



# Begusarai: World's Most Polluted Metropolitan

## Why in News?

As per the **World Air Quality Report 2023** released by the **Swiss organization IQAir**, Bihar's Begusarai has emerged as the world's most polluted metropolitan area.

## Key Points

- The report underscores **India's ranking as the third-highest in [air pollution](#)** levels among 134 countries, following Bangladesh and Pakistan.
  - This marks a shift from 2022 when India stood at eighth place globally in terms of air pollution.
- Begusarai, with an average **[PM2.5 concentration](#) of 118.9 micrograms per cubic meter**, has surpassed all other metropolitan areas.
- **Delhi** has once again been designated as the capital city with the poorest air quality. Its PM2.5 levels have also worsened from **89.1 to 92.7 micrograms per cubic meter in 2023**.
  - The capital has retained the title of the **most polluted capital city for the fourth consecutive year since 2018**.
- The report highlights that:
  - Approximately 1.36 billion people are exposed to PM2.5 levels exceeding the **[World Health Organization \(WHO\)](#)** guideline of 5 micrograms per cubic meter.
  - 1.33 billion individuals, equivalent to 96% of the Indian population, are grappling with PM2.5 levels surpassing the **WHO standard** by seven times.
- The data for this report was compiled from a **comprehensive network of air quality monitoring stations and sensors worldwide**, involving various institutions, organizations, and citizen scientists.
  - The 2023 report has expanded its coverage to encompass **7,812 locations in 134 countries**, compared to 7,323 locations in 131 countries in 2022.
- According to the report:
  - Air pollution remains a **critical global issue**, contributing to approximately one in nine deaths worldwide.
  - The WHO estimates that **air pollution leads to seven million premature deaths annually**, impacting individuals with various health conditions such as [asthma](#), [cancer](#), **stroke, and lung disease**.
  - Exposure to high levels of PM2.5 pollution can also affect children's cognitive development, mental health, and exacerbate existing illnesses like [diabetes](#).

# 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.

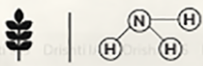
## Carbon Monoxide (CO)



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.

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