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Combating Air Pollution: Need to Strengthen Air Quality Monitoring in India

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The fourth WHO database on ambient (outdoor) air quality - the largest of its kind – has compiled information on air pollution levels for over 4300 human settlements, mostly cities, in 108 countries. The aim of this updated database is not to rank cities or countries but to reflect the monitoring efforts undertaken in those countries.

Globally, 7 million deaths were attributable to the joint effects of household (HAP) and ambient air pollution (AAP) in 2016. About 94% of these deaths occur in low and middle-income (LMI) countries.

- WHO recognizes that air pollution is a critical risk factor for noncommunicable diseases (NCDs), causing an estimated one-quarter (24%) of all adult deaths from heart disease, 25% from stroke, 43% from chronic obstructive pulmonary disease and 29% from lung cancer.
- The database collects annual mean concentrations of fine particulate matter (PM₁₀ and PM_{2.5}). PM_{2.5} includes pollutants, such as sulfate, nitrates and black carbon, which pose the greatest risks to human health. WHO air quality recommendations call for countries to reduce their air pollution to annual mean values of 20 µg/m³ (for PM₁₀) and 10 µg/m³ (for PM_{2.5}).
- It notes India's efforts: *Pradhan Mantri Ujjwala Yojana Scheme* has provided some 37 million women living below the poverty line with free LPG connections to support them to switch to clean household energy use.
- WHO has launched a challenge to encourage citizens to take action to reduce air pollution. “**Marathon a month**” which calls on people to pledge to leave their car behind and use alternative forms of transport for at least the distance of a marathon (42km/26 miles) for one month.
- Both 'mobile' sources (i.e. cars) and 'stationary' sources (i.e. smoke stacks) make significant contributions to ambient (outdoor) air pollution both in urban and in rural areas.

- Some of the major sources include exhaust fumes from vehicles, emissions from manufacturing facilities (e.g. factories), agriculture practices, waste, and crop burning and power generation (e.g. smokestacks of coal-fired power plants).

Facts and Figures

- 9 out of 10 people breathe air containing high levels of pollutants.
- 14 Indian cities are among the 20 most polluted ones globally. While Delhi comes in at number six, Kanpur, Faridabad, Varanasi, Gaya, and Patna are ranked ahead of it, by PM 2.5 levels.
- Over 3 billion people – most of them women and children – are still breathing deadly smoke every day from using polluting stoves and fuels in their homes.
- Around 3 billion people – more than 40% of the world’s population – still do not have access to clean cooking fuels and technologies in their homes, the main source of household air pollution.

Deficient Air Quality Monitoring in rural India: Issues and Concerns

- As per the WHO report, Europe has the most extensive monitoring network while countries in Africa and the Western Pacific region perform poorly.
- Air pollution is not a problem of large metropolises alone, even though they have traditionally been the focus of mitigation efforts.
- About a third of the air pollution deaths in 2016 occurred in Southeast Asian countries, which include India. Once monitoring improves in these regions, the numbers will likely be revised upwards.
- Kanpur, Faridabad and several other pollution-choked cities have only one PM 2.5 monitoring station each, while Delhi has several. WHO researchers get around this problem by using alternative data sources such as satellite remote sensing and chemical transport models, along with ground-monitoring stations.
- The recently published draft National Clean Air Programme has noted that there are currently no air pollution monitoring stations in rural India. This does not mean outdoor air pollution is not a problem here.
- Studies have shown that ozone levels are higher in rural areas, as is pollution from insecticide use and crop-burning.
- The government of India and international development agencies have devoted themselves to reduce indoor air pollution in rural India. This problem is mostly attributable to chulhas—traditional cookstoves fuelled by dung, wood or crop residue. But the problem of outdoor air pollution in rural India is rarely acknowledged.
- A commonly held belief across north India is that food cooked on a chulha is healthier than that cooked on an LPG stove. Many LPG beneficiaries continue to use chulhas with LPG stove.

- 30 percent of Indians live in rural Punjab, Haryana, Uttar Pradesh, and Bihar, which satellite images show falling under a cloud of dirty air every winter.
- Computer modeling and satellite technology have allowed experts to estimate air quality using satellite data. These estimates cannot capture the same level of detail that on-the-ground monitors do, but they are indicative of the scale and severity of the problem. Applying this approach to India reveals that outdoor air quality throughout the Indo-Gangetic plain, in both urban and rural areas, is estimated to be the worst in the country.
- Central Pollution Control Board (CPCB) is executing a nation-wide programme of ambient air quality monitoring known as National Air Quality Monitoring Programme (NAMP). The network consists of 683 operating stations covering 300 cities/towns in twenty-six 29 states and six Union Territories of the country.

With more measurements and reporting, India's pollution problems will likely appear worse before they get better. However, collecting the information is vital for the counteroffensive against poor air quality.

Government Efforts to Control Air Pollution

In order to address the issue, Government has undertaken many significant steps which inter-alia include—

- notification of National Ambient Air Quality Standards and sector-specific emission and effluent standards for industries;
- setting up of a monitoring network for assessment of ambient air quality;
- introduction of cleaner gaseous fuels like CNG, LPG etc and ethanol blending;
- launching of National Air Quality Index (AQI);
- leapfrogging from BS-IV to BS-VI standards for vehicles by 1st April 2020;
- banning of the burning of biomass;
- promotion of public transport network; Pollution Under Control Certificate; issuance of directions under Air (Prevention and Control of Pollution) Act, 1981;
- installation of on-line continuous (24x7) monitoring devices by 17 highly polluting industrial sectors;
- a ban on the bursting of sound emitting crackers between 10 PM to 6 AM;
- notification of graded response action plan for Delhi and NCR identifying source wise actions for various levels of air pollution, etc.