Dashboard for Monitoring Air Quality

Why in News

CarbonCopy and Respirer Living Sciences, two environmental organisations, have released a **dashboard** which presents a **comparative picture of particulate matter (PM) for 122 Indian cities** since 2016.

- The dashboard establishes a **three-year rolling average trend for PM2.5 and PM10 levels** across the cities from **2016 to 2018**.
    - Recently, the **State of Global Air 2020** revealed that **India had faced the highest exposure to toxic air** in the world last year.
- 122 cities are referred to as **non-attainment cities** under the **National Clean Air Programme (NCAP)**.

Particulate Matter

- Also called **particle pollution**, it is a term for a mixture of solid particles and liquid droplets found in the air.
- **It includes:**
    - **PM10:** inhalable particles, with diameters that are generally 10 micrometers and smaller; and
    - **PM2.5:** fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.
- **Sources of PM:** Some are emitted directly from a source, such as **construction sites, unpaved roads, fields, smokestacks or fires**.
    - Most particles form in the atmosphere as a result of **complex reactions of chemicals** such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industries and automobiles.
- **Harmful Effects:** Small particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into the lungs, and some may even get into the bloodstream. Particle pollution exposure has been **linked to a variety of problems**, including irregular heartbeat, aggravated asthma, decreased lung function and increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing.

National Clean Air Programme

- The Centre had launched the National Clean Air Programme in 2019 to **address air pollution in 122 cities**. These cities are referred to as **non-attainment cities** as they **did not meet the national ambient air quality standards** for the period of 2011-15 under the **National Air Quality Monitoring Programme**.

Key Points

- **About the Dashboard:**
    - It is a **National Air Quality Monitoring Programme (NAMP) based dashboard,** built on data from the **Central Pollution Control Board's** **National Ambient Air Quality Monitoring (NAAQM) Network** which was started in 1984-85 and covers 344 cities/towns in 29 states and 6 UTs.
        - Under the NAMP, each station records about 104 observations a year covering **four pollutants**– Sulphur dioxide (SO2), nitrogen dioxide (NO2), suspended particulate matter (SPM), and respirable suspended particulate matter (RSPM).
        - **State pollution control boards** and the **National Environmental Engineering Research Institute (NEERI)**, Nagpur **carry out the monitoring**, and the **Union Ministry of Environment, Forest and Climate Change oversees the operation under the NCAP**.
- **Other Monitoring Systems:**
    - **SAFAR:** System of Air Quality and Weather Forecasting and Research, known as "SAFAR", for **greater metropolitan cities of India** to provide location specific information on air quality in near real time. It was introduced by the **Ministry of Earth Science**.
    - **AQI:** Air Quality Index (AQI) is a tool for **effective communication of air quality status to people** in terms, which are easy to understand. There are **six AQI categories**, namely Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe. AQ sub-index has been evolved for **eight pollutants** (PM10, PM2.5, NO_2, SO_2, CO, O_3, NH_3, and Pb) for which short-term (upto 24-hours) National Ambient Air Quality Standards are prescribed.
        - **Graded Response Action Plan for Delhi and NCR** has been prepared for implementation under different AQI categories.
- **Significance:**
    - A majority of health models which establish the relationship between air pollution and public health are based on western models due to a lack of health data available in Indian context.
    - When this data can be made available, it will give a true sense of the **burden of respiratory diseases in the country by geographical distribution**.
- **Performance on PM 2.5 level:** A total of **59 of 122 cities** had PM2.5 data available.
    - **Noida ranked the worst** with 119, followed by Agra, Delhi, Lucknow, Ghaziabad, Muzzaffarpur, Kanpur, Chandigarh, Howrah and Kolkata.
- **Performance on PM 10 level: Delhi ranked as the most polluted state** on an average of 3 years' PM10 monitoring data, followed by **Jharkhand** and **Uttar Pradesh**.
    - **Maharashtra,** which has the **maximum number of non-attainment cities** in the NCAP, has seen air quality worsen since 2016. State capital, Mumbai, for instance witnessed a year-on-year increase in PM10 levels from 119 in 2016, to 151 in 2017 and 165 in 2018.
    - **Tuticorin in Tamil Nadu** has recorded **progressive and substantial improvements in PM10 levels** between 2016 and 2018 - by 24% in 2017, in comparison to 2016 levels, and another 23% in 2018 in comparison to the previous year.

Way Forward

- The dashboard can help identify the need for more monitoring stations and address data gaps. At a time when the Central government aspires to bring out a new law to address air pollution in the National Capital Region, it is important to evaluate the existing regulations as the first step towards effective crisis management.

Source: IE