



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 (SO₂)



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 (O₃)



Secondary pollutant formed from other pollutants (NO_x and VOC) under the action of the sun.

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

Nitrogen Dioxide (NO₂)



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

Impact: Chronic lung disease.

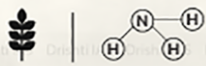
Carbon Monoxide (CO)



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 (NH₃)



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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