

Delhi Air Pollution [UPSC Notes]

Air Pollution in Delhi

India is one of the most polluted countries in the world and among the capital cities, Delhi is probably one of the most polluted cities. Indian cities feature largely in the top 50 polluted cities of the world according to many parameters.

The problem, however, is particularly severe in the capital Delhi and its adjoining areas, commonly called Delhi – NCR.

- The [Environment Performance Index](#) 2020 gives India a global ranking of 169.
- Air pollution (both indoors and outdoors) is the second-most serious risk factor for public health in the country (the first being malnutrition) and it contributes to an estimated 2.5 million deaths annually.

But what makes Delhi's air pollution so severe compared to the rest of the country, and what specifically makes it more harmful during the winter months? This is discussed in the following sections.

Causes of Air Pollution in Delhi

Air pollution is the introduction into the atmosphere of chemicals, particulates, or biological materials that cause discomfort, disease, or death to humans, damage other living organisms, damage natural and built environment. Know more about [air pollutants](#) in the link.

The severe air pollution that affects life is not restricted to Delhi but to a huge airshed around it that includes the NCR. This encompasses Gurgaon, Faridabad, Ghaziabad, Noida, places in Haryana, UP, and even Alwar (Rajasthan).

The most important causes of air pollution in Delhi and adjoining areas are as follows:

- Increasing population and related developmental activities at the cost of environmental damage.
- The development of the region has largely been unplanned and often, industrial units that spew harmful chemicals into the atmosphere are located in residential and commercial areas and not designated areas.
- Increased vehicular traffic (which has not come down despite the Delhi metro) and the consequent rise in air and noise pollution.
- Almost 8,000 m tonnes of solid waste is being generated in Delhi (National Environmental Engineering Research Institute) every day, however, the authorities manage to clear only about 5000 – 5500 m tonnes of waste daily. This adds to the garbage piling up. This is not counting the hazardous and non-hazardous waste from industries.
- There is a rather high dependence on fossil fuels whose burning causes a lot of emission of harmful gases into the atmosphere.
- Large scale construction activities lead to increased dust pollution which leads to around 56% of PM10 and the PM2.5 load.

- The landlocked geography of Delhi also causes more air pollution as compared to other cities. The northwesterly winds coming from Rajasthan, sometimes Pakistan and Afghanistan bring in dust to the region. The Himalayas obstruct the escape route of the air. This causes the dust and pollutants to settle in the region. This is more prominent during the winters because of low-level inversion (upward movement of air from the layers below is stopped). It is because of this landlocked geography of Delhi that it faces greater pollution when compared to the coastal city of Chennai (where despite high automobile population, has the sea breeze which provides an effective entry and exit for dispersing pollutants).
- Stubble burning also contributes to the air pollution in the region. During the winter months, the large scale [stubble burning](#) practised in Punjab, Haryana and Rajasthan cause a thick blanket of smog to cover Delhi-NCR. According to a study, the burning of crop residue released about 149 million tonnes of carbon dioxide, more than 9 million tonnes of carbon monoxide, 0.25 million tonnes of oxides of sulphur (SOX), 1.28 million tonnes of particulate matter (PM) and 0.07 million tonnes of black carbon. As evident, it contributes to a lot of [greenhouse gas](#) emissions.
- Firecrackers, although not the top reason for air pollution, also contributes to the problem.

Problems Caused by Air Pollution

- Air pollution severely affects human health. It is found to cause low birth weight in children, tuberculosis, asthma, ischemic heart disease, nasopharyngeal and laryngeal cancers, cataracts, etc.
- According to some research, air pollution can also impair cognitive development.
- Air pollution is associated with infections & diseases that kill around 600,000 children under five years of age every year.
- Several studies reveal a higher prevalence of symptoms of chronic bronchitis in areas with higher particulate air pollution.
- Nearly 2.5 million people die worldwide each year from the effects of outdoor or indoor air pollution. (National Geographic)
- Air pollution also affects the environment adversely. Many pollutants are [greenhouse gases](#) and this leads to global warming. Burning fossil fuels releases carbon dioxide which has the biggest impact on global warming.

Steps Taken to Control Delhi's Air Pollution

Various steps have been taken by the government (central and state governments) to tackle the menace of air pollution in Delhi-NCR. Some of the measures are given below.

- In October 2020, the Supreme Court appointed a one-man committee, **Justice Lokur Committee**, to monitor and curb the occurrences of stubble burning in Punjab, Haryana and Uttar Pradesh. Read more about this committee in [CNA dated Oct 17, 2020](#).
- The Ministry of Environment, Climate Change and Forests notified the **Graded Response Action Plan (GRAP)** in 2017.
 - These are institutionalised measures to be taken only when the air quality in Delhi NCR deteriorates beyond a certain threshold.
 - It is only to be implemented in emergency situations.

- The steps would be taken to prevent PM10 and PM2.5 levels to go beyond the 'moderate' national [Air Quality Index \(AQI\)](#) category.
- GRAP enumerates a series of measures to be taken based on the quality of air.
- In case of severe+ category, one of the measures also includes shutting down of schools.
- **Construction & demolition (C&D) waste management rules** have been notified which mandate the segregation of C&D waste into various categories for safe disposal and further processing.
- **Red Light On, Gaadi Off campaign** was an initiative by the Delhi Government that ran in Oct-Nov 2020 under which commuters driving vehicles were urged to switch off their vehicle engines while waiting for the green light at traffic lights.
- The **Odd-even rule** was introduced by the Delhi Government according to which vehicles with odd and even registration numbers would ply on the road on alternate days. This was particularly aimed at reducing smog in the region.
- The state government of Delhi also introduced a policy to preserve and plant trees in a bid to increase the green cover and have carbon sinks.
- Anti-smog guns and smog towers are installed and used in the city.
- Prevention of stubble burning is a key component of reducing the air pollution in the Delhi NCR area.
 - Subsidy is provided to the farmers for procuring the Turbo Happy Seeder which is a machine fitted on tractors that can cut and uproot stubble and eliminates the need to burn stubble.
 - The ICAR has also come up with the PUSA Decomposer which is a capsule that can be used to make a spray which when sprayed on crop residue hastens its decomposition.
- **Mass Rapid Transport System (MRTS)** is being built as a means to provide citizens with non-polluting alternative source of transportation.
- The adoption of the [Bharat Stage VI norms](#) and the big push being given to electric vehicles are steps in the right direction in curbing vehicular pollution.

Way Forward

Reducing air pollution in the national capital is a pressing need for which both the governments and the citizens should play their part. The government should enforce all the legislations necessary and see to it and they are properly implemented. Citizens should comply with the laws and regulations and do their part as well. Afforestation measures should be encouraged. Renewable energy sources should be adopted more and the usage of electric vehicles encouraged for which the necessary infrastructure should also be built. Farmers should also be provided with viable alternatives to stubble burning.