



## Mains Practice Question

**Q:** As per the recent Lancet Study, one out of every eight deaths in India is attributable to air pollution. Examine the causes, and the environmental and health impacts, of rising air pollution in India. (250 words)

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### Approach:

- Briefly mention the issue of rising air pollution in India.
- State the causes.
- Explain environmental and health impacts.
- List the steps that have been taken and suggest the measures that can be taken to tackle the problem.

### Introduction

- According to a recent study under India State-Level Disease Burden Initiative, air pollution was the second largest risk factor contributing to disease burden in India after malnutrition in 2016, with an increasing trend in exposure to ambient particulate matter pollution and a decreasing trend in household air pollution.

### Body

#### Causes

- coal burning for thermal power production
- industrial emissions
- construction activity and brick kilns
- transport vehicles and diesel generators
- road dust
- residential and commercial biomass burning: indoor smoke through animal waste fuels or firewood
- poor waste management and waste burning
- agricultural stubble burning: its footprint may be growing because of wider use of mechanical harvesters that is producing more waste.

#### Health Impact

- Can cause a burning sensation in the eyes or nose, and throat irritation, to cancer, bronchitis, severe asthma, and a decrease in lung function.
- Prolonged exposure to lead can cause damage to the nervous system, digestive problems, and in some cases cause cancer. It is especially hazardous to small children.
- Exposure radon can increase the risk of lung cancer.
- Carbon monoxide combines with haemoglobin to lessen the amount of oxygen that enters our blood through our lungs. Causes changes in the function of the brain and the cardiovascular system, and also the developing foetus. It can impair the concentration, slow the reflexes, and make people confused and sleepy.
- Sulphur dioxide in the air leads to diseases of the lung and other lung disorders such as wheezing

and shortness of breath.

- Exposure to PM<sub>2.5</sub> can also lead to low birthweight and preterm birth. Longer-term exposure to PM<sub>2.5</sub> has been associated with developmental disorders, cardiovascular mortality, decreased lung function, COPD, diabetes, and lung cancers.

## Environmental Impact

- Common air pollutants such as mercury, sulfur dioxide, and nitrogen oxide and nitrogen compounds have a direct impact on the marine ecosystem. The climate change in turn negatively affects biodiversity on the planet.
- Air pollution leads to global warming affecting the climate of different regions, distribution of plants and animals, disturbance in agriculture and food production, the melting of snow caps and the resultant increase in sea levels.
- Formation of photochemical smog and acid rain hampers visibility and causes respiratory and skin disorders affect the productivity of plants by damaging the leaves, enters the soil and affect the soil, pH and cause leaching, enters the ground and river waters which causes harm to the aquatic life.
- Aerosol formation affects the weather conditions by blocking the solar radiation. Aerosols are also deposited on the leaves and affect the photosynthesis. Depletion of Ozone permits the UV rays to reach the earth's surface which causes skin cancer and other diseases.

## Government Initiatives to Combat Air Pollution

- The Air (Prevention and Control of Pollution) Act, 1981
- Notification of National Ambient Air Quality Standards and sector-specific emission and effluent standards for industries;
- Launching of National Air Quality Index (AQI);  
Setting up of monitoring network for assessment of ambient air quality;
- Introduction of cleaner gaseous fuels like CNG, LPG etc and ethanol blending;
- Leapfrogging from BS-IV to BS-VI standards for vehicles by 1st April 2020 and universalization of BS-IV for vehicles by 2017
- Banning biomass burning;
- Promotion of public transport network;
- Installation of on-line continuous (24x7) monitoring devices by 17 highly polluting industrial sectors
- Regulating the bursting of pollution-emitting crackers;
- Notification of graded response action plan (GRAP) for Delhi to identify source wise actions for various levels of air pollution, etc.

## Way Forward

- Air pollution emission issues are associated with many sectors which interalia include power, transport, industry, residential, construction, and agriculture and tackling it requires multisectoral approach.
- Creating a **robust system to implement existing clean-air policies**, promoting coordination between the center and states, and devising state and district-level pollution control plans are vital to improve air quality.
- An innovative approach could be **to use climate change funds to turn farm residues into a resource**, using technological options such as converting them into biofuels and fertilizers.
- From an urban development perspective, large cities should reorient their investments to prioritise public transport, favouring electric mobility.
- **Dust pollution and waste disposal system should also be emphasised upon.**
- **Detailed emission inventories** are needed to provide information on the type of pollutant, its proportion, its source and its chemical properties.
- **Satellite data can supplement the routine monitoring of air pollution**, as it can be more economical than setting up and operating a number of fixed stations. They could also be used to identify potential air quality hot spots.
- The **National Clean Air Programme (NCAP)** which lays down a comprehensive strategy framework for enhanced management of air quality should incorporate the time-bound pollution

reduction targets across sectors with fixed accountability and strong legal backing.

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