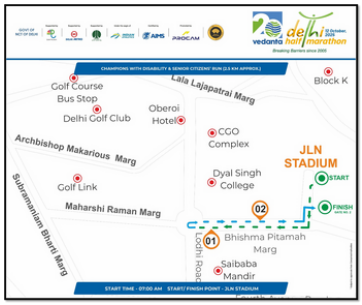
ROUTES & DETAILS



Half Marathon (21.097K)
JLN Stadium Start Gate → JLN Stadium Finish Gate
5:00 AM - 6:25 AM
Slowest Finish: 9:40 AM
Key details: 12,346 Waves, Police Cup, 11,750 participants.



Elite Athlete HM (21.097K)
JLN Stadium Start Gate → JLN Stadium
6:50 AM - 7:47 AM
Slowest Finish: 8:24 AM
Key Details: Men/Women, Indian/International, 100 participants



CWD / Senior Citizen Run (2.5K)
JLN Stadium Gate → Gate 2 → JLN Stadium
7:00 AM - 7:35 AM
Slowest Finish: 8:05 AM
Key Details: Accessibility route, 2,500 participants



Open 10K Run
Sansad Marg (Jantar Mantar) → JLN Stadium Gate
7:30 AM - 8:00 AM
Slowest Finish: 10:00 AM
Key Details: 8,500 participants



Great Delhi Run (4.5K)
JLN Stadium Gate → JLN Stadium Gate
9:00 AM - 9:20 AM
Slowest Finish: 10:50 AM
Key Details: 16,000 participants, Prime 4.5K Run

BIODIVERSITY ASSESSMENT

Biodiversity refers to the variety of life on Earth, including different species of plants, animals, and microorganisms, and the ecosystems they form, and it underpins the ecological balance that supports human wellbeing. For a large outdoor event like a marathon, biodiversity assessment is important because race routes, crowd movement, temporary infrastructure, sound, and lighting can disturb local habitats, fragment green spaces, and affect sensitive species, particularly in urban areas where remaining natural patches are already under pressure.

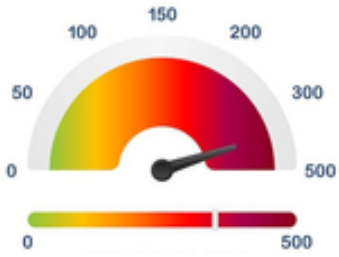
By systematically assessing biodiversity along the marathon corridor and its surrounding influence zone, organisers can identify ecologically sensitive stretches, plan mitigation measures such as route modifications, timing, buffer zones, and green management practices, and align the event with emerging international guidance that encourages sports to minimise ecological harm and actively support nature conservation.



Habitat and green-cover assessment along the route



Species Inventory
Key Flora and Fauna



Biodiversity sensitivity assessment (air quality, noise buffering)



Waste management (effects on local biodiversity

METHODOLOGY

The methodology for this impact assessment was centered on a comparative analysis of environmental conditions across three distinct time periods. Data collection involved a combination of observational surveys and direct environmental measurements taken at specific points along the marathon route.

These activities were conducted during the following phases:
1. ***Pre-Marathon:*** To establish a comprehensive baseline of normal environmental conditions.
2. ***On-Marathon:*** To measure the direct impacts occurring on the day of the event.
3. ***Post-Marathon***: To assess the environment's recovery and identify any lingering effects.

This phased approach allows for a direct comparison against the established baseline conditions of the marathon route.

ENVIRONMENTAL BASELINE DATA

The impact assessment uses a detailed framework to capture direct and indirect efforts related to biodiversity. Extensive baseline surveys were conducted to document the presence and health of plant and animal species along the route, serving as reference points for measuring temporal changes.

Flora Inventory and Ecological Value

A strategic inventory of local flora was conducted to understand vegetation resilience to event-related stress and to quantify environmental contributions such as air purification and carbon sequestration. The route is characterized by a diverse assemblage of mature trees and ornamental plants.

Key Ecological Notes:

- Canopy Cover: Large, established trees like the Banyan (Ficus benghalensis) and Peepal (Ficus religiosa) provide substantial canopy cover and critical habitat.
- Nesting & Foraging: A notably high population of Rose-ringed Parakeets correlates with the widespread presence of Vilayati Keekar (Prosopis juliflora) and other fruit-bearing trees. Nesting cavities were specifically recorded in Silver Oak (Grevillea robusta) trees along Lodhi Road.

Detailed Flora Inventory:

The following tree and plant species were identified along the marathon route:

Common Name	Scientific Name
Alstonia (Scholar Tree)	Alstonia scholaris
Su Babul Tree	Vachellia nilotica (syn. Acacia nilotica)
Purple Tree (possible species)	Lagerstroemia speciosa (Queen's Crape Myrtle)
Neem Tree	Azadirachta indica
Bougainvillea	Bougainvillea spectabilis
Creeping Cucumber (possible species)	Melothria pendula
Eucalyptus Tree	Eucalyptus globulus/E. tereticornis
Cluster Fig	Ficus racemosa
vilayati keekad	Prosopis juliflora
Weeping Fig	Ficus benjamina
Banyan Tree	Ficus benghalensis
Champak	Magnolia champaca
Bottlebrush	Callistemon citrinus (Melaleuca citrina)
Sacred Fig / Peepal Tree	Ficus religiosa
Kanak Champa	Pterospermum acerifolium
Yellow Bells (Yellow Elder)	Tecoma stans
Small/large-leaved lime	Tilia cordata/platyphyllos
Arjuna Tree	Terminalia arjuna
White Fig (Banyan-like)	Ficus virens
False Ashoka	Polyalthia longifolia
Mulberry	Morus alba
Silkwood Tree	Albizia procera
Black Locust	Robinia pseudoacacia

Indian Rosewood (Shisham)	Dalbergia sissoo
Mango Tree	Mangifera indica
Mulberry	Morus alba
Peeli kaner/Yellow Oleander	cascabela thevetia
Red Silk-Cotton Tree	Bombax ceiba
Sausage Tree	Kigelia africana
Sliver Oak	Grevillea robusta



FLORA PROFILE



Alstonia (Scholar Tree)



Su Babul Tree



Eucalyptus Tree



Neem Tree



Cluster Fig



Vilayati keekad



Banyan Tree



Champak



Peepal Tree



Arjuna Tree



White Fig



False Ashoka



Silkwood Tree



Black Locust



Mango Tree



Balam Kheera



Silver oak tree



Yellow Oleander

Fauna Inventory and Diversity

The baseline fauna survey established a benchmark of species presence, behavior, and diversity. The survey documented a total of 31 bird species, several butterfly species, and various mammals (cats, dogs, monkeys, mice, shrews, squirrels).

Key Faunal Highlights:

- ***Abundant Species*:** Common Myna (Acridotheres tristis), House Crow (Corvus splendens), Rock Pigeon (Columba livia), and Black Kite (Milvus migrans).
- ***Trophic Balance:*** The presence of both insectivorous and frugivorous birds indicates a functioning food web and diverse food resources.
- ***Waterbirds:*** Recorded near India Gate and Kartavya Path (ponds/water bodies), underscoring the value of aquatic habitats in the urban corridor. Species include: Medium Egret (Ardea intermedia), Red-naped Ibis (Pseudibis papillosa), and Indian Pond Heron (Ardeola grayii).
- ***Migratory Species**:* Winter visitors such as Humei's Warbler (Phylloscopus humei) and Greenish Warbler (Phylloscopus trochiloides) reflect Delhi's role as a stopover habitat.

Protected and Notable Status:



Indian Peafowl (Pavo cristatus)

Schedule I protected species (Legal protection), though IUCN lists as Least Concern (LC).

Alexandrine Parakeet (Psittacula eupatria)



Classified as Near Threatened.



House Sparrow (Passer domesticus)

Recognized as Near Threatened, an indicator of habitat quality.

Observations: Pre-Event, On-Event, and Post-Event

Systematic observations and instrument-based measurements tracked variations in species mobility and ambient sound across three distinct phases.

Phase 1: Pre-Marathon (Baseline)
The pre-marathon period revealed a rich urban ecosystem with diverse avian activity.

