



# Mid-Year Air Quality Assessment for India: CREA

[Source: HT](#)

## Why in News?

Recently, the **mid-year air quality assessment for India** by the **Centre for Research on Energy and Clean Air (CREA)**, covering the period from January to June 2024, provides a comprehensive overview of the **nation's air pollution levels**.

- This report highlights the **severity and distribution of air pollution** across Indian cities, emphasising the **importance of stringent measures** to combat this environmental crisis.

## What are the Key Highlights of the Reports?

### ▪ Key Highlights:

- **Byrnihat, located on the Assam-Meghalaya border**, emerged as the **most polluted city in India**, with an average PM2.5 concentration of **140 µg/m<sup>3</sup> (Micrograms per Cubic Metre)**.
- Among India's top 10 polluted cities, three were in Haryana, two each in Rajasthan and Uttar Pradesh, and one each in Delhi, Assam, and Bihar.
  - Delhi ranked as the 3<sup>rd</sup> most polluted city, with PM2.5 levels at **102 µg/m<sup>3</sup>**, exceeding the **National Ambient Air Quality Standards (NAAQS)** and **World Health Organization (WHO)** guidelines.
- Out of 256 cities monitored, 163 exceeded the annual NAAQS (40 µg/m<sup>3</sup>), while all exceeded the WHO standard (5 µg/m<sup>3</sup>).
  - Among the 97 **National Clean Air Programme (NCAP) cities**, 63 exceeded the NAAQS.
- Only 63 out of 163 cities exceeding the NAAQS are part of the NCAP, leaving 100 cities without action plans to reduce air pollution.
- The top **10 most polluted cities were spread across 16 states** and union territories, indicating the widespread nature of air pollution in India.
- Six new **Continuous Ambient Air Quality Monitoring Stations (CAAQMS)** were added, increasing the total to 545.
- **Karnataka and Maharashtra** had the highest number of cities under the "**Good**" and "**Satisfactory**" categories, while Bihar had the most cities in the "Moderate" category.

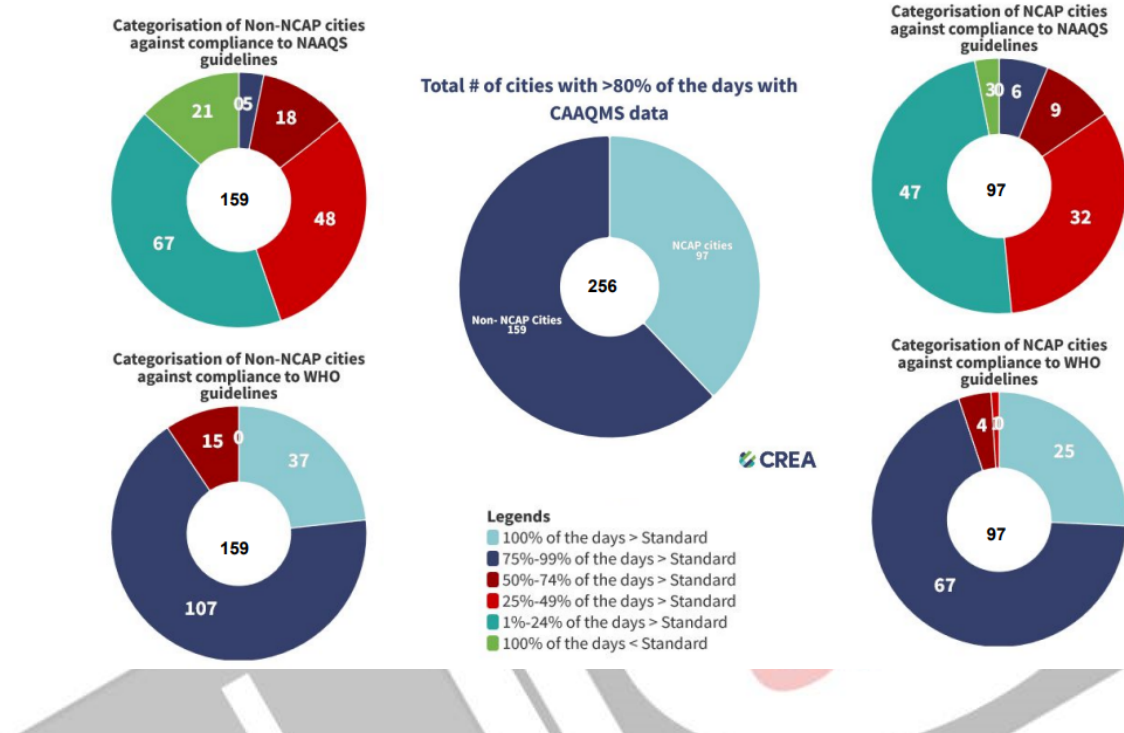
### ▪ Implications:

- The high PM2.5 levels in Byrnihat and Delhi underscore the **urgent need for localised pollution control measures**.
  - The prevalence of pollution in states like Haryana and Rajasthan calls for **coordinated regional efforts** to tackle air quality issues.
- The fact that 100 cities exceeding the NAAQS are not covered under the NCAP highlights a **significant gap in India's air quality management framework**.
  - Expanding the NCAP to include these cities is crucial for comprehensive air pollution control.
- **Chronic exposure** to high levels of PM2.5 has severe health implications, including **respiratory and cardiovascular diseases**.
  - The report's findings stress the need for public health interventions and awareness

programs.

