WHO Pollution Report - India

What is the issue?

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- WHO report on most polluted cities highlights the worrying pollution scenario in Indian cities.
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- It makes it imperative to analyse the reasons for the Indo-gangetic plain being polluted the most.
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What is the case with India?

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- 14 of the 15 cities with the highest levels of PM 2.5 pollutants in 2016 were in India.
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- These 14 towns and cities are mostly part of northern India stretching from west to east.
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- It covers from Jodhpur (No. 14) in Rajasthan to Gaya (No. 4), Patna (No. 5), and Muzaffarpur (No. 9) in Bihar.
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- The report identifies the **Indo-Gangetic plain**, along with **Rajasthan and the Kashmir Valley**, as having the worst air in the world.
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What is the anomaly?

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- Delhi, Agra and Kanpur are evidently known to have very high levels of air pollution.
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- But places like Varanasi, Muzaffarpur, Gaya, and Srinagar do not have a high concentration of polluting industries.
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- They neither are notable for other common sources of pollution, such as vehicular emissions.
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- But a steady rise in the particulate matter all over the Gangetic plains is being noticed for the last one decade or so.
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What make the Indo-Gangetic plain vulnerable?

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- **Trapped** - The Gangetic plains are like an enormous valley, trapped on both sides.
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- It lies between the Himalayas in the north and the Vindhyas in the south.
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- Resultantly, pollutants are unable to disperse very far.
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- Also, this region is land-locked and does not have the advantage of the coast.
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- So pollution cannot dissipate quickly as in, say, Mumbai or Chennai.
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- **Populated** - The region is one of the most densely populated in the world.
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- The demand for energy sources, and the consequent burning of fuels, is extremely high.
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- This naturally releases a large number of pollutants and particulate matter.
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- **Waste management** - A lot of the smaller cities have poor waste management.
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- There is a lot of burning, solid fuel use, moving from non-motorised to motorised transport, etc.
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- **Secondary sources** - Neither Gaya nor Muzaffarpur, not even Delhi and Kanpur, produce even half of the pollutants measured in these cities.
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- Most of the particles at Gaya and Muzaffarpur are actually transported from “up-wind” states.

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- It is shown that more than 60% of the particulate matter found in Kanpur has been generated elsewhere.
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- **Humidity** - As they move along, these particles gain in size and mass.
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- The high levels of humidity in this region is very conducive to the formation of secondary aerosols.
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- Water facilitates the reaction between the emitted gases whose molecules form clusters and slowly nucleate into particles.
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- Gases released from industries or vehicles, too, condense and are converted into particles.
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- **Wind Direction** - In this region, wind predominantly blows from north-west to east for most part of the year.
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- This is more so in the winter, carrying along with it pollutants generated elsewhere.
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- But once the pollutants enter the Gangetic region, they get trapped, and remain suspended over the area.
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How to address this?

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- Air pollution does not recognise borders.
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- Improving air quality demands sustained and coordinated government action at all levels.
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- North India is not the only part of the world with these or similar geographical constraints.
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- There are international models in such states/regions which have laws empowering governments to invoke stringent measures whenever required.
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- E.g. California, a valley with a propensity for pollution to build up, was the first state in the US to enact an anti-pollution law back in the 1940s.
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Source: Indian Express

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