- ***Species Observed***: Common Myna, House Crow, Indian Grey Hornbill, Indian Pond-Heron, Rock Pigeon, Brown-headed Barbet, Black Kite, Hume's Warbler, Common Tailorbird, Rose-ringed Parakeet, Alexandrine Parakeet, Yellow-footed Green-Pigeon, Jungle Babbler, Black-rumped Flameback, Medium Egret, Purple Sunbird, Red-naped Ibis, Greenish Warbler, Black Drongo, Indian Peafowl, Asian Green Bee-eater, Eurasian Collared-Dove, Indian Pied Starling, Indian Palm Squirrel, Asian Koel, Red-vented Bulbul, Red-whiskered Bulbul, House Sparrow, Little Swift, Rufous Treepie, Swallow sp.
- ***Mammals/Others***: Monkey, Dog, Cat, Butterfly.

Phase 2: On-Marathon (During Event)
Observations during the event highlighted site-specific patterns of disturbance.

- ***Noise Levels:*** Peak sounds at locations like Sansad Marg reached far exceeding levels known to cause stress in wildlife.
- ***Behavioral Change***: A general pattern of "**Disturbance, reduction, displacement**" was noted. There was a noticeable reduction in species variety compared to the baseline.
- ***Species Present (Resilient/Habituated)*****:** Black Kite, Indian Grey Hornbill, Eurasian Collared Dove, Rose-Ringed Parakeet, Red-Vented Bulbul, Common Myna, House Crow, Rock Pigeon, Common Tailorbird, Asian Koel, Indian Palm Squirrel, Greenish Warbler, Yellow-footed Green Pigeon, Jungle Babblers.
- ***Mammals:*** Dog, Indian Shrew, Monkey.
- ***Absent Species***: Sensitive wildlife likely sought refuge in quieter areas away from the route.

Phase 3: Post-Marathon (Recovery)
In the hours immediately following the event, **a clear return of wildlife was observed**, indicating rapid recovery.

- ***Pattern***: A broad range of species re-established their presence along the route.
- ***Species Returning*****:** Rock Pigeon, House Crow, Rose-ringed Parakeet, Yellow-footed Green Pigeon, Black Drongo, Black Kite, Common Myna, Eurasian Collared Dove, Jungle Babblers, Greenish Warbler, Red-vented Bulbul, Red-whiskered Bulbul, Common Tailorbird, Indian Grey Hornbill, Indian Palm Squirrel, Swallow sp.
- ***Mammals***: Monkey, Dogs.



FAUNA PROFILE


Rose ringed parakeet


House sparrow


Red-whiskered bulbul


Asian Koel


Humes warbler


Greenish Warbler


Red-vented bulbul


Eurassian Collar Dove


Common myna


Pied starling


Black drongo


Purple sunbird


Black-rumped Flameback


Yellow footed Green Pigeon


Rock Pigeon


Indian grey Hornbill


Jungle Babbler


Brown headed barbet







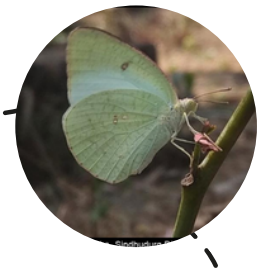
























Merlin Bird ID

*App used to track birds

Environmental Impacts

Based on the integration of quantitative findings (noise levels, species counts) and qualitative field notes, the following impacts were assessed:

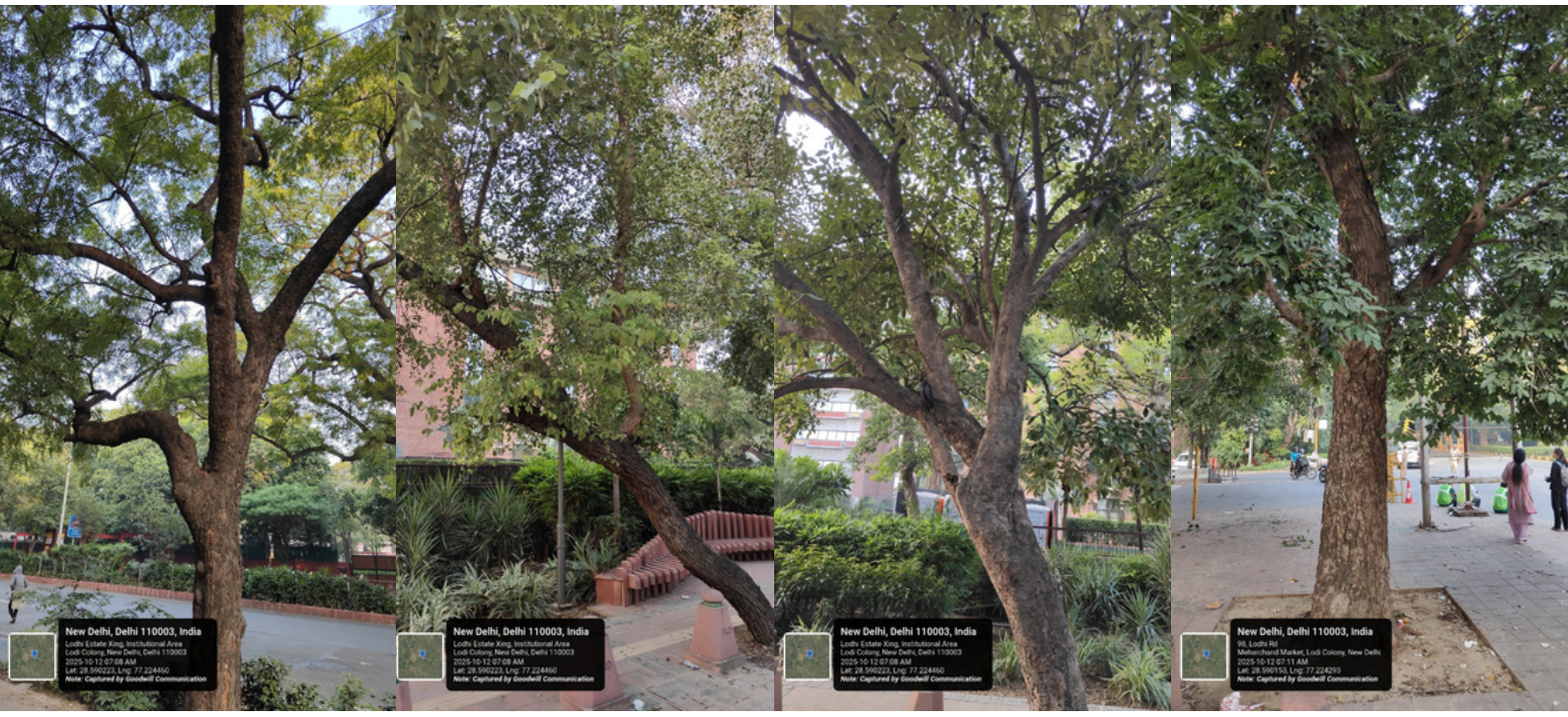
Impact on Local Fauna

- ***Direct Disturbance****:* Large-scale public events with significant crowds and elevated noise cause temporary stress. The primary driver of behavioral change was identified as the immediate effects of noise and human activity.
- ***Displacement*****:** There was a temporary displacement of the most common urban species. Sensitive species moved to sheltered areas, resulting in a temporary reduction in biodiversity along the immediate route during the race.
- ***Resilience and Recovery*****:** The environmental disturbance was acute but not long-lasting. The rapid return of a diverse array of species (including birds and squirrels) post-event suggests a high degree of resilience within the local ecosystem to short-term disturbances.

Holistic Ecological Footprint

- ***Green Space Value:*** The assessment confirmed the critical role of the route's mature flora (Banyan, Peepal, Silver Oak) in supporting urban biodiversity, regardless of temporary event disruptions.

The overall impact on local fauna is evaluated as **temporary displacement.** The ecosystem demonstrated the ability to recover quickly once the noise and crowd levels subsided.



Ecological Context: Carbon Sequestration by Route Flora

The assessment of carbon sequestration potential within the route's urban forest is a growing necessity for climate resilience and sustainable practices in urban event management. This necessity has driven the integration of ecological data into assessment.

