

'Time to look at city's airshed & not just localised pollution'

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Mumbai: The BMC has announced a series of measures to check dust from construction sites in a bid to improve the city's air quality. But scientists say air pollution also needs to be tackled as a regional problem, as an "airshed" approach, which is used in parts of Europe and the US. For instance, Mumbai's air quality may be affected not only by construction and traffic in the city but also by: landfills, power plants and refineries in the eastern suburbs; industrial units in Thane and Ulhasnagar; construction and quarrying in Navi Mumbai; and waste burning and vehicular emissions all over the metropolitan region.

With an increase in economic activity and population in recent decades, especially



MUMBAI CHOKING

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the growth of contiguous urban areas, air pollution is no longer a local problem, say experts. "The concept of local pollution works where there are a few hotspots, and if you concentrate on them, your problem is solved," says atmospheric scientist Sarath Guttikunda. "But the hotspot now is the larger region."

An airshed is typically defined as a geographic area with similar air quality due to local meteorological and topographical conditions, regardless of administrative boundaries. An airshed approach thus "helps us address all the pollution sources in the area that comprises the airshed", says Guttikunda. "We need to go beyond the city."

In a recent paper, Guttikunda and other researchers suggested that 164 cities under the National Clean Air Programme (NCAP) could be

WHAT CALIFORNIA CAN TEACH MUMBAI REGION

THE AIRSHED APPROACH

► Airsheds are typically defined as geographical areas of shared air quality due to local meteorological and topographic conditions

► The Mumbai airshed might include Thane, Navi Mumbai, and other adjacent areas, for instance

► This approach recognises that pollution sources can lie beyond administrative boundaries and travel through the region



AN EXAMPLE OF THE APPROACH

California: The state of California in the US has 35 air districts and 15 air basins. The air districts function as regional agencies under the state air resources board responsible for enforcing air quality rules

► Air quality has significantly improved in these areas



clubbed into 104 airsheds for better air quality monitoring and management. The Mumbai airshed, for instance, could include Badlapur, Navi Mumbai, Thane, Ulhasnagar, and Vasai-Virar as well as Kalyan and Karjat, his analysis suggested. At least 67 monitors would be needed to measure PM2.5 in this area, the analysis found, compared with the current 30-odd in the region.

One advantage of the airshed approach is that one may discover unexpected sources of pollution at different locations, says Chandra Venkataraman, an aerosol expert at IIT-Bombay. "We're assuming that pollution in Mumbai is only coming from Mumbai," when that isn't necessarily the case, she notes. "We need to find out how much of the city's air pollution is contributed by region-

al or transboundary pollution."

The most obvious example of transboundary pollution is crop burning in Punjab that contributes to pollution in Delhi. Central India, too, has a crop burning issue, notes Venkataraman. The airshed concept recognises the role of seasonal meteorology, say scientists. "A region may function as an airshed in particular seasons, and less so in other seasons," says Venkataraman.

The recent high in city pollution levels, for instance, is thought to be partly due to post-monsoon weather conditions. On the one hand, there were winds sweeping towards the coast, potentially bringing pollutants from the hinterland towards Mumbai. On the other hand, reduced winds from the Arabian Sea meant the polluted air didn't clear out quickly.

"In October, what we see is regional scale transboundary pollution, and then something [in the weather] confining it here," says Venkataraman. Not surprisingly then, not just Mumbai but Navi Mumbai, Thane and other areas also saw high pollution levels in recent weeks.

Guttikunda suggests geographic airsheds could even be based on the Indian Meteorological Department's 36 climate sub-divisions since they already get short and long-term weather predictions.

The big challenge in the airshed approach is the coordination required between various local and state level bodies, as well as a significantly larger air monitoring network, say experts. "We need a framework that coordinates city level interventions with state level interventions," says Venkataraman.