



World Air Quality Report 2021

For Prelims: 2021 World Air Quality Report, National Clean Air Program (NCAP), BS-VI Vehicles, Push for Electric Vehicles (EVs), Odd-Even Policy, New Commission for Air Quality Management, Turbo Happy Seeder (THS) Machine.

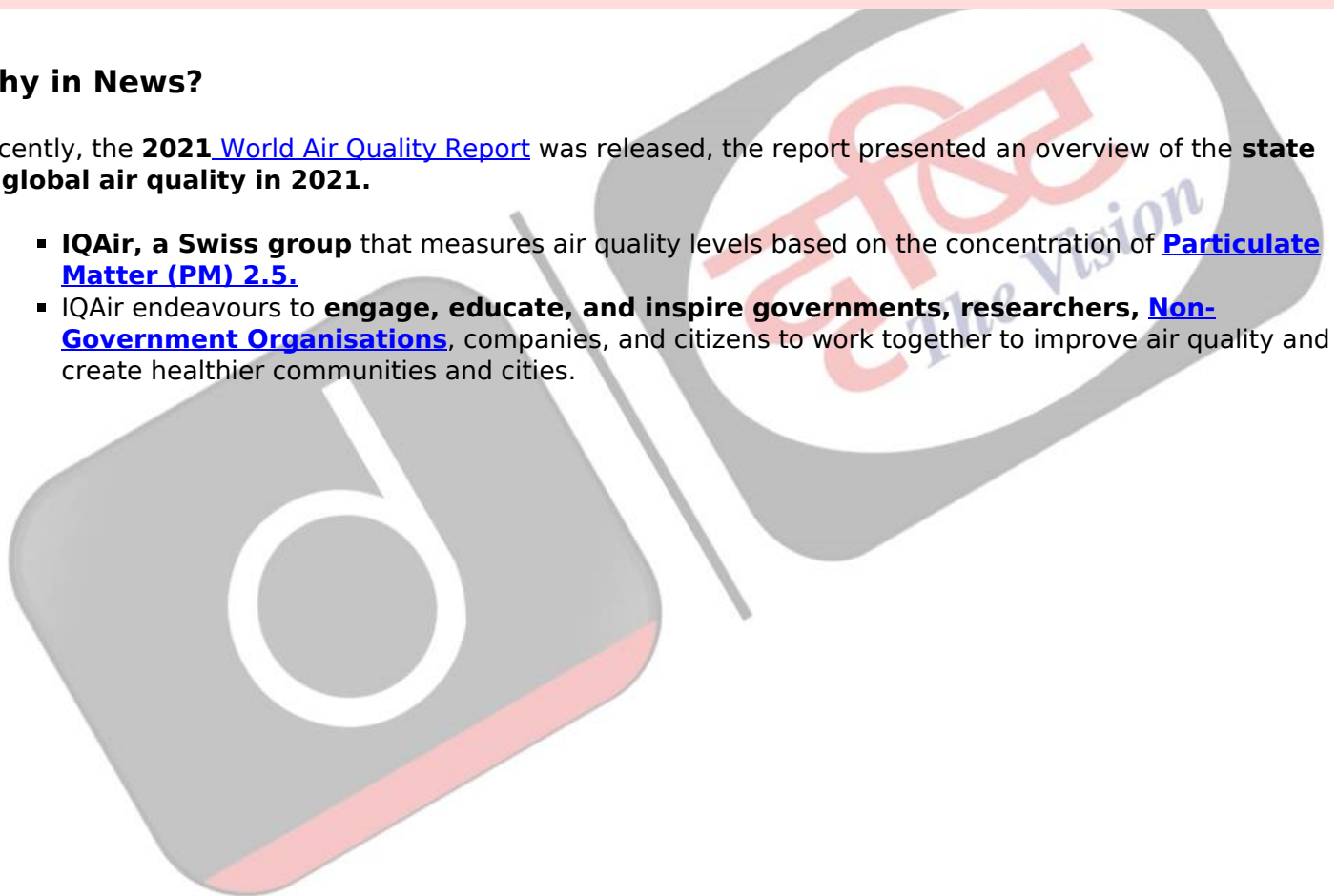
For Mains: Effects of Air pollution, Environmental Pollution & Degradation.

Why in News?

Recently, the [2021 World Air Quality Report](#) was released, the report presented an overview of the **state of global air quality in 2021**.

- **IQAir, a Swiss group** that measures air quality levels based on the concentration of [Particulate Matter \(PM\) 2.5](#).
- IQAir endeavours to **engage, educate, and inspire governments, researchers, Non-Government Organisations**, companies, and citizens to work together to improve air quality and create healthier communities and cities.

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Delhi tops global capital pollution chart again

New Delhi continues to be the world's most polluted capital city for the fourth consecutive year. A look at the report compiled by IQAir

2021 CAPITAL CITY RANKING

Average annual PM2.5 concentration in the year

①	New Delhi, India	85.0
②	Dhaka, Bangladesh	78.1
③	N'Djamena, Chad	77.6
④	Dushanbe, Tajikistan	59.5
⑤	Muscat, Oman	53.9
⑥	Kathmandu, Nepal	50.9
⑦	Manama, Bahrain	49.8
⑧	Baghdad, Iraq	49.7
⑨	Bishkek, Kyrgyzstan	48.3
⑩	Tashkent, Uzbekistan	42.8



The top five polluted countries in 2021

No country met WHO air quality guideline for PM2.5, which cut the existing annual guideline value from 10 $\mu\text{g}/\text{m}^3$ to 5 $\mu\text{g}/\text{m}^3$ in 2021

Only 222 out of 6,475 global cities met updated PM2.5 parameters

93 cities had annual PM2.5 concentrations exceeding **10 times** the WHO norms

Of **1,887** Asian cities, only four met updated PM2.5 norms

46 of 50 most polluted cities in the world are in Central and South Asia | P7

What is the Need for the Report?