While marathons typically generate a significant carbon footprint through participant transportation, logistics, and material procurement, the existing vegetation along the route acts as a natural carbon sink. The primary objective of this study is to quantify the ecological service of carbon absorption provided by the trees along the marathon corridor. By applying standardized methodologies, we have estimated the annual CO_2 sequestration rates for key species. Beyond climate mitigation, the route's tree cover provides essential microclimate regulation, reducing heat stress for runners, and supports urban biodiversity, underscoring the necessity for the continued promotion of the marathon and healthy lifestyle activities

Methodology

The carbon sequestration potential of individual trees was quantified through a systematic process involving field measurements, allometric modeling, and standardized molecular conversions. The methodology adheres to established principles in urban forestry and carbon accounting guidelines, such as those published by the **Intergovernmental Panel on Climate Change (IPCC)**.

Tree Measurements

- ***Height (H)****:* Measured in meters (m) using a clinometer and calculated using the tangent method.
- ***Girth at Breast Height (GBH)***: Recorded at *1.37 m* above ground. Alternative measurement heights were used in accordance with **FAO guidelines** for trees with irregular stems.
- ***Species Identification:*** Verified through field observation and standard Indian urban forestry references.

TOOLS USED



DATA COLLECTION



Analytical Framework & Calculations

The following formulas and constants were utilized to convert raw field data into sequestration metrics:

DBH Conversion

$$DBH = GBH/\pi$$

Wood Density: Species-specific wood density values (ρ) were obtained from Indian forestry literature, including Pati (2025), CAZRI datasets, and species-level studies.

Biomass Estimation

Above-ground biomass (AGB) was estimated using a standardized tropical allometric equation:

$$AGB = 0.0509 \times \rho \times DBH^2 \times H$$

Carbon and CO_2 Estimation

- Carbon Storage: Calculated using the IPCC standard carbon fraction:

$$C = AGB \times 0.47$$

- CO_2 Equivalent: Derived using the molecular conversion factor:

$$CO2 = C \times 3.67$$

Annual Carbon Sequestration

- *Total CO_2 Sequestered:* Represents the amount sequestered over the tree's entire life.
- *Annual Rate:* Calculated by dividing the Total CO_2 Sequestered by the Tree's Estimated Age.

Sequestration Analysis

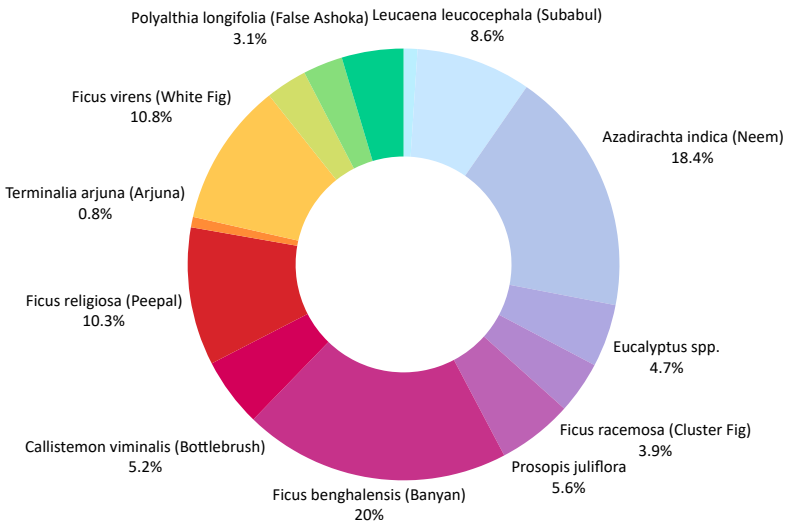
- ***High-Sequestration Native Trees***: Species such as Ficus benghalensis (***0.51 tCO_2/yr***), Azadirachta indica (***0.469 tCO_2/yr***), Ficus virens (***0.275 tCO_2/yr***), and Ficus religiosa (***0.264 tCO_2/yr***) act as significant long-term carbon sinks, contributing heavily to atmospheric CO_2 reduction.
- ***Moderate Contributors*:** Fast-growing species like Leucaena leucocephala (***0.22 tCO_2/yr***), Prosopis juliflora (***0.144 tCO_2/yr***), and Callistemon viminalis (***0.132 tCO_2/yr***) provide short-term sequestration benefits. Leucaena additionally contributes via nitrogen fixation.
- *Lower-Sequestration Species*: While species like Terminalia arjuna (***0.0199 tCO_2/yr***) and Bombax ceiba (***0.076 tCO_2/yr***) have lower uptake rates, they offer critical biodiversity and habitat benefits.

Collectively, the trees along the marathon route **provide** a measurable carbon sink, offsetting a portion of event-related emissions. The table below shows the composition of the C02.

Species Composition and CO_2 Sequestration

The marathon route hosts mature and semi-mature trees with varying carbon sequestration potentials. Some key highlights include:

Species	Estimated Age (yrs)	Annual CO_2 Sequestration (tonnes)
Alstonia scholaris	18.1	0.0265
Leucaena leucocephala (Subabul)	13.5	0.22
Azadirachta indica (Neem)	23.2	0.469
Eucalyptus spp.	17.4	0.12
Ficus racemosa (Cluster Fig)	21.3	0.1
Prosopis juliflora	16.1	0.144
Ficus benghalensis (Banyan)	47.3	0.51
Callistemon viminalis (Bottlebrush)	14.6	0.132
Ficus religiosa (Peepal)	29	0.264
Terminalia arjuna (Arjuna)	35.7	0.0199
Ficus virens (White Fig)	21	0.275
Polyalthia longifolia (False Ashoka)	15	0.079
Bombax ceiba (Semal)	18.4	0.076
Kigelia africana (Sausage Tree)	17.4	0.118



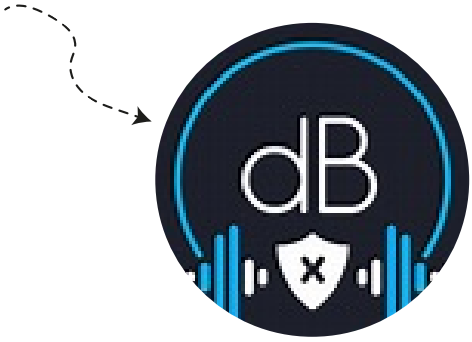
Acoustic Environment Impact (Noise Pollution)

Noise pollution is a significant environmental concern in urban settings, and its effects are often amplified during major public events. Excessive noise can disrupt the routines of both human residents and local wildlife. Large-scale public events like marathons contribute to temporary spikes in noise levels due to amplified sound systems, cheering spectators, traffic diversions, and equipment operation. While these events are temporary, excessive noise exposure can impact nearby residents, children, senior citizens, hospital zones, and wildlife in green corridors.

The Vedantaha Half Marathon was conducted on 12 October in New Delhi, and sound monitoring was undertaken across 10 locations along the route between **5:00 a.m.** and **8:00 a.m.**, including pre- and post-event comparative measurements. The objective of this analysis is to evaluate compliance with **CPCB (Noise Pollution Control Rules, 2000)** standards and identify zones of concern.

