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_2)

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_3)

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

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

Nitrogen Dioxide (NO_2)

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_3)

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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