

DELHI'S AIR POLLUTION PROBLEM AND VISION FOR 2025

-Prof. S K Dhaka,
Professor, Rajdhani College
University of Delhi

Delhi, the capital city of India, has long struggled with one of the most severe air pollution crises in the world. Over the past decade, the city has consistently ranked among the most polluted globally, with alarming levels of particulate matter (PM2.5 and PM10) that far exceed safe limits. The problem stems from a combination of factors, including vehicular emissions, industrial activities, construction dust, crop stubble burning, and unfavorable meteorological conditions, particularly during the winter months. The consequences of this crisis are far-reaching, affecting public health, the economy, and the overall quality of life.

The Scale of the Problem

In 2024, Delhi experienced some of its worst air quality episodes, with the Air Quality Index (AQI) frequently entering the "severe" category. Studies have shown that prolonged exposure to such high levels of air pollution leads to respiratory diseases, cardiovascular problems, and a significant reduction in life expectancy. The World Health Organization (WHO) has attributed thousands of premature deaths

annually in Delhi to air pollution. Children and the elderly are particularly vulnerable, with increasing cases of asthma and other chronic illnesses reported across the city.

Vehicular emissions remain a primary contributor, with Delhi's burgeoning population and the rise in private vehicle ownership exacerbating the issue. The transport sector accounts for nearly 40% of the city's air pollution, according to a 2023 report by the Centre for Science and Environment (CSE). Industrial activities, particularly in neighboring regions, and coal-based power plants also contribute heavily to the city's pollution levels.

Another significant factor is the annual crop stubble burning in Punjab, Haryana, and Uttar Pradesh. Despite efforts to curb this practice, it continues to release massive amounts of smoke and particulate matter into the atmosphere, which is carried to Delhi by prevailing winds. The lack of effective waste management and the widespread use of diesel generators during power outages further aggravate the crisis.

Steps Taken So Far

In response to the growing crisis, the Delhi government and central authorities have implemented several measures. The introduction of the Graded Response Action Plan (GRAP) has led to restrictions on construction activities and vehicular movement during periods of severe pollution. The odd-even vehicle rationing scheme has also been deployed sporadically to reduce traffic emissions.

Delhi has made progress in expanding its public transport network, including the addition of electric buses and the promotion of metro rail services. Policies such as subsidies for electric vehicles and stricter emission norms for industries and vehicles are steps in the right direction. However, the implementation and enforcement of these measures have often been inconsistent.

Vision for 2025

Looking ahead to 2025, the vision for tackling Delhi's air pollution problem requires a multi-pronged and sustained approach.

- **Transition to Cleaner Energy Sources:** Phasing out coal-based power plants in and around Delhi and promoting renewable energy sources like solar and wind will significantly reduce emissions. Encouraging rooftop solar installations and expanding subsidies for clean energy adoption are essential.
- **Electrification of Transport:** Accelerating the adoption of electric vehicles (EVs) by improving charging infrastructure and offering more attractive financial incentives can reduce vehicular emissions. Expansion of electric buses and seamless integration with the metro network will encourage people to shift from private to public transport.
- **Crop Residue Management:** Introducing innovative and cost-effective solutions for farmers, such as bio-decomposers and machinery for residue management, can help eliminate stubble burning. Collaboration with neighboring states and financial support for farmers will be crucial in this effort.

- **Strengthening Waste Management:** Improved solid waste management practices, such as segregation at source and increased recycling, can reduce landfill emissions. Composting and biogas generation from organic waste should also be promoted.
- **Green Cover and Urban Planning:** Enhancing Delhi's green cover through afforestation and urban greening initiatives can mitigate the urban heat island effect and absorb pollutants. Creating buffer zones around industrial areas and adopting eco-friendly construction practices will further reduce particulate matter.
- **Public Awareness and Participation:** Engaging citizens through awareness campaigns about the health impacts of air pollution and ways to reduce their individual carbon footprints will foster a sense of shared responsibility. Community-driven initiatives, such as carpooling and local clean-up drives, can amplify these efforts.
- **Technological Innovation:** Adopting advanced monitoring systems, AI-driven air quality forecasting, and innovative pollution-control technologies, such as smog towers, can aid in effective policy implementation and real-time mitigation.

Delhi's air pollution crisis is a multifaceted challenge that demands coordinated action from government agencies, industries, and citizens alike. While measures implemented so far have shown incremental progress, achieving a vision of breathable air by 2025 will require bold and sustained efforts. By focusing on clean energy, sustainable urban planning, and technological innovation, Delhi can pave the way for a healthier, more resilient future. Collaborative action at local, regional, and national levels is essential to transforming the city from a symbol of pollution to a model of sustainable living.

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