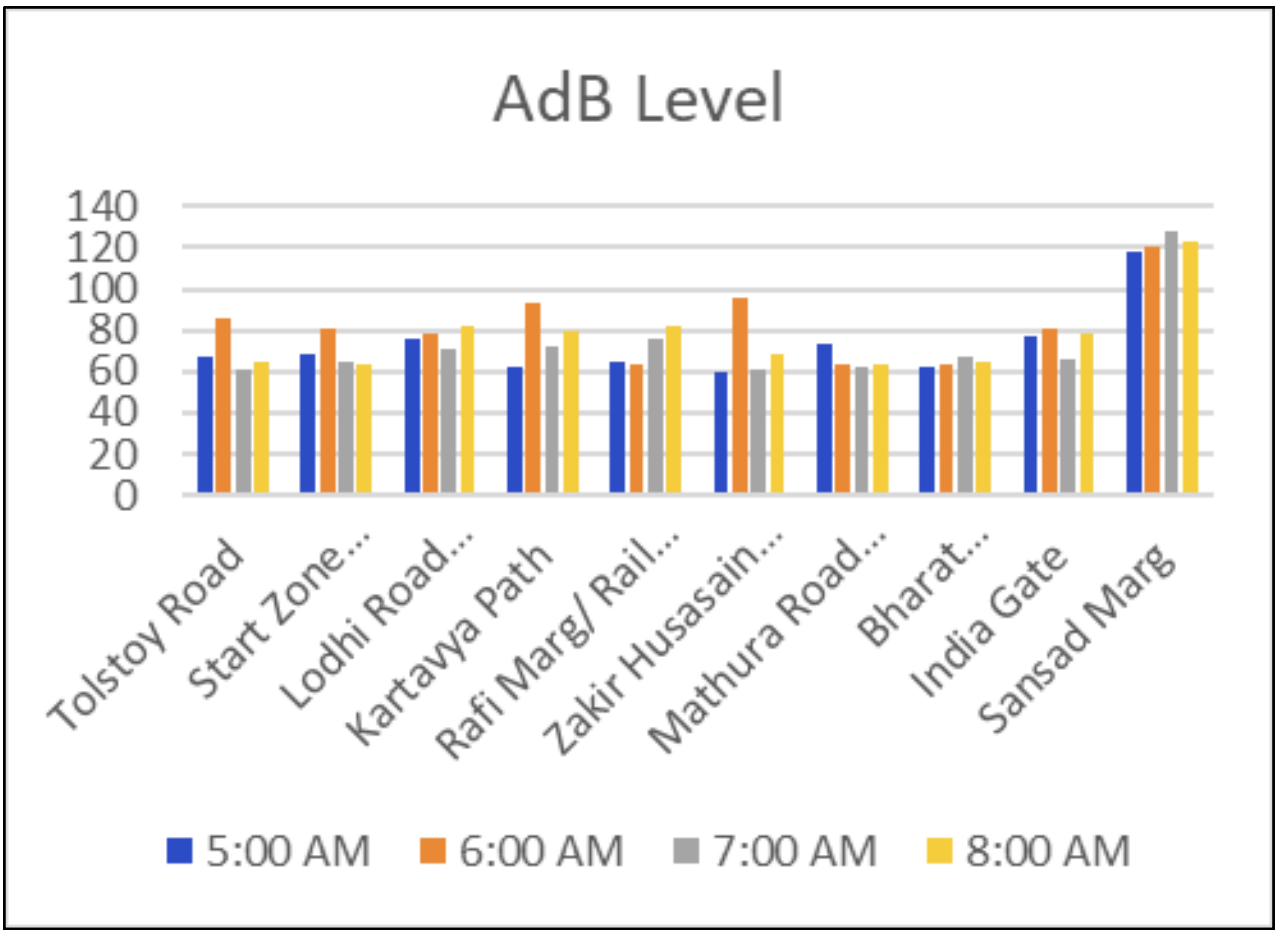
Noise measurements were recorded using the app '**Decibel X**':

- Tolstoy Road
- Start Zone (Outside Gate 8)
- Lodhi Road Junction
- Kartavya Path
- Rafi Marg / Rail Bhavan
- Zakir Hussain Marg
- Mathura Road DPS
- Bharat Mandapam route
- India Gate
- Sansad Marg

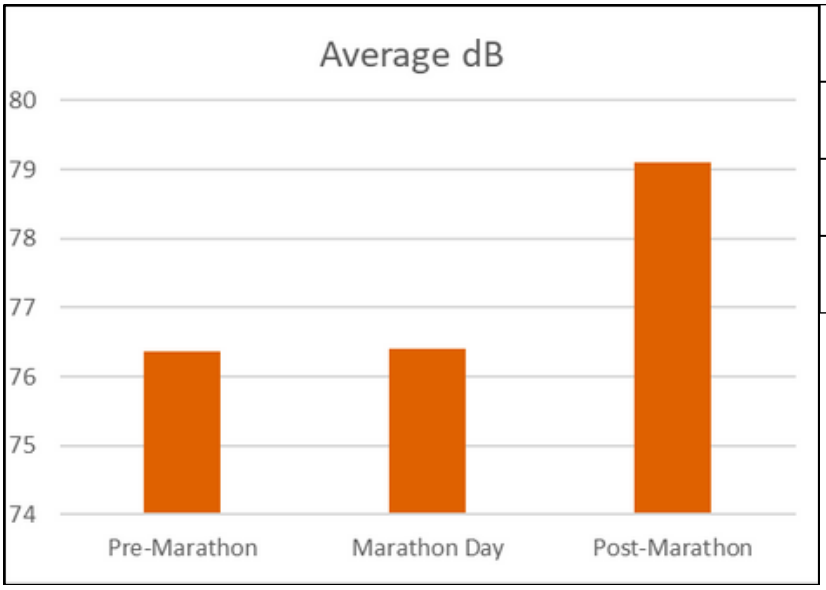


Readings were taken hourly from 5:00 AM to 8:00 AM, representing the peak operational time of the event. Pre and Post-marathon readings were collected after dispersal to compare residual noise against normal levels.

Location/ time	Tolstoy Road	Start Zone (outside gate 8)	Lodhi Road Junction	Kartavya Path	Rafi Marg/ Rail bhavan	Zakir Husasain Marg	Mathura Road DPS	Bharat mandapam route	India Gate	Sansad Marg
5:00 AM	67.2	68.5	75.6	62.3	65.2	59.9	73.5	62.1	76.5	117.5
6:00 AM	86.2	81.4	78.5	93.4	63.8	96.3	63.9	64	81	120.7
7:00 AM	61.2	64.1	70.3	72.2	76.4	60.4	62.3	66.9	66.3	128.1
8:00 AM	64.5	63.8	82.4	79.3	81.8	68.5	63.1	64.4	78.6	122.6



Sansad Marg recorded the highest noise, exceeding 120 dB(A) at multiple time points, even though it's for a short period of time, prolonged exposure can cause hearing damage. India Gate, Kartavya Path, and Lodhi Road also crossed 75–82 dB(A), exceeding CPCB limits for both residential and commercial zones. Only the Bharat Mandapam route and Mathura Road DPS approached safe levels, but still exceeded residential limits.

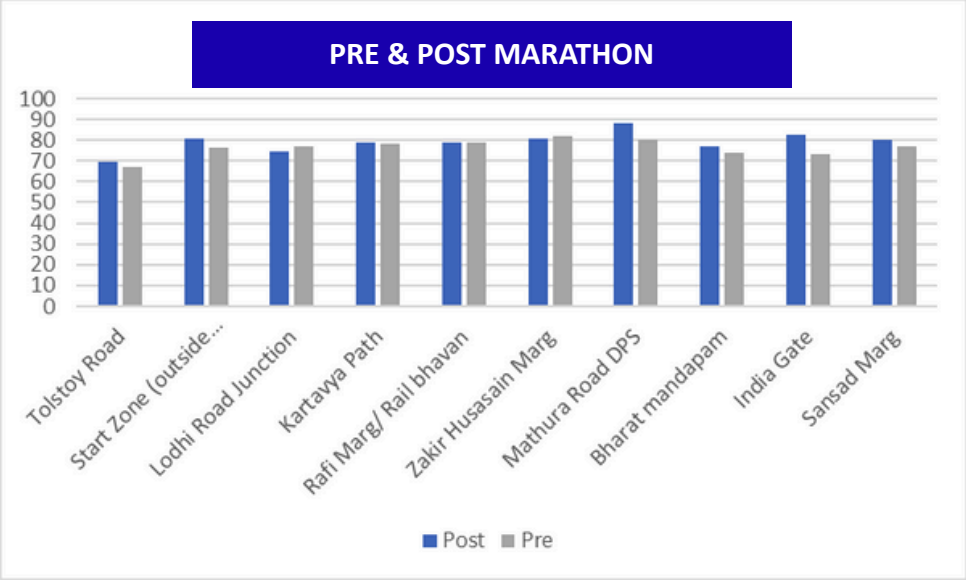


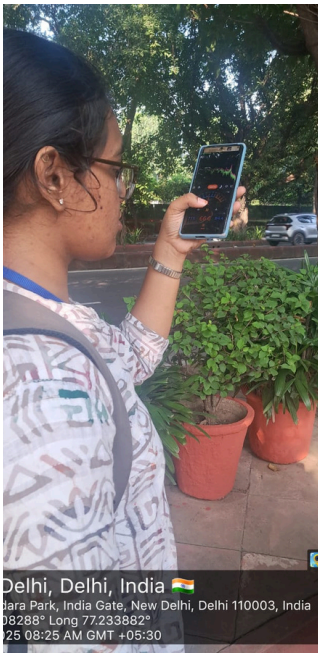
Time Period	Average dB
Pre-Marathon	76.36
Marathon Day	76.4
Post-Marathon	79.1

Most locations show an increase in residual noise post-event, meaning traffic returning, and crowd dispersal.