- **Air pollution** is now considered to be the **world's largest environmental health threat**, accounting for seven million deaths around the world every year.
- Air pollution causes and **aggravates many diseases, ranging from asthma to cancer, lung illnesses and heart disease.**
- The estimated daily economic cost of air pollution has been figured at **USD 8 billion**, or **3 to 4% of the Gross World Product (GWP)**
 - GWP is the combined Gross Domestic Product (GDP) of all the countries in the world equals the total global GDP.
- Air pollution **affects those that are most vulnerable the most.** It is estimated that in **2021, the deaths of 40,000 children under the age of five were directly linked to PM2.5 air pollution.**
- Further, in this age of **Covid-19**, researchers have found that exposure to **PM2.5 increases both the risk of contracting the virus** and of suffering more severe symptoms when infected, including death.

How is PM 2.5 measured?

- The report is based on PM2.5 air quality data from **6,475 cities in 117 countries, regions and territories around the world.**
- PM2.5, particulate matter consisting of fine aerosol particles measuring 2.5 microns or smaller in diameter, is **one of six routinely measured criteria air pollutants** and is commonly accepted as the most harmful to human health due to its prevalence in the environment and broad range of health effects.
- PM2.5 is generated from many sources and **can vary in chemical composition and physical characteristics.**
 - Common chemical constituents of **PM2.5 include sulphates, nitrates, black carbon, and ammonium.**
- The **most common human-made sources include** internal combustion engines, power generation, industrial processes, agricultural processes, construction, and residential wood and coal burning.
- The most common natural sources for **PM2.5 are dust storms, sandstorms, and [wildfires](#).**

What is the Indian Scenario?

- India's annual average PM2.5 levels reached **58.1 µg/m³ in 2021**, ending a three-year trend of improving air quality. India's annual PM2.5 averages have now returned to pre-quarantine concentrations measured in 2019.
- India was home to **11 of the 15 most polluted cities in Central and South Asia in 2021.**
- In 2021, Mumbai had recorded **Particulate Matter (PM) 2.5 annual average of 46.4 microgram/cubic metre - nearly nine times above the [World Health Organisation \(WHO\)](#) limit.**

What are Challenges in Front of India?

- Air pollution has a **massive impact on human health in India.**
- It is the **second biggest risk** factor for disease, and the economic cost of air pollution is estimated to exceed **USD 150 billion dollars annually.**
- Major sources of air pollution in India include **vehicular emissions, power generation, industrial waste, biomass combustion for cooking, the construction sector, and episodic events like crop burning.**
- In 2019, India's Ministry of Environment, Forest and Climate Change (MoEF&CC) enacted the **[National Clean Air Program \(NCAP\)](#).**
 - The plan seeks to reduce PM concentrations by **20% to 30% by 2024** in all identified non-attainment cities, increase air quality monitoring, and implement a city, regional, and state-specific clean air action plan as well as conduct source apportionment studies.
- However, the **[lockdowns](#)**, restrictions, and resulting economic downturn due to the **COVID-19 pandemic** have made it difficult to determine the plan's impact based on air pollution levels alone.

What are Initiatives taken by India for Controlling Air Pollution?

- **[System of Air Quality and Weather Forecasting and Research \(SAFAR\) Portal](#)**
- **[Air Quality Index](#)**: AQI has been developed for eight pollutants viz. PM2.5, PM10, Ammonia, Lead, nitrogen oxides, sulphur dioxide, ozone, and carbon monoxide.
- **[Graded Response Action Plan](#)**
- For Reducing Vehicular Pollution:
 - **[BS-VI Vehicles](#),**
 - **[Push for Electric Vehicles \(EVs\)](#).**
 - **[Odd-Even Policy](#)** as an emergency measure
- **[New Commission for Air Quality Management](#)**
- Subsidy to farmers for buying **[Turbo Happy Seeder \(THS\) Machine](#)**

Way Forward

- **Adhering to WHO's 4 Pillar Strategy:** WHO adopted a **resolution (2015)** to address the adverse health effects of air pollution. There is a need to adhere to a roadmap highlighted under this.
 - This **4-pillar strategy calls** for an enhanced global response to the adverse health effects of air pollution. Those **four pillars are:**
 - Expanding the knowledge base
 - Monitoring and reporting
 - Global leadership and coordination
 - Institutional capacity strengthening
- **Addressing Injustice:** There are huge injustices at the heart of the air pollution problem as the Poorer people are also most exposed to air pollution.
 - Thereby, the need to enforce **Polluter Pay principle** and an **environment tax must be levied from industries of polluting in nature.**

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. Consider the following: (2011)

1. Carbon dioxide
2. Oxides of Nitrogen
3. Oxides of Sulphur

Which of the above is/are the emission/emissions from coal combustion at thermal power plants?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (d)

Q. Global Financial Stability Report' is prepared by the (2016)

- (a) European Central Bank
- (b) International Monetary Fund
- (c) International Bank for Reconstruction and Development
- (d) Organisation for Economic Cooperation and Development

Ans: (b)

Source: IE