



A Roadmap Towards Cleaning India's Air

To help improve India's air quality, researchers from the University of Chicago and Harvard Kennedy School have laid out five key evidence-based policy recommendations in a new report, titled '**A Roadmap Towards Cleaning India's Air**'.

- If India were to achieve its own air quality standards, **life expectancy** would increase by **more than one year** on an average.
 - This number would increase to **four years** if India were to meet the **World Health Organisation's (WHO) norms**.
- Although there will be no easy solution, the researchers were optimistic because of the **incredible innovations currently being experimented** with throughout India. Some of the greatest gains would be seen in big cities such as Delhi.
- Air quality is measured based on the number of small particles in **every cubic metre** of air capable of entering the **bloodstream** through the lungs.

Findings

- More than **660 million Indians** live in areas that exceed the country's standard for what is considered safe exposure to fine particulate pollution (PM 2.5).
- According to a January 2018 survey by Greenpeace Environment Trust that covered 630 million Indians, 550 million live in areas where particulate matter exceeds the national standard, and many live in areas where air pollution levels are more than twice the stipulated standard.
- The study found that the **odd-even scheme** in Delhi was effective in reducing particulate matter (PM) 2.5 by 13% during the first half of January 2016.
 - However, there was no effect in April 2016, when the scheme was reintroduced.
 - This could have been due to **greater dispersion** caused by **warmer temperatures**.
 - Therefore, driving restrictions could be the most **effective as emergency measures** during the worst periods.
- The ambient air pollution alone may cost India **more than \$500 billion a year**.

Health Impacts

- Air pollution is estimated to be the fourth leading fatal health risk worldwide after metabolic risks, dietary risks and tobacco smoke.
- Major concerns to human health from air pollution include effects on breathing and respiratory systems, damage to lung tissue, cancer and premature deaths.
- Elderly persons, children and people with chronic lung disease, influenza or asthma are more prone.

Recommendations of the Report

- Information about polluters be **made public**,
- Provide regulators with **real-time data**,
- Improve emissions monitoring by better aligning **auditors' incentives**,

- Use **monetary charges** for excess emissions and
- Use **markets to reduce abatement** costs and pollution.

Particulate Matter (PM)

- Particulate matter, also called particle pollution is a mixture of solid particles such as dust, dirt, soot, or smoke and liquid droplets found in the air.
- These microscopic particles are so light they float on air and lodge deep in the lungs, and have been linked to higher rates of lung cancer, chronic bronchitis and heart disease.
- Particle pollution 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**.
- 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.
- Some are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires.

Steps Taken to Curb Air Pollution

- Control measures so far instituted include **introduction of unleaded petrol (1998), catalytic converter** in passenger cars (1995), **reduction of sulfur content in diesel (2000)** and reduction of benzene content in fuels (2000).
- Other step include **drafting of Air (Prevention and Control of Pollution) Act in 1981** to arrest deteriorating air pollution levels.
- The central government released the **National Air Quality Index (AQI)** for public information under the aegis of the CPCB. AQI has been developed for **eight pollutants— PM2.5, PM10, NH3, Pb, nitrogen oxides, sulphur dioxide, ozone and carbon monoxide**.
- The legislative and judicial response include **odd-even scheme, ban on registration of luxury SUVs and diesel cars above 2000cc in the national capital**, green cess on commercial vehicles, National Green Tribunal's (NGT) directions to strictly implement orders regarding the ban on burning of waste.
- Having **ozone monitoring stations** in cities (there has been a 148 per cent increase in ozone-related deaths since 1990), giving **easy access to cheap solar technology**, improved transport facilities, **treatment plants** for industrial discharge and domestic garbage, and facilitating biogas plants and seeder machinery to curb open burning should be immediately attended to.
- Recently, the Supreme Court accepted the suggestions of the Ministry of Road Transport and Highways (MoRTH) to have **hologram-based coloured stickers** on vehicles to indicate the **nature of fuel being used**.
 - Sticker of **light blue colour** will be used for **petrol and CNG-run vehicles**, while similar sticker of **orange colour** will be placed on **diesel vehicles**.
 - The SC also **suggested** to consider green number plates for electric and hybrid vehicles.
 - This will help authorities identify vehicles running on high-polluting fuel from specified routes on particular days. The hologram-based stickers will also **contain the registration date** of the vehicle.
 - The use of more polluting vehicles can be restricted in a congested or a polluted zone temporarily or permanently depending on the pollution level by the **local authority** based on **Air Quality Index** of the area.