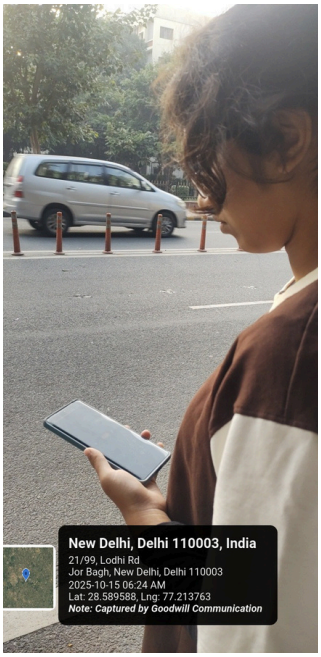
Pre- and Post-Event Comparison

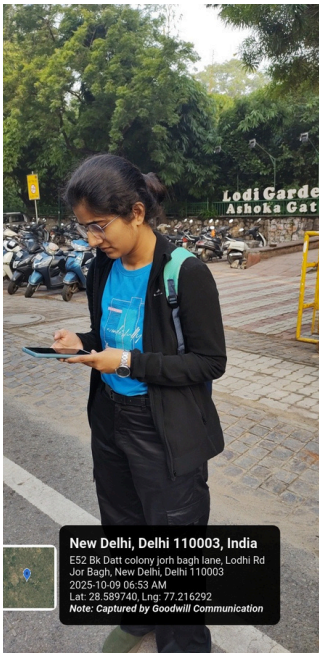
Location/ time	Tolstoy Road	Start Zone (outside gate 8)	Lodhi Road Junction	Kartavya Path	Rafi Marg/ Rail bhavan	Zakir Husasain Marg	Mathura Road DPS	Bharat mandapam route	India Gate	Sansad Marg
Post	69.3	80.9	74.8	78.9	78.9	80.5	87.9	77.3	82.9	80.1
Pre	67.1	76.4	77.3	78	79.1	82	80	74.2	73.2	77













**The app used for geo tagging the photos*

Compliance with CPCB Noise Standards

Zone Category (as per CPCB classification)	Permissible Noise Level – Daytime (6 a.m. – 10 p.m.)	Permissible Noise Level – Nighttime (10 p.m. – 6 a.m.)
Commercial Area	65 dB(A)	55 dB(A)
Residential Area	55 dB(A)	45 dB(A)
Silence Zone	50 dB(A)	40 dB(A)
Event Noise Cap (temporary use of loudspeakers)	≤ 10 dB(A) above respective zone's ambient limit OR 75 dB(A) maximum, whichever is lower	Prohibited unless special written permission

Environmental and Public Health Impact Assessment

When it comes to noise regulations, it's not just about how loud the sound is – measured in decibels (dB) – but also how long we are exposed to it. Both the intensity of the sound and the duration of exposure play a crucial role in understanding its health impact. So, let's dive into what makes noise not just a nuisance, but a serious consideration for our well-being!

Noise Level	Allowable Safe Exposure (WHO / OSHA Guidance)
85 dB	~8 hours
90 dB	~2 hours
95 dB	~1 hour
100 dB	15 minutes
110–120 dB	Can cause instant damage






If certain sections of the marathon route consistently reach sound levels of 85–90 dB for extended periods, even with breaks, we need to pay attention to the potential risks. Here's what can happen:

- **Temporary threshold shifts**
- **Hearing fatigue**: Prolonged exposure to loud sounds can leave your ears feeling tired and overwhelmed.
- **Permanent hearing damage:** This is particularly a concern for those on the front lines, like volunteers, security personnel, and announcers who are stationed near the speakers.

While participants may only experience these loud sounds for short bursts, the real risk lies with spectators, staff, police, and media who are positioned close to the speakers. Let's make sure everyone is protected from the noise!

Mitigation Measures

When it comes to managing noise levels during events, engineering controls stand out as the most effective solution. Some innovative strategies to minimize sound pollution while maximizing enjoyment for participants and spectators alike:

- ***Directional and Distributed Speakers*****:** Imagine a sound system that directs music and announcements precisely where they're needed—like vibrant beams of sound aimed at the event route. By utilizing focused speakers rather than broadcasting into surrounding residential or institutional areas, we can significantly reduce unnecessary noise pollution.

- ***Amplifier and Equipment Power Limitation*****:** To keep the sound output within safe levels, let's rein in the wattage and the number of amplification units. By sticking to regulated limits set by the Central Pollution Control Board (CPCB), we ensure a pleasant auditory experience that's enjoyable for everyone involved.

- ***Installation of Temporary Noise Barriers***: Think of portable noise shields and acoustic panels as guardians of sound. By placing these around high-noise zones—like the start and finish lines or DJ platforms—we can effectively confine the sound to designated areas, enhancing the experience while protecting the surrounding community.

- ***Low-Frequency Reduction Measures*****:** Low-frequency sound can travel long distances and disrupt quiet spaces. By finely tuning audio systems to reduce these bass-heavy frequencies, we can keep the energy up at the event without intruding on nearby environments.

- ***Sound Limiters*****:** Automatic volume-control devices can be our secret weapon in sound management. By preventing sound levels from surpassing regulatory thresholds, we ensure that we stay within the law while creating an exciting atmosphere.

Air Quality Assessment

This report presents the findings of the Air Quality Index (AQI) assessment conducted in the vicinity of the Vedanta Delhi Marathon route, held on October 12, 2025. The primary objective was to determine whether the observed increase in AQI in the days following the event was attributable to the marathon activities or to broader seasonal and meteorological factors.

The analysis focuses on the 10:00 AM time slot, typically associated with peak morning traffic emissions, comparing air quality metrics Pre-Marathon (Oct 8-11), On-Marathon (Oct 12), and Post-Marathon (Oct 13-16). Data was sourced from the Central Pollution Control Board (CPCB) network.

Methodology and Data Analysis

Air quality data, including AQI, PM2.5 and PM10 concentrations, Wind Speed (WS), and Wind Direction (WD) at the MDC-DPCC station, were analysed.

Core Findings: Local Mitigation vs. Regional Overload

Parameter	Pre-Marathon (Oct 11)	On-Marathon (Oct 12)	Post-Marathon Peak (Oct 16)	Environmental Observation
AQI (10:00 AM)	179 (Moderate)	164 (Moderate)	216 (Poor)	AQI dropped on the day of the marathon, but rose sharply afterward.
PM2.5 (10:00 AM)	169µg/m3	124µg/m3	216µg/m3	PM2.5 reduced by 27% on Oct 12th.
Wind Direction (WD)	264° (W/SW)	350° (N/NW)	235° (SW)	Critical wind shift occurred on the marathon day.

- ***Marathon's Positive Impact*:** The immediate reduction in PM2.5 and AQI on October 12th (10:00 AM) suggests that mitigation efforts, such as the road closures and the provision of free metro rides to volunteers (preventing vehicular emissions), were locally effective in reducing peak-hour pollution load.

- ***AQI Worsening is External:*** The sustained worsening of the Day Average AQI and the dramatic post-marathon increase in the 10:00 AM PM2.5 concentration to 216µg/m3 (Oct 16th) cannot be attributed to the event.

Meteorological Validation (The Primary Cause)

The primary cause for the overall rise in AQI is the coincidence of the marathon period with the annual meteorological transition that initiates Delhi's winter air quality crisis.

Regional Pollution Transport

The increase in pollution post-October 12th is directly linked to the change in Wind Direction (WD):

- *The* ***Critical Wind Shift*****:** The WD shifted from a typical westerly flow (264°) on October 11th to 350° (N/NW) on October 12th.
- ***External Validation***: External studies (e.g., IIT-Kanpur, SAFAR) confirm that winds from the North/Northwest are the established transport vector for fine particulate matter (PM2.5) originating from crop residue burning (stubble burning) in upwind states (Punjab and Haryana) during this post-monsoon period.
- ***Pollutant Proof***: The subsequent dominance and exponential rise of PM2.5 in the post-marathon days validate that regional pollution transport began on the marathon day, overwhelming any local benefits.

