

AIR POLLUTION-INTRODUCTION TO ITS SOURCES, EFFECTS AND PREVENTIVE MEASURES

1.1 INTRODUCTION

Pollution is a serious problem in today's modern time due to rapid advancement in certain areas such as industries, transport, agriculture, residential setups. It is causing serious problems also poisoning of the environment including air, water and soil.

Air Pollutions is a major problem in today's time in by the countries. It causes many problems to animals, plants and human beings. We are living in 21st century and so development is at its peak which is causing various environmental issues and one of the major problem due to all the advancement and development which is going all around the world is air pollution.

With the increasing industrialization and the tendency of the majority of industries to congregate in areas, which are already heavily industrialized, the problem of air pollution has begun to be felt in the country. The pollutants that are discharged through industrial emissions and also from certain human activity beyond certain limits into the air have a detrimental effect on the health of human and also on animal life, vegetation and property.

1.1.1 Definition Of Air Pollution

Air pollution consists of gaseous, liquid, or solid substances that, when present in sufficient concentration, for a sufficient time, and under certain conditions, tend to interfere with human comfort, health or welfare, and cause environmental damage.

According to Section 2(b) of The Air (Prevention and Control of Pollution) Act 1981, Air Pollution means the presence in the atmosphere of any air pollutants.

1.1.2 Definition of Air Pollutants

According to section 2(a) of The Air (Prevention and Control of Pollution) Act 1981, Air Pollutant means any solid, liquid or gaseous substance including noise present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

1.2 TYPES OF AIR POLLUTION

There are mainly two types of air pollution-

1. Gaseous Pollution: Harmful gases given out from a variety of source.

2. Particulate Pollution: Particles such as those of dust, smoke, mining, stone drilling, wearing of rubber tyres of motor vehicles.

1.3 SOURCES OF AIR POLLUTION

There are number of sources of air pollution some are natural source like ash from burning volcanoes, dust from storms and forest fires. All these natural sources are beyond human control and will continue to occur. The on the other hand there are manmade sources which causes air pollution like emissions from vehicles, industries, garbage, brick kilns and all these are the major four sources which affects living organisms and they are under human control. Some small quantity of gases, Suspended Particulate Matter (SPM) or vapour which if tolerable then they are not regarded as pollutants but if they are in large quantity which is going to effect the health of all living organisms then they may become environmental pollutants which causes air pollution.

The major source of air pollutions are fuels, coal, petroleum, and industries. Coal consists of some incombustible minerals, sulphur and nitrogen. Petroleum consists of hydrocarbons, sulphur and nitrogen. Burning of fossil fuels produces oxides of carbon, nitrogen and sulphur which cause air pollution. Industries also release out oxides which are formed in combination of coal and petroleum released and many harmful chemicals in the air.

1.3.1 NATURAL SOURCES:

The majority of people think that air pollution is caused due to human activities only but no there are some cases where natural event can also cause air pollution. YES, there are rarely witnessed, and some of them are very disastrous and also difficult to prevent form taking place. Some of the natural sources of air pollution are listed below:

1. Volcanic eruptions they emit a series of toxic gases, ash and also particulate matter .they also eject lava on the earth surface which introduces dust and smoke into the air.
2. Winds and air currents they can gather pollutants from grounds and then transfer them over large areas.
3. Increasing temperatures contribute to an increase in the amount of contaminants from soil and water to air.
4. Forest fires often begin naturally and can produce large amount of smoke, dust in the air and also drifts to nearby villages and cities.
5. Rock decay can also cause air pollution because rocks decay over time and releases gas such as radon which has adverse effect on our health.

1.3.2 HUMAN ACTIVITIES

There are sources of air pollution which are due to human activities which are mainly of three types:

- **Stationary sources.** These can be sub-divided onto:

- Agriculture production- use of fertilizers is one of the harmful air pollutants. Increased use of fertilizers and pesticides by farmers also releases harmful chemicals in the atmosphere.
 - Mining, and quarrying- mining involve different operations such as drilling, extracting, blasting, and transportation. During all these operation large amount of unwanted chemicals, dust are released in the air which are harmful to all living organisms and causes air pollution.
 - Discharge from Industries and Factories-the emission from manufacturing industries are one of the major causes of air pollution. These industries emit harmful gases and chemicals into the atmosphere which are deteriorating the quality of air everywhere.
 - Municipal wastes, sewage sludge incinerators, fireplaces, cooking facilities, laundry services and cleaning plants.
- **Mobile sources.** These include vehicles like light duty gasoline powered cars, light and heavy duty diesel vehicles, motorcycles, aircraft. Pollution from automobiles is clearly visible in every city of the world. Vehicles run on fossil fuels such as petrol, diesel and gasoline such as CO which are among the major air pollutants.
 - **Indoor sources.** These include tobacco smoking, combustion emissions, biological sources like pollen, insects, pet allergens etc., paints.

