



Air Pollution in India

Frequently Asked Questions



Although air pollution is an omnipresent concern, there is a general lack in knowledge regarding the area. Below are some frequently asked questions about this topic:

● What are the main causes of air pollution in India?

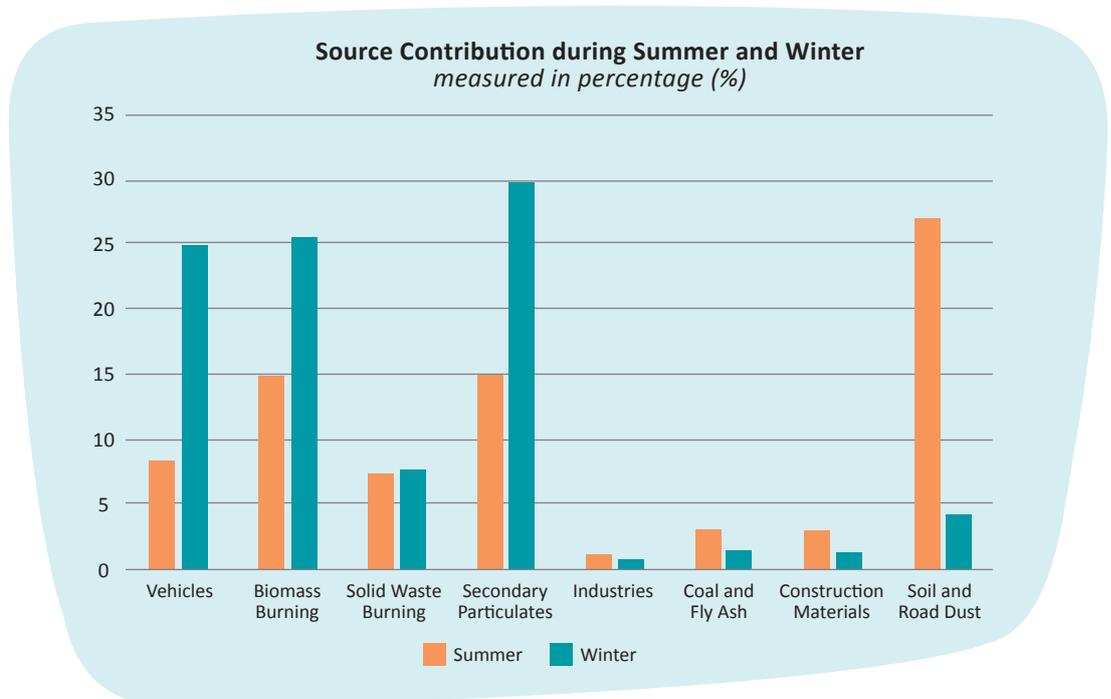
India's air pollution is largely on account of vehicles, industries (both the fuel they use and the processes), biomass burning, poor solid waste management, construction and dust.

● What are the main causes of air pollution in Delhi?

The causes of air pollution in Delhi are the same causes, mentioned above, as for India. However, Delhi's air pollution is also affected by its rapid urbanisation which has led the city to become a megacity. The geographical situation is moreover a reason for the air pollution.

● How much do the different sources contribute?

Let's stick to the most dangerous PM 2.5 (Particular Matter) for now. The amount each source contributes to air pollution depends on season. The graph below shows how much the different sources contribute in the summer versus the winter. The numbers are based on estimates from the Indian Institute of technology Kanpur (IIT Kanpur) from 2015:



● Which source should we fight on priority?

Due to the dangerous level of air pollution in India today, we need to fight them all.



● **How do we measure air pollution?**

Air pollution is measured by monitors. These are strategically placed according to a protocol, measuring pollutants that come across them. To understand air pollution monitors better, we advise you to read this document by UrbanEmissions.info, a scientist-run repository of information, research and analysis related to air pollution: <http://www.urbanemissions.info/blog-pieces/air-monitoring-101/>

● **I read that AQI is a way to express how polluted the air is. What is AQI?**

The index is supposed to communicate the current status of the air and how polluted it is forecast to become. The Air Quality Index, or AQI, is a weighted average of the pollutants:

PM_{2.5}: Particulate Matter 2.5 micrometers or less in diameter (fine particles)

PM₁₀: Particulate Matter 10 micrometers or less in diameter

SO₂: Sulfur Dioxide

NO₂: Nitrogen Dioxide

O₃: Ozone

CO: Carbon Monoxide

NH₃: Ammonia

Pb: Lead

To see the current status of the AQI in your city in India, visit: <https://www.aqi.in/>