Seasonal Stagnation (Pre-Diwali Effect)

The AQI worsening aligns with the typical pre-Diwali seasonal deterioration:

- The transition to early winter reduces the Atmospheric Mixing Layer Height (MLH), effectively trapping pollutants near the ground.
- This meteorological stagnation, combined with the influx of regional PM2.5 and local emissions, caused the AQI to deteriorate rapidly from "Moderate" to "Poor" (216) by October 16th.

Special Case: Lodhi Road AQI Station Discrepancy

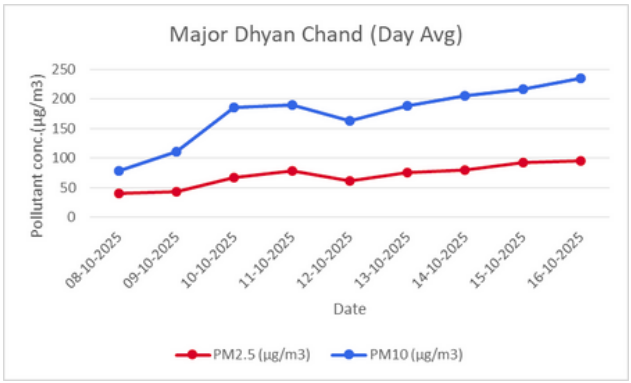
The observed difference in AQI levels between the closely situated Lodhi Road IMD and Lodhi Road IITM stations (where IITM showed lower values) is a result of micro-environmental factors.

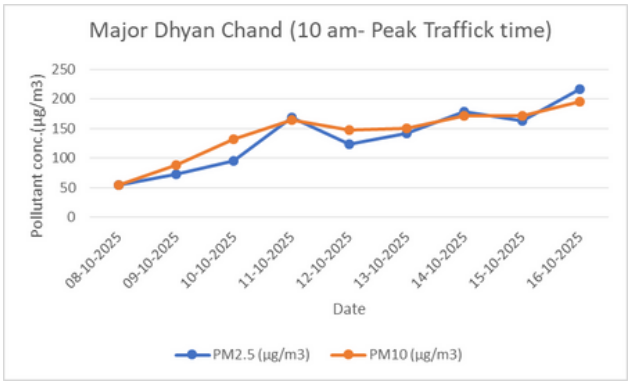
- ***Hypothesis Confirmation:*** This discrepancy strongly supports the suggestion that the Lodhi Road IITM station benefits from denser, superior local vegetation compared to the IMD station.
- ***Mechanism***: Trees and foliage act as natural air filters, facilitating the dry deposition of particulate matter (PM2.5 & PM10) onto leaf surfaces. Areas with higher carbon sequestering species and greater green cover will exhibit lower local pollutant concentrations, even when exposed to the same regional air mass.

STATIONS ON THE MARATHON ROUTE

Location/Monitoring Point	Corresponding Air Station
BP Marg near Pragati Vihar bus stop	Jawarharlal Nehru Stadium (DPCC)
Lodhi Road outside Habitat Center	Lodhi Road (IMD/CPCB) and Lodhi Road (IITM)
Kartavya path and Mansingh signal junction	Major Dhyan Chand National Stadium (DPCC)







This finding emphasizes that the local mitigation strategy was a success in its primary goal: **Targeted Effectiveness.** The significantly larger drop in PM2.5 at 10:00 AM (the peak hour) proves the strategy directly and immediately reduced peak vehicular emissions, which are high during that time.

Policy Significance: Even with a smaller Day Average drop, the effect is highly effective because it demonstrates that local policy interventions can instantaneously manage local air quality by controlling specific sources (like traffic), even when overall seasonal pollution is rising.

WASTE MANAGEMENT

At the marathon event, they embraced an innovative, circular economy approach to waste management, achieving a remarkable feat: zero waste sent to landfills! The commitment to sustainability meant that every piece of waste generated during the race was processed and diverted thoughtfully. Our collaboration with organizations like NDMC, Hasiru Dala Innovations, and Chintan has allowed them to streamline waste collection, segregation, and processing effectively.

On Race Day, they set up dedicated waste kiosks and pods, making it easy for participants and spectators to sort their waste into dry and wet streams. This included separate collection points for paper, tetra packs, plastic bottles, and organic waste, ensuring that every individual could contribute to our vision of a cleaner, greener event.

Hosting large public gatherings, especially marathons, comes with the responsibility of effective waste management. It not only preserves the beauty of our surroundings but also safeguards local wildlife and ecosystems from becoming overwhelmed by litter. With masses of participants and support facilities lining the marathon route, the potential for waste generation is significant.

By carefully examining the extensive network of support facilities along the route, we pinpointed several key sources of potential waste:

- ***Consumable Waste:*** The participant support stations are expected to be the biggest contributors to waste. This includes the various stations offering water, sports drinks, snacks, and cooling sponges. Here, plastic bottles, cups, and food packaging become the predominant waste items, rapidly adding up throughout the event.

- ***Medical Waste***: At our Medical Stations positioned along the route, specialized waste, including bandages, gloves, and saline pouches, will be generated. This highlights another layer of complexity in our overall waste management strategy.

- ***Sanitary Waste:*** With strategically placed Chemical Toilets peppered along the marathon course, it's no surprise that sanitary waste will be generated in significant amounts. Ensuring proper management of this waste is crucial for maintaining hygiene and environmental standards.



WASTE ON THE DAY OF MARATHON



COMPREHENSIVE WASTE METRICS AND CIRULAR ECONOMY APPROACH

The event adopted an inclusive, circular-economy waste-management strategy driven by Hasiru Dala Innovations (HDI), a social enterprise committed to diverting waste from landfills and integrating informal waste workers. The result was a complete diversion of new event-generated waste, demonstrating **100% landfill avoidance**.

- The *total waste managed*: **6,361 Kg** collected and processed (0 Kg landfilled).
- ***Diversion Rate*:** All event waste was managed through circular pathways - reuse, recycling, composting, or co-processing.

Detailed Waste Processing and pathways

On-Ground Collection & Processing:

- Organic waste composted at Chintan's composting facility
- Plastics are recycled into new products; paper and cardboard are recycled
- Branding material reused as temporary shelters for marginalized communities
- Dedicated liquid waste recovery protocols.

Pathway	Quantity (kg)	% of Total	Processing Details
Recycled	3,479	54.70%	Cardboard, PET bottles (to fibre/textile), mixed paper, plastics, foil, metal, cloth, Tetrapak, glass
Reused	1,762	27.70%	Branding material (1,304 kg) and Carpet (433 kg) repurposed
Composted	565	8.90%	Food waste (480 kg) and garden waste (85 kg) composted
Co-processed	555	8.70%	Charcoal briquettes (12 kg, combusted); other suitable waste co-processed

Clarification on Legacy and Reject waste

While there is no new event waste that was sent to landfills, it has been reported that reject waste - a seperate inventory comprising 2,800 Kg of previosuly existing or unrecyclable waste was dispacted to authorized, scientifc landfills, consistent with regulatory standards and circularity best practises. this legacy waste falls outside of the circular processing for the current event cycle.

Climate Mitigation and Environment benefits

HDI's interventions resulted in significant quantifiable environmental savings using the US EPA's WARM methodology:

- **GHG Emissions Avoided**: 23,011 Kg CO2e
- **Landfill Volume Saved:** 117 m3 (equivalent to ~2.87 average-sized bedrooms filled to the ceiling.)
- **Impact Equivalence**: GHG savings match the monthly footprint of 42.4 Indian households or 94,933 Km driven by a typical petrol car.

These calculations were conducted using EPA-WARM, with the adaptation for Indian climatic and waste system contexts.

Social Impact and Livelihood Integration

Central to HDI's model is Inclusive Circularity, deliberately integrating waste pickers into all value-chain stages as empowered professionals:

- ***Livelihood creation***: 22 waste picker entrepreneurs empowered, 300+ predictable livelihoods created.
- ***Income Impact***: Waste pickers reported a 122% average income increase post integration.
- **Community benefit**: Runners donated 32 pairs of shoes to underprivileged community members via Chintan.

Broader operations since inception have diverted 90,000 tons of waste and built a Fair Trade supplier network supporting 60 micro entrepreneurs.

