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## 8. AIR POLLUTION IN INDIA – CAUSES, EFFECTS AND SOLUTIONS

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### ABSTRACT

*Air is the necessary for the very existence of human beings, animals and plants that appeared on the earth. However, due to the rapid growth of population and technology the air was polluted day by day. In 2011, India's Central Pollution Control Board had presented the report according to which 180 cities in India had particulate matter six times more than the permissible limit set by the World Health Organization in the air. Vehicles, biomass burning, fuel tarnishing are few of the major causes of air pollution in India. The problem of air pollution is so big that we cannot manage to pay for overlook it. As such it has to be handled with a high degree of care. This paper focuses on causes, effects of air pollutions in India and steps to solve the problems and policy measures to ensure reduce air pollution to the entire resident of earth. This study mainly descriptive in nature and secondary data are used for the purpose of the study. The data was collected from books, various articles, journals and websites.*

**KEYWORDS:** Environmental Pollution, Air Pollution and Pollutants

### INTRODUCTION

In the recent decades every man are should be fight every day against various environmental pollutions such as Air, Noise, Water, Land etc. Air is one of the five essentials for the human beings. Particularly men breathe nearly 22,000 times a day and in hale approximately 15 kg of air per day. Even though the air is abundantly available over the surface of earth, but it consist a lot of impurities. Various types of contaminants are entering into the atmosphere of the earth by natural and manmade activities, which are taking place on the earth.

### CONCEPTS AND DEFINITION OF AIR POLLUTION

Air pollution can be defined as the presence of the contamination in the outdoor atmosphere in a sufficient quantity and duration to cause them to be injurious to human health and welfare and plant and animal life and to interfere with the enjoyment of life and property.

According to World Health Organization (WHO) Air Pollution is the outer atmosphere of substances or contaminants put there by

man in quantities and concentrations and of a duration as to cause any discomfort to a substantial number of inhabitants of a district of which are injurious to public health or to human, plant or animal life or property or which interfere with the reasonable comfortable enjoyment of life and property throughout the state or throughout the territories or area of states.

### SOURCES OF AIR POLLUTANTS

There are various pollutants interfere into the earth like various naturals and manmade activities such as dust storm, volcanic eruptions, industrial pollutions, etc. Based on the mode of generation of pollutants it as classified i) Natural Sources and ii) Man-made Sources.

#### NATURAL SOURCES OF POLLUTION

- **Forest fires:** is a common feature. Very large quantities of smoke and particulate matter are liberated during their breakout.
- **Volcanic Eruptions:** is produced along with release of minute solid particles, gases and radiation.
- **Dust Storms:** are caused due to the movement of hot winds around the earth and are concentrated in certain places at a particular time.
- **Pollen Grains:** is also caused by the production of pollens in the spring season. They are mainly responsible for causing for causing allergy.

#### MAN-MADE SOURCES OF POLLUTION

- **Domestic Pollution:** is the use of insecticides in home for cleaning, burning of fuel in home for cooking purpose are primary sources of pollution in domestic area.
- **Industrial Pollution:** is the industrial activities are primarily responsible for the pollution in India. The elements are emitted into the atmosphere along with gaseous pollutants like Sulphur-di-oxide, oxide-of-nitrogen and standard particulate matter.
- **Vehicular pollution:** is the most dangerous form of pollution being prevalent in India because in spite of introducing stringent laws, adopting new standards, changing the fuel and modifying the design of vehicles studies reveal that it is increasing rapidly and continuously polluting the whole environment through which it is running.

## AIR POLLUTION IN INDIA

In the Yale Environmental Performance Index by the Yale University, India ranked at 174th position out of 178 countries on air pollution. Only Pakistan, China, Nepal and Bangladesh have worst air quality than India as per the index. For indexing, air quality, water, sanitation and status of biodiversity have been taken into account. The overall rank of India is 155th, whereas most of the other BRICS countries are ahead of India on overall rating.

In 2011, India's Central Pollution Control Board had presented the report according to which 180 cities in India had particulate matter six times more than the permissible limit set by the World Health Organization in the air. Vehicles, biomass burning, fuel tarnishing are few of the major causes of air pollution in India. The problem of air pollution is so big that we cannot manage to pay for overlook it.

### FACTS ABOUT AIR POLLUTION IN INDIA

India is the seventh most environmentally unsafe country in the world. Most of the industries do not stick to the environmental guidelines, regulations and laws. Pollution caused by burning fuel wood and biomass is one of the main causes of the Asian brown cloud. This cloud delays the monsoon in India.