Once you know the AQI, use these charts to understand how poor the air quality is:

AQI Category, Pollutants and Health Breakpoints

AQI Category (Range)	PM ₁₀ 24-Hr	PM _{2.5} 24-Hr	NO ₂ 24-Hr	O ₃ 8-Hr	CO 8-Hr (mg/m ³)	SO ₂ 24-Hr	NH ₃ 24-Hr	Pb 24-Hr
Good (0–50)	0–50	0–30	0–40	0–50	0–1.0	0–40	0–200	0–0.5
Satisfactory (51–100)	51–100	31–60	41–80	51–100	1.1–2.0	41–80	201–400	0.5–1.0
Moderately Polluted (101–200)	101–250	61–90	81–180	101–168	2.1–10	81–380	401–800	1.1–2.0
Poor (201–300)	251–350	91–120	181–280	169–208	10–17	381–800	801–1200	2.1–3.0
Very Poor (301–400)	351–430	121–250	281–400	209–748	17–34	801–1600	1200–1800	3.1–3.5
Severe (401–500+)	430+	250+	400+	748+	34+	1600+	1800+	3.5+

AQI: Associated Health Impacts

- **Good (0–50)**: Minimal impact.
- **Satisfactory (51–100)**: May cause minor breathing discomfort to sensitive people.
- **Moderately Polluted (101–200)**: May cause breathing discomfort to people with lung disease such as asthma, and discomfort to people with heart disease, children and older adults.
- **Poor (201–300)**: May cause breathing discomfort to people on prolonged exposure, and discomfort to people with heart diseases.
- **Very Poor (301–400)**: May cause respiratory illness to people on prolonged exposure. Effects may be more pronounced in people with lung and heart diseases.
- **Severe (401–500)**: May cause respiratory impact even on healthy people, and serious health impacts on people with lung/heart disease. The health impacts may be experienced even during light physical activity.

Source: Press Information Bureau, Government of India

● **Why does everyone talk so much about PM 2.5?**

First of all, PM 2.5 refers to Particulate Matter. It is an air pollutant, which is a tiny particle in the air that are two and a half microns or less in width. These particles reduce the visibility and cause air to appear hazy when levels are elevated.

It is so small, it can enter our bodies blood stream and lungs easily. This makes it particularly harmful.

The source of this is diverse-and almost everything contributes to it. In fact, particulate matter can be a heavy metal from fireworks, or a fine piece of carbon. By fighting PM2.5, we are actually fighting many different sources.

● **How does ozone get into the air?**

Ozone is created when Volatile Organic Compounds and Nitrous Oxides, both typically from vehicular pollution, react the air. Often, ozone is not created where the pollution becomes noticeable but rather at a distant location.

● **How many clean air days did we have in Delhi in 2018?**

In line with the World Health Organisation standards there were no clean air days during 2018.

● **Which region in India has the worst air?**

The Indo-Gangetic plain has by far the worst air quality in India. The Indo-Gangetic plain incorporates the northern regions of India, including most of the northern and eastern regions of India.

● **Which are the top cleanest air places- not necessarily cities- in India?**

According to data watchers, these are Leh, Lakshwadeep, Nicobar and many parts of the North East. (At World Health Organisation's website a list of country average exposure to PM2.5 is offered: <http://apps.who.int/gho/data/view.main.SDGPM25116v?lang=en>)

● **Will banning diesel vehicles help?**

Although many see this as a solution, many opponents are critical as they believe that the improvement will be too little, too late.

● **Why is diesel bad?**

Diesel produce Nitrogen Dioxide (NO₂) and higher levels of Particulate Matter (PM). These are both pollutants that are affecting the AQI.

● **Do trees help fight air pollution?**

How? A study conducted by the US-based 'The Nature Conservancy' (TNC) reported that PM average near trees was reduced with 7%-24%. PM tend to settle onto leaves and certain gases will be filtered through them. The broader and more leaves a tree has, the more it is able to do this. Hairier leaves are better than smooth ones. However, trees and other vegetation to some extent limit airflow, preventing the pollution from being reduced.

● **What should we do about construction dust? Are there any rules or norms?**

In 2016, the Central Pollution Control Board (CPCB) implemented a Graded Response Action Plan. This plan is to be implemented under different AQI categories. Action taken is thus depending on the current air quality. The different actions include enforcing rules for dust control in construction activities and when the situation requires, stopping construction activities.