- The increase in CAAQMS is a positive step, but the **data gaps and non-operational stations** highlight the need for enhanced monitoring infrastructure and maintenance.
- **Policy Recommendations:** Strengthening **emission standards, promoting green technologies**, and enhancing public transportation can significantly reduce pollution levels.
- **Community participation and stringent enforcement** of environmental laws are essential for sustainable air quality improvements.

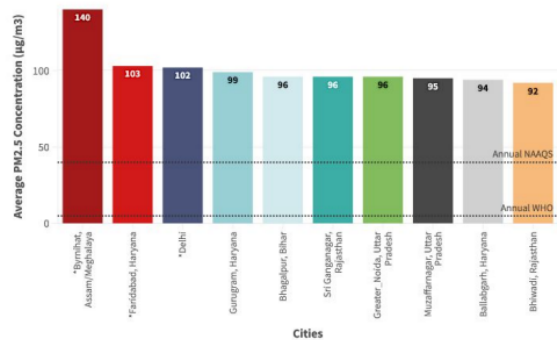
## // Number of cities vs frequency of days with PM<sub>2.5</sub> concentration above Daily NAAQS and WHO guidelines – January to June 2024



## Top 10 most polluted cities in India by PM<sub>2.5</sub> concentration – January to June 2024

Days in respective AQI categories based on PM <sub>2.5</sub> (µg/m <sup>3</sup> ) – January to June 2024								
City	Monitored days	Days > NAAQS	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very poor (121-250)	Severe (>250)
Byrnihat	176	165	5	23	11	24	107	6
Faridabad	182	181	0	18	62	58	41	3
Delhi	182	180	0	28	84	25	41	4
Gurgaon	182	181	0	17	68	52	44	1
Bhagalpur	182	167	4	57	53	22	42	4
Sri Ganganagar	179	173	2	29	72	32	43	1
Greater Noida	182	176	4	47	58	31	39	3
Muzaffarnagar	181	180	0	38	67	37	39	0
Ballabgarh	182	179	0	23	69	63	26	1
Bhiwadi	181	177	2	23	74	50	32	0

Top 10 most polluted cities in India by PM<sub>2.5</sub> concentrations (µg/m<sup>3</sup>) - January to June 2024



## Initiatives Taken for Controlling Air Pollution

- [National Clean Air Programme \(NCAP\)](#)
- [Bharat Stage Emission Standards](#)

- [Solid Waste Management Rules,2016](#)
- [System of Air Quality and Weather Forecasting and Research \(SAFAR\) Portal](#)
- [Air Quality Index](#)
- [Graded Response Action Plan](#)
- [National Air Quality Monitoring Programme \(NAMP\)](#)
- [Commission for Air Quality Management](#)



# Air Pollutants

## Sulphur Dioxide (SO<sub>2</sub>)



It comes from the consumption of fossil fuels (oil, coal and natural gas). Reacts with water to form acid rain.

**Impact:** Causes respiratory problems.

## Ozone (O<sub>3</sub>)



Secondary pollutant formed from other pollutants (NO<sub>x</sub> and VOC) under the action of the sun.

**Impact:** Irritation of the eye and respiratory mucous membranes, asthma attacks.

## Nitrogen Dioxide (NO<sub>2</sub>)



Emissions from road transport, industry and energy production sectors. Contributes to Ozone and PM formation.

**Impact:** Chronic lung disease.

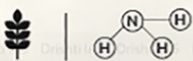
## Carbon Monoxide (CO)



It is a product of the incomplete combustion of carbon-containing compounds.

**Impact:** Fatigue, confusion, and dizziness due to inadequate oxygen delivery to the brain.

## Ammonia (NH<sub>3</sub>)



Produced by the metabolism of amino acids and other compounds which contain nitrogen.

**Impact:** Immediate burning of the eyes, nose, throat and respiratory tract and can result in blindness, lung damage.

## Lead (Pb)



Released as a waste product from extraction of metals such as silver, platinum, and iron from their respective ores.

**Impact:** Anemia, weakness, and kidney and brain damage.

## Particulate Matter (PM)



**PM10:** Inhalable particles, with diameters that are generally 10 micrometers and smaller.

**PM2.5:** Fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.

**Source:** Emitted from construction sites, unpaved roads, fields, fires.

**Impact:** Irregular heartbeat, aggravated asthma, decreased lung function.

**Note:** These major air pollutants are included in the Air quality index for which short-term National Ambient Air Quality Standards are prescribed.

## UPSC Civil Services Examination, Previous Year Question (PYQ)

### Prelims:

**Q. In the cities of our country, which among the following atmospheric gases are normally considered in calculating the value of the Air Quality Index? (2016)**

1. Carbon dioxide
2. Carbon monoxide
3. Nitrogen dioxide
4. Sulphur dioxide
5. Methane

**Select the correct answer using the code given below:**

**(a)** 1, 2 and 3 only

**(b)** 2, 3 and 4 only

**(c)** 1, 4 and 5 only

**(d)** 1, 2, 3, 4 and 5

**Ans: (b)**

### Mains

**Q.** Describe the key points of the revised Global Air Quality Guidelines (AQGs) recently released by the World Health Organisation (WHO). How are these different from its last update in 2005? What changes in India's National Clean Air Programme are required to achieve revised standards? **(2021)**