Many auto rickshaws and taxis in India use contaminated fuel. This is done to lower down the price but it is the environment and ultimately we who have to pay the charge back. Some of the adulterants are actually very harmful to the environment as these emit unsafe pollutants which further worsen the quality of air.

As per the scientific studies it has been found out that traffic at low speed especially during obstruction burn fuel inadequately and emit 4 to 8 times more air pollutants. There are more than 40 different types of dangerous pollutants in the engine exhaust (diesel and gas). 70% of the air pollution is caused by vehicles.

Burning of vestige fuel such as coal and diesel has reduced the growth of rice harvest in India. India is the third largest producer of coal in the world and at the top as far as CO<sub>2</sub> emitted was considered. 30% children in Bangalore suffer from Asthma due to air pollution. The city is also regarded as the asthma capital of India. In NDTV it has been shown that Delhi is the most polluted city in the world and it left behind Beijing in air pollution. Industrial and vehicular emissions have caused the pollution to rise at this level in Delhi. Each day 1,400 new vehicles are added to Delhi roads.

### QUALITY OF AIR IN INDIA

In this section, we will assess the quality of air in India based on indicators like Household Air Quality and Outdoor Air Quality affected by

Ozone, Nitrogen oxides (NO<sub>x</sub>), Sulphur-di-oxide (SO<sub>2</sub>) and Carbon monoxide (CO).

### HOUSEHOLD AIR QUALITY

Indoor air pollution is among the top five environmental health risks. Household air pollution causes more deaths than outdoor i.e. 40% of all the diseases burden can be attributed to household air pollution. In 2012, indoor air pollution was linked to 4.3 million deaths globally, compared with 3.7 million for outdoor air pollution.

In India, too, the death due to indoor air pollution amounts to 300,000 to 400,000. Artemis hospital conducted a survey which found that 76% of the offices and houses in National Capital Region have unhealthy air quality and 34% of people staying indoors have respiratory problems. Solid fuels are the biggest contributor to the deterioration of household air quality. It is estimated that 25%-30% of primary particle pollution in India is from household fuels. Over one billion children live in homes where solid fuels are used in cooking and heating and in India, about 64% of the population use solid fuels with high production.

A study in Andhra Pradesh, India, found that solid fuel use created a mean 24 hour average concentration of particulate matter that ranged from 73 to 732 µg/m<sup>3</sup>. Guidelines from the WHO indicate that it shouldn't exceed 10 µg/m<sup>3</sup>.

### OUTDOOR AIR QUALITY

Outdoor air pollution is also considered Group I carcinogen. The pollution is not only the national problem of India but also the problem of the whole of South Asia. India is surrounded by highly polluted neighboring countries like Pakistan, Bangladesh, China, Nepal, Tibet, Bhutan and Sri Lanka.

Sri Lanka has performed best in South Asia with the rank 108th in 2016 EPI. Around two billion children live in areas where outdoor air pollution exceeds international limits. Almost 300 million children live in areas where outdoor air pollution is toxic – exceeding six times the international limit.

World Health Organization reports are also suggest that urban outdoor air pollution has increased by about 8% between 2008 and 2013. It has also been found that in 2012, approximately around 127,000 children under the age of five died from outdoor air pollution, while 531,000 died from household air pollution. China and India have time and again been observed as areas where air pollution is at its worst. PM 2.5 and PM 10: On October 31, 2016, the day after Diwali, Delhi witnessed severe air pollution which was 14-16 times higher than the prescribed safety limit.

On the basis of the data retrieved from the Central Pollution Monitoring Agency, concentrations of particulate matter or PM 10 (coarser pollutants) was found to be around 1,600 micrograms per cubic metre against the safe level of 100 at around 2 am in Delhi's Anand Vihar and PM 2.5 was 14 times the safe limit.

In fact, according to the Ambient Air Pollution Database, WHO, May 2016, India had 13 cities in the world's top 20 most polluted cities with Delhi leading the pack along with Patna, Gwalior, and Raipur respectively. Of 1,215 most polluted cities recorded, 133 were Indian with 31 in top 100 most polluted cities.

Carbon emission: India has seen an increase of 137% in the carbon emission from 2001 to 2013 while China has observed an increase of 191%. Again from 2014-2016, carbon emission increased in India by 2%. Between 1971 and 2014, total CO<sub>2</sub> emission in India has increased by more than 1100% with 181 million tons in 1971 to 2190 million tons in 2014. In 2014, carbon emission from India accounted for 6.78% of total global emission.