More concrete activities on construction sites are to be used for the right size of materials so that less cutting for preparations is needed. Also, using less powerful tools or altogether alternative tools can reduce the amount of dust. water that damps down dust clouds, and industrial vacuum units are further activities that will stop dust from getting into the air.



● How does air pollution impact our health?

Air pollution kills and cripples. According to the Lancet, we lose 38 million years of healthy life in India due to air pollution. According to the WHO, worldwide ambient air pollution accounts for:

29% of all deaths and disease from lung cancer

17% of all deaths and disease from acute lower respiratory infection

24% of all deaths from stroke

25% of all deaths and disease from ischaemic heart disease

43% of all deaths and disease from chronic obstructive pulmonary disease

Breathing polluted air increases respiratory distress, triggers asthma, reduces lung function and increases the chances of respiratory infections. It moreover severely impacts the heart and people with cardiac ailments. Women give birth to babies with lower weight and even, pre-term babies. Children are impacted by air pollution not only in the ways mentioned above, but also, because it increases the risk of children getting diabetes and affects their neurological development.

Air Pollution affects people throughout their lifetime



Pregnancy

Low Birth Weight
Mental and Physical Disorders



Children

Asthma
Slower Development of Lung Function
Developmental Problems
More Wheezing and Cough
Start of Atherosclerosis



Adults

Asthma
Coronary Heart Disease
Stroke
Lung Cancer
Chronic Obstructive Pulmonary Disease (as Chronic Bronchitis)
Diabetes



Elderly

Asthma
Accelerated Decline Lung Function
Lung Cancer
Diabetes
Dementia
Heart Attack, Heart Failure and Strokes

Source: Lung Care Foundation <http://lcf.org.in>

● Is a mask helpful to protect us?

In order for a mask to work, it has to fit you well because otherwise pollutants will 'leak in,' so to say. Not all masks have the capacity to prevent pollutants. The ones who actually do are expensive and those who can afford them will have to replace them very often. Yet, the mask at least hinders some pollutants from entering our body, which is better than no protection at all.

● Does air pollution harm everyone in society equally?

No. Air pollution harms the poor much more, for several reasons:

- They cannot afford air purifiers and masks
- Their homes are often sub-standard. Therefore, they cannot prevent outdoor pollution coming into their homes. In fact, even if they were gifted with an air purifier, these would fail to aid due to the quality of their housing.

- They have less access to good medical facilities, so they cannot recover adequately from illness related to air pollution. Moreover, they are typically less well-nourished than wealthier people. Thus, they are both more vulnerable to illness and need longer time to recover.
- Many of them have jobs that keep them outdoors, such as, sweepers, waste pickers and street vendors. This implies that they constantly breathe in more pollution.
- Furthermore, they most often walk, cycle or ride the bus to work, which increase their exposure.

These are just some reasons why the poor are the worst impacted by air pollution. Women are particularly exposed and affected too. First of all, their unborn fetuses are negatively impacted. Secondly, when their children are ill, women are the ones who often end up being primary caregivers. This means that they find it hard to keep a full-time job. Having this dual responsibility, of both taking care of children as well as working to earn money, make their lives very stressed. The cost of health care is also substantial and it is often women and other girls who are deprived of food and other basics to meet these expenses.

● **Is air pollution an emergency in India? Why?**

Air pollution is an emergency. It kills over 12 lakh people in India annually, which comes to 1 lakh every day. We have to stop this.

● **What are the three easy shifts in our lifestyles which can help ease air pollution in NCR? Do they exist?**

First, work together in your community and ensure that waste is not burnt. If your security guards are cold, help them stay warm instead of burning waste. Do not let anyone burn leaves either.

Second, do not let construction of any kind break norms. Force the construction to stop or complain about it. This includes government infrastructure, such as flyovers.

Third, reflect on your travel routines. Try to minimize it, only travel when you really have to. Walk if you can, and use shared or public transportation, depending on what is available and safe. If you use a personal car, let your neighbours know when and where you are going, and offer them a lift. If you are hosting a party, let people know who else is invited and encourage them to car pool.

But also remember that much of your air pollution is outsourced. Mining for the objects you use, coal plants for the electricity you need and diesel trucks carrying the vegetables you eat-all these pollute someone else's home and hometown.



Chintan Environmental Research and Action Group
C-14, Lajpat Nagar III, Second Floor, New Delhi – 110024, India
Tel: +91-11-46574171/72, 29842809 Fax: +91-11-46574174

Website: www.chintan-india.org
Facebook: fb.me/chintanIndia.org
Twitter: twitter.com/chintanIndia
Instagram: instagram.com/chintan.india