INTERSECTION OF EMISSIONS AND EVENT SUSTAINABILITY



Hybrid Model of Sustainability

The sustainability strategy for the Vedanta Delhi Half Marathon (VDHM) 2025 operates on a hybrid model. It combines the passive carbon sequestration capabilities of the route's urban forest with active emission reduction protocols implemented by the organizers and participants.
While the previous section established how the route's vegetation acts as a carbon sink—offsetting a portion of the inevitable emissions—this section details the active measures taken to lower the "**Gross Emissions**" of the event. By reducing the carbon intensity of logistics, waste, and transport, the event effectively lowers its localized **Emission Factors (EFs)**, creating a synergy between nature and human management.

Operational Interventions: Resource Conservation & Circular Economy

To directly influence the event's emission metrics, a "Circular Economy" approach was adopted to minimize resource extraction and maximize material recovery.

A. Zero Waste to Landfill Strategy
Decomposing organic waste in landfills is a significant source of Methane (CH4), a potent greenhouse gas. By diverting waste, the event directly mitigates these emissions.

- **Strategic Partners**: Collaboration with NDMC, Hasiru Dala Innovations, and Chintan ensured professional handling of waste streams.

- **Source Segregation**: Implementation of a strict two-bin system (Dry/Wet) and dedicated waste kiosks for separating paper, tetra packs, and plastic bottles.

- **Processing Protocols**:
  - *Organic Waste*: Composted at Chintan's facility, returning nutrients to the soil rather than generating landfill methane.
  - *Recycling:* Plastics, paper, and cardboard were processed into new products.
  - *Upcycling*: Non-biodegradable branding materials (flex/banners) were repurposed as temporary rain-proof shelters for marginalized communities, extending the material lifecycle.



B. Upstream Reduction (Reducing Embodied Carbon)

Reducing the amount of material used decreases the emissions associated with manufacturing and transport (Scope 3 Emissions).

- ***Digital Transition***: Migration to online registrations and digital event handbooks significantly reduced paper consumption.
- ***Plastic Elimination:*** Race bibs were distributed without plastic covers; reusable cloth bags replaced plastic packaging for post-event refreshments.
- ***Water Conservation:*** Excess water from hydration stations was utilized to water nearby trees and landscaping, ensuring no drop was wasted.

C. Eco-Friendly Mobility

Transportation is typically the largest contributor to a marathon's carbon footprint.

- ***Electric Fleet:*** Deployment of electric autos at JLN Stadium for crew mobility and emergency response.
- ***Active Transport:*** Provision of bicycle stands at Gate No. 10 to encourage cycling to the venue.

Social Sustainability: Community Engagement

Sustainability extends beyond environmental metrics to include social equity. The event utilized its platform to bridge the gap between abundance and need.

- ***Food Distribution****:* Surplus edible food was distributed to marginalized communities via partner organizations, simultaneously preventing food waste and addressing food security.
- ***Shoe Collection Drive*****:** A circular initiative where participants donated gently used shoes at the Expo, which were refurbished and distributed to those in need.

VDHM EXPO





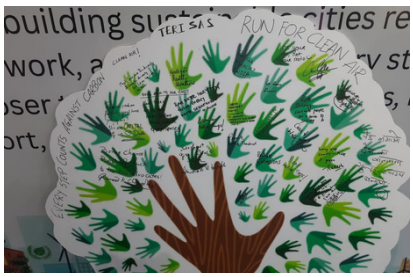














At the marathon expo, TERI SAS featured a dedicated and professionally curated exhibit focused on **Sustainable Development Goal 11 (SDG 11): Sustainable Cities and Communities**. The exhibit engaged visitors with detailed discussions on the urgent challenges of rapid urbanization, environmental degradation, and social inclusion, emphasizing key aspects such as affordable housing, resilient infrastructure, sustainable transport, and inclusive urban policies. Interactive elements like fact-based quizzes deepened visitor understanding of sustainability themes related to urban living. The exhibit also highlighted practical sustainability initiatives linked to the marathon event, including waste reduction, energy efficiency, and resource management. TERI students involved in the biodiversity assessment shared insights on the vital connection between urban biodiversity and community well-being.

A unique **"Message Tree**" installation encouraged visitors to pledge commitments toward creating sustainable cities. Overall, TERI SAS's presence aimed to educate and inspire visitors to appreciate the complexities of sustainable urban development and recognize TERI's leadership in advancing greener, inclusive, and resilient cities for the future. This aligns closely with SDG 11's global vision of making cities inclusive, safe, resilient, and sustainable, addressing the needs of growing urban populations while safeguarding environmental and social assets

SUMMARY

This assessment has distilled several critical conclusions regarding the environmental footprint of the Vedanta Delhi Half Marathon. The findings highlight a complex interaction between temporary event disturbances and the inherent resilience of Delhi's urban ecosystem.

- ***Acoustic Impact & Compliance:*** Noise pollution represents the most significant negative environmental impact of the event. Peak sound levels at specific monitoring locations—notably Sansad Marg, India Gate, and Mathura Road DPS—significantly exceeded regulatory limits set by the CPCB. The acoustic disturbance was most acute during the early morning hours (6:00 AM – 7:00 AM), creating a potential health risk and environmental stressor.
- ***Faunal Resilience & Displacement:*** The primary impact on local fauna was the temporary displacement of common urban species, driven by the acoustic stress and human density. However, the ecosystem demonstrated high resilience, with a rapid return to baseline activity and species diversity observed in the immediate post-marathon period.
- ***Air Quality Dynamics:*** The event functioned as a unique "Clean Air Experiment." Extensive road closures and the promotion of public transport (Free Metro rides) resulted in a temporary, localized reduction in vehicular emissions. However, the overall Air Quality Index (AQI) remained in the "Poor" category due to regional seasonal factors, including North-westerly winds carrying smoke from stubble burning and pre-winter weather stagnation.
- ***Ecological Assets (Carbon Sink)***: The marathon route possesses significant positive ecological value due to its mature tree canopy. Large specimens like the Banyan (Ficus benghalensis) and Peepal (Ficus religiosa) provide substantial carbon sequestration services, acting as a critical environmental offset for the event's operational footprint.
- ***Data Monitoring Gaps***: While qualitative monitoring was robust, a critical gap remains in the continuous quantitative tracking of specific air quality parameters (PM2.5/PM10) and total waste generation volumes, preventing a fully data-driven impact analysis.

The Vedanta Delhi Half Marathon has demonstrated that large-scale urban events can coexist with ecological responsibility when managed strategically. By integrating the passive carbon uptake of the route’s mature flora (specifically the Banyan and Peepal trees) with an active Zero-Waste operational plan and a responsible runner culture, the event establishes a closed-loop sustainability model.

The reduction in material usage and waste generation lowers the event's overall carbon footprint, allowing the natural sequestration of the route's flora to have a more significant net positive impact. Moving forward, a stronger emphasis on acoustic control and biodiversity protection will set a new benchmark for sustainable urban marathons globally.

RECOMMENDATIONS

To mitigate the identified impacts and elevate the sustainability profile of future editions, the following concrete, professional recommendations are proposed:

1. **Acoustic Management & Noise Mitigation**

- ***Implement a Zone-Specific Acoustic Plan:*** Future events must operate under a formal noise management plan that strictly enforces CPCB guidelines. This plan should prioritize mitigating extreme early-morning noise peaks (6:00 AM - 7:00 AM).
- ***Technology & Placement****:* Eliminate loudspeakers in sensitive ecological zones, specifically along Lodhi Road and around dense tree clusters. In other high-traffic areas (Sansad Marg), utilize directional speakers to contain sound and reduce spillover into habitat zones.
- ***Establish Quiet Zones:*** Designate specific "Quiet Zones" around key nesting and foraging habitats to buffer wildlife from peak event disturbances.

2. **Biodiversity & Habitat Protection**

- ***Expert-Led "Wildlife-Friendly" Approach:*** Collaborate with local ornithologists and conservation authorities during the planning phase to evaluate potential risks.
- ***Migratory Window Assessment:*** Review event timing in relation to peak avian migratory windows. Large crowds and noise can stress birds navigating long-distance flights; creating quieter pathways or adjusting schedules can minimize this impact.
- ***Roost Protection:*** Ensure that course logistics (lights, sound systems, temporary structures) are physically positioned away from the canopies of key trees identified in the baseline survey (e.g., Silver Oaks) to prevent physical damage and roost abandonment.

