

Crafting Sustainable solution for Cleaner, Healthier Air in Delhi

Air pollution is one of the most pressing issues of our time, posing severe threats to human health and the environment while intensifying the challenges of climate change. National Capital Territory of Delhi, has long faced challenges with air pollution, particularly during the winter months. Recent data indicates that the Air Quality Index (AQI) has reached 'severe' levels, with readings exceeding 400. Such extreme pollution poses severe health risks, including respiratory and cardiovascular diseases, and has significant adverse economic implications, with World Bank studies suggesting that air pollution costs approximately 5-7% of GDP in affected area.

Current State of Air Quality in Delhi: The winter months exacerbate Delhi's air pollution due to factors like crop stubble burning in neighbouring states, vehicular emissions, industrial activities, and construction dust. Recent data indicates that PM_{2.5} levels often exceed 400 µg/m³, placing air quality in the "severe" category. This situation is further aggravated by meteorological conditions such as low temperatures and calm winds, which trap pollutants close to the ground.

Policy Interventions Already in Place: To combat this crisis, several preventive and curative measures have been implemented including followings:

1. **Graded Response Action Plan (GRAP):** Activated during high pollution periods, GRAP enforces measures like halting construction activities and restricting vehicle movement based on pollution levels.
2. **Odd-Even Vehicle Rationing:** This scheme restricts private vehicle usage based on license plate numbers to reduce traffic emissions during peak pollution periods.
3. **Ban on Firecrackers:** A comprehensive ban aims to prevent pollution spikes during festive seasons.
4. **Promotion of Electric Vehicles (EVs):** Delhi's EV policy incentivizes the adoption of electric vehicles to reduce emissions from the transport sector.
5. **Smog Towers:** Installed in key areas, these structures aim to filter air pollutants, though their effectiveness remains under evaluation.

Call for Innovation: Despite these efforts, air quality remains a critical challenge, requiring innovative solutions that build on and enhance existing policies. Opportunities for development span both preventive and curative approaches, including but not limited to:

- Deploying advanced sensors and devices to provide accurate, real-time data to the public,
- to forecast pollution trends and inform proactive measures;

- as well as developing urban green spaces and vertical gardens to absorb pollutants;
- leveraging digital platforms to educate citizens on reducing personal pollution footprints

Problem Statement:

"What innovative, technology-driven solutions can be developed and integrated with existing policies to effectively mitigate air pollution in Delhi, ensuring both scalability and long-term sustainability?"

Additional Resources:

1. Important Government Department/ Institution website links:

- Ministry of Environment, Forest and Climate Change- [Link](#)
- Delhi Pollution Control Committee- [Link](#)
- Central Pollution Control Board- [Link](#)
- Indian Institute of Tropical Meteorology- [Link](#)
- National Institute for Urban Affairs- [Link](#)
- Portal for Regulation of Air Pollution in Non-Attainment Cities- [Link](#)

2. Best Environment Management Practices- [Link](#)

3. Public sources for data and insights

- National Portal of India- [Link](#)
- Open Government Data Platform- [Link](#)
- Economic Survey of Delhi - [Link](#)
- Digital India Mission - [Link](#)
- National Strategy for Artificial Intelligence - [Link](#)
- Six ways Government of India uses AI for governance - [Link](#)
- AI initiatives in Delhi - [Link](#)

4. Other important links:

- The Energy and Research Institute- [Link](#)
- IIT Delhi- [Link](#)