



PARTICULATE MATTER 2.5 : ENVIRONMENT

NEWS : *Zero safe zones: No Indian city meets WHO air quality standards, says Lancet study*

WHAT'S IN THE NEWS?

India's PM_{2.5} pollution levels far exceed WHO's recommended standards, contributing to 1.5 million deaths annually. Major sources include vehicular emissions, crop burning, and industrial pollution, with urgent measures needed to reduce exposure and health risks.

Everything You Need to Know About the Health Impacts of PM_{2.5}

1. Overview of Air Quality in India

- India's air quality remains significantly worse than WHO's recommended yearly PM_{2.5} levels of **5 µg/m³**.
- **81.9% of India's population** lives in areas exceeding the National Ambient Air Quality Standards (NAAQS) of **40 µg/m³**.
- Long-term exposure to PM_{2.5} causes approximately **1.5 million deaths annually**, reflecting a major public health crisis.

2. Health Impacts of PM_{2.5}

- PM_{2.5} affects multiple body systems and is linked to:
 - Respiratory diseases such as asthma and chronic obstructive pulmonary disease (COPD).
 - Cardiovascular problems like heart attacks, strokes, and hypertension.
 - Developmental delays and cognitive impairments in children.
- A **10 µg/m³ increase in PM_{2.5} levels** raises the risk of death from any cause by **8.6%**.



3. Geographic Disparities

- During 2009–2019, pollution levels varied widely across India:
 - **Lowest PM_{2.5} levels:** 11.2 µg/m³ in Lower Subansiri, Arunachal Pradesh.



- **Highest PM2.5 levels:** 119 $\mu\text{g}/\text{m}^3$ in Ghaziabad and Delhi, categorized as hazardous.

4. Study Methodology and Findings

- Researchers used data from **civic registration systems**, **ground monitoring stations**, and **satellites** to estimate exposure levels.
- PM2.5 exposure was attributed to **25% of total deaths in India** (equivalent to 1.5 million annually).
- The death toll attributed to PM2.5 exposure surpasses the **1.1 million deaths** estimated by the Global Burden of Disease due to population growth and refined methodologies.

5. Need for Proactive Measures

- The study highlights an urgent need for measures to tackle key pollution sources:
 - **Vehicular emissions:** Transitioning to electric vehicles and improved public transport.
 - **Construction dust:** Stricter regulations and dust suppression technologies.
 - **Crop burning:** Incentivizing alternatives like bio-decomposers and mechanization.
 - **Industrial pollution:** Adopting clean technologies and enforcing emission norms.
- Reducing PM2.5 to NAAQS levels could **prevent 0.3 million deaths annually**, while achieving WHO standards would drastically lower mortality.

Source : <https://indianexpress.com/article/india/pollution-kills-1-5-million-a-year-no-indian-lives-in-who-standard-air-says-study-9721991/lite/>