3. **Air Quality & Public Health Strategy**

- ***Leverage the "Clean Air" Opportunity***: Continue to aggressively promote the "Free Metro" initiative and road closures. Use the event data to demonstrate the immediate, localized benefits of reduced vehicular traffic.
- ***Advocacy Platform***: Use the marathon as a platform to advocate for regional policy changes. Highlight the contrast between the event's "traffic-free" corridor and the regional pollution (stubble burning) to emphasize the need for systemic solutions.

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APPENDIX

MAJOR DHYAN CHAND PEAK TIME - 10:00AM

Parameters	08-10-2025	09-10-2025	10-10-2025	11-10-2025	12-10-2025	13-10-2025	14-10-2025	15-10-2025	16-10-2025
Prominent Pollutant	PM2.5	PM10	PM10	PM2.5	PM10	PM10	PM2.5	PM10	PM2.5
PM2.5 (µg/m3)	55	73	95	169	124	142	178	163	216
PM10 (µg/m3)	54	89	132	164	148	150	171	172	196
NO2 (µg/m3)	47	49	52	63	57	59	71	92	92
NH3 (µg/m3)	14	14	13	13	13	14	14	15	16
SO2 (µg/m3)	10	10	12	12	13	13	12	13	15
CO (µg/m3)	38	37	44	52	37	41	56	56	40
Ozone (µg/m3)	7	13	15	14	30	11	10	9	9
WS (m/s)									
WD (Degree)									
AQI	55-Satisfa	89-Satisfa	132-Moder	169-Moder	148-Moder	150-Moder	178-Moder	172-Moder	216-Poor

MAJOR DHYAN CHAND - DAILY AVERAGE

Parameters	08-10-2025	09-10-2025	10-10-2025	11-10-2025	12-10-2025	13-10-2025	14-10-2025	15-10-2025	16-10-2025
Prominent Pollutant									
PM2.5 (µg/m3)	41	43	67	78	62	76	80	93	96
PM10 (µg/m3)	79	111	186	190	163	188	205	216	235
NO2 (µg/m3)	40	37	48	51	43	54	72	78	75
NH3 (µg/m3)	56	53	53	54	54	55	57	61	63
SO2 (µg/m3)	8	9	11	9	11	9	10	12	12
CO (µg/m3)	1	1	1	1	1	1	2	2	1
Ozone (µg/m3)	30	43	55	48	59	54	36	54	61
WS (m/s)	1	1	1	1	1	1	1	1	1
WD (Degree)	205	218	217	221	212	194	195	199	210
AQI									

LODHI ROAD IMD - 10:00 AM

Parameters	08-10-2025	09-10-2025	10-10-2025	11-10-2025	12-10-2025	13-10-2025	14-10-2025	15-10-2025	16-10-2025
Prominent Pollutant	NO2	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM2.5
PM2.5 (µg/m3)	42	57	79	142	106	125	142	142	178
PM10 (µg/m3)	51	79	124	153	138	144	156	153	165
NO2 (µg/m3)	53	38	33	18	20	22	28	28	27
NH3 (µg/m3)	_	_	_	_	_	_	_	_	_
SO2 (µg/m3)	_	_	_	_	_	_	_	_	_
CO (µg/m3)	44	42	43	73	48	64	77	96	99
Ozone (µg/m3)	_	23	27	28	34	25	24	25	33
WS (m/s)									
WD (Degree)									
AQI	53-Satisfa	79-Satisfa	124-Moder	153-Moder	138-Moder	144-Moder	156-Moder	153-Moder	178-Moder

LODHI ROAD IMD - DAILY AVERAGE

Parameters	08-10-2025	09-10-2025	10-10-2025	11-10-2025	12-10-2025	13-10-2025	14-10-2025	15-10-2025	16-10-2025
Prominent Pollutant									
PM2.5 (µg/m3)	32	38	61	67	61	68	71	78	86
PM10 (µg/m3)	72	104	172	171	158	171	179	186	203
NO2 (µg/m3)	32	55.15	19	15	16	21	22	24	20
NH3 (µg/m3)	_	_	_	_	_	_	_	_	_
SO2 (µg/m3)	_	_	_	_	_	_	_	_	_
CO (µg/m3)	1	1	1	1	1	1	1	2	2
Ozone (µg/m3)	37	41	60	56	61	61	62	45	66
WS (m/s)	_	_	_	_	_	_	_	_	_
WD (Degree)	_	_	_	_	_	_	_	_	_
AQI									

LODHI ROAD IITM - 10:00 AM

Parameters	08-10-2025	09-10-2025	10-10-2025	11-10-2025	12-10-2025	13-10-2025	14-10-2025	15-10-2025	16-10-2025
Prominent Pollutant	PM10	PM10	PM10	PM10	PM2.5	PM10	PM2.5	PM10	PM10
PM2.5 (µg/m3)	31	44	75	116	_	112	128	111	141
PM10 (µg/m3)	40	66	107	140	_	132	_	135	152
NO2 (µg/m3)	29	20	34	39	_	68	77	88	99
NH3 (µg/m3)	_	_	_	_	_	_	_	_	_
SO2 (µg/m3)	12	7	10	8	_	9	12	7	11
CO (µg/m3)	_	_	_	_	_	_	_	_	_
Ozone (µg/m3)	_	_	_	_	_	_	_	_	_
WS (m/s)									
WD (Degree)									
AQI	40-Good	66-Satisfa	107-Moder	140-Moder	_	132-Moder	128-Moder	135-Moder	152-Moder

LODHI ROAD IITM - DAILY AVERAGE

Parameters	08-10-2025	09-10-2025	10-10-2025	11-10-2025	12-10-2025	13-10-2025	14-10-2025	15-10-2025	16-10-2025
Prominent Pollutant									
PM2.5 (µg/m3)	24	34	59	62	58	65	62	64	76
PM10 (µg/m3)	57	81	158	153	147	158	146	158	188
NO2 (µg/m3)	23	21	39	38	75	59	77	82	63
NH3 (µg/m3)	_	_	_	_	_	_	_	_	_
SO2 (µg/m3)	10	7	3	10	7	8	9	5	9
CO (µg/m3)	_	_	_	_	_	_	_	_	_
Ozone (µg/m3)	_	_	_	_	_	_	_	_	_
WS (m/s)	1	1	1	1	2	1	1	1	1
WD (Degree)	278	229	301	276	310	272	296	296	290
AQI					_				

JLN DPCC - 10:00AM

Parameters	08-10-2025	09-10-2025	10-10-2025	11-10-2025	12-10-2025	13-10-2025	14-10-2025	15-10-2025	16-10-2025
Prominent Pollutant	NO2	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM2.5
PM2.5 (µg/m3)	35	79	89	174	123	140	186	163	216
PM10 (µg/m3)	35	101	145	179	164	168	188	185	215
NO2 (µg/m3)	65	56	60	67	67	74	86	88	104
NH3 (µg/m3)	5	6	5	5	5	5	6	5	6
SO2 (µg/m3)	9	9	10	12	10	11	10	11	13
CO (µg/m3)	46	39	42	88	49	69	79	108	108
Ozone (µg/m3)	4	4	4	4	84	84	33	31	3
WS (m/s)									
WD (Degree)									
AQI	65-Satisfa	101-Moder	145-Moder	179-Moder	164-Moder	168-Moder	188-Moder	185-Moder	216-Poor

JLN DPCC - DAILY AVERAGE

Parameters	08-10-2025	09-10-2025	10-10-2025	11-10-2025	12-10-2025	13-10-2025	14-10-2025	15-10-2025	16-10-2025
Prominent Pollutant									
PM2.5 (µg/m3)	38	42	66	75	64	80	78	91	97
PM10 (µg/m3)	88	124	207	212	189	222	215	237	258
NO2 (µg/m3)	49	43	54	56	53	67	72	84	83
NH3 (µg/m3)	22	22	20	20	20	21	22	24	27
SO2 (µg/m3)	7	7	9	9	9	8	9	10	10
CO (µg/m3)	1	1	1	2	1	1	2	2	2
Ozone (µg/m3)	7	4	4	42	84	55	33	20	3
WS (m/s)	_	_	_	_	_	_	_	_	_
WD (Degree)	256	300	276	264	350	296	292	283	235
AQI									

MESSAGE FROM TEAM



It was a truly rewarding experience, and we loved every moment of it. We would be honored to contribute to any future initiatives by Vedanta or Procam, as we believe it would be the best opportunity to collaborate and make a meaningful impact together.