Nitrogen Oxides: From 1997 to 2011, NO<sub>2</sub> emission in India increased by 28% while Nitrogen Use Efficiency decreased by almost 32%. Sulphur Dioxide (SO<sub>2</sub>): According to recent studies it was found that SO<sub>2</sub> emission in India from 2005-2012 increased by 71% while the SO<sub>2</sub> burden on the environment increased by 63%.

#### Effects of Air Pollution

- Air pollution causes irritation in the throat, nose, lungs and eyes. It causes breathing problems and aggravates existing health conditions such as emphysema and asthma.
- Polluted air reduces the body's defenses and decreases the body's capacity to fight other infections in the respiratory system.
- Polluted air increases the risk of cardiovascular disease. Breathing air that is filled with fine particulate matter can induce hardening of the arteries, triggering cardiac arrhythmia or even a heart attack.
- People who exercise outdoors are vulnerable to the adverse effects of air pollution because it involves deeper and quicker breathing.
- Acid rain contains hydrogen ions, which can damage trees, crops, harm marine animals and induce corrosion in metals.
- Smoke causes harmful health effects in humans and animals. It creates the black lung disease in dolphins of due to high concentrations of carbon particles in the air.
- People afflicted with heart disease,

children and older people are more responsive to air pollution.

#### SOLUTIONS FOR AIR POLLUTION

The solutions to control of Air Pollution are discussed below:

- Renewable energy sources use like sunlight, wind, water, air, etc. is one of the best solutions for air pollution. It is produce energy without causing air pollution.
- We want to prevent air pollution we should protect our forests. We should also grow more and more trees. Also, reforestation and forestation should be encouraged.
- Using solar panels, solar cooker, solar lamps, lights, solar cars, batteries, inverter, energy collectors and similar other useful solar equipment can help prevent air pollution at a significant level because solar devices do not pollute the air.
- Sharing vehicles is also another option to control air pollution. Individual vehicle cause makes traffic and will pollute air.
- Using bicycles for short distances is also a wonderful and interesting way to control air pollution.
- Use of electric, hybrid and energy efficient vehicles as they produce zero direct emissions, thus, helping in the prevention of air pollution.
- Proper maintenance and servicing of vehicles helps in limiting excessive harmful emissions like carbon monoxide, nitrogen oxides, hydrocarbons, etc., from vehicles.
- Clean and efficient garbage disposable system should be arranged at various public places so that the garbage can be disposed in the right way.
- All of us can make individual efforts towards prevention of air pollution by replacing plastic bags with paper bags, plastic containers with steel or ceramic containers, plastic crockery with glass or steel crockery and similar other replacements.
- Efficient and appropriate measures should be taken to control dust emission during various activities like mining, building constructions, road constructions, etc. Dust particles add up to atmosphere and degrade the quality of air, causing air pollution.
- The environmental audits are done in an organized document form so that a track record can be established for necessary measures.
- Industries and factories should have internal environment audit and control systems so that the harmful emissions causing air pollution can be limited.
- Human-made products and handicraft items are environmental friendly and help control air pollution.

- Use unmodified vehicular fuels. With the rising price of petrol and diesel, many people have started using adulterated fuel.
- Creating awareness for air pollution is very necessary. If people stay aware about air pollution, its causes and dangerous effects, they will definitely make individual efforts to combat and prevent air pollution.

### **CONCLUSION**

The earth is an important planet for all human, animal and plants. But human only destroying natural resources and creating problem of air pollution. Hence, it is our responsibilities to find out the problems and follow the measures to solving it. Let us take a pledge to grow trees more and more and to protect healthy environment. It is only the seeds of our coming healthy generation.

### **REFERENCES**

- 1.R.K.Khitoliya (2004), *“Environmental Pollution-Management & Control for Sustainable Development”*, Book Published by S.Chand & Company, New Delhi, First Edition, 2004, p.68-71.
- 2.Reports on Central Pollution Control Board Ministry of Environment, Forests & Climate Change, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.
- 3.Sehba (2016), *Air Pollution: Meaning, Causes, Effects and Solution*, Importantindia.com on November 3, 2016.
- 4.Hanzalaaman (2017), *A Compatative Study of Air Polution in India*, Published by YKA, October 23, 2017.