1.4 EFFECTS OF AIR POLLUTION

Air pollution adversely affects human beings and environment. Air pollution can cause death of any living being and also has an effect on environment.

1.4.1 EFFECTS OF AIR POLLUTION ON HUMAN HEALTH.

Air pollution can cause acute illness and even death. It mainly affects the respiratory system. Effects of air pollution can be short-term and long-term.

Short-term effects include irritation in eyes, nose, and throat, and infections like bronchitis and pneumonia. It also includes headache, nausea, and allergies and also in some cases it can cause asthma, damage to brain, nerves, liver or kidney.

Air pollution is likely to affect more persons who exercise or work outside, children, and senior citizens. It's even worse for people suffering from asthma or allergies these extra pollutants only intensify their symptoms and can trigger asthma attack.

1.4.2 EFFECTS OF AIR POLLUTION ON ANIMALS AND PLANTS.

The impact of air pollution on animals is more or less same to that on man. Air pollution creates many of the same issues that human face. Chronic poisoning results from ingestion of forage contaminated with atmospheric pollutants.

A number of livestock have been poisoned by fluorides and arsenic. Bone lessens in animals due to excessive fluorides.

Toxic chemicals from acid rains get deposited on the surface of water that can lead to the endangerment of marine life animals.

Air pollution has caused widespread damage to trees, fruits, vegetable, flower and in general, vegetation as a whole.

1.4.3 EFFECTS OF AIR POLLUTION ON ATMOSPHERE.

Air pollution also affects the atmosphere in which we are living. Some of the effects on atmosphere that are caused due to air pollution are-

1. Global Warming.

Air pollution directly increases the rate at which global warming happens by the Ozone layer.

Global warming refers to the increased temperature Earth continues to experience. These high temperatures are the reasons behind the melting of polar ice caps and icebergs and due to melting of ice the level of sea rises and creates concern for human race.

2. Acid Rain.

When air pollution, specifically sulphur oxides and nitrogen oxides, are released into sky through fossil fuel burning, it creates acid rain.

Water high in the atmosphere get combined with these chemicals and becomes acidic in nature. And then it come on the ground in form of rain.

Acid rain causes harm to the health of human, animal and also damages crops.

3. Depletion of Ozone layer.

Ozone layer exists on the surface of earth and is responsible for protecting humans from harmful Ultraviolet rays. Due to the presence of chlorofluorocarbons and hydro chlorofluorocarbons in the atmosphere ozone layer is getting depleted. Ozone layer is getting thin and so it will emit harmful rays back on the earth which can then cause skin and eye related problems and these harmful rays can also effect crops.

1.5. MEASURES TO CONTROL AIR POLLUTION

As we have already discussed about air pollution its causes and effects so now we know how much bad impact air pollution have on human being, animals, plants and even atmosphere. So some measures shall be adopted by everyone in order to control air pollution. Some of the measures to control and reduce air pollution are given below:

1. Industries and factories should be located at a far distance from residential areas.
2. Forest fires should be checked and proper measures should be done to avoid it and to protect the forest.
3. Newly designed smoke free furnaces should be used.
4. In every industries and factories there should be arrangement for controlling pollution.
5. Cheap devices for controlling pollution should be developed.
6. Automobile engines should be designed in such a way that their emissions cause minimum amount of pollution.
7. More trees that is green belt should be planted near densely polluted areas.
8. There should be restriction for establishment of large buildings and industries along the green belt areas.
9. Forests should be protected. Cutting of trees should be banned that is deforestation should be restricted and afforestation programmes should be adopted.
10. Use of fuel wood, coal, etc., should be checked.
11. We should all try to save energy whether at home or at work by this we will be reducing air pollution particulates as well as carbon emission.
12. We should always try to use eco-friendly products in our homes. Use those products which do not contain any harmful substance.
13. Keep air clean houseplants, some plants has the ability to remove pollutants from the air.
14. If you have a fire place at your home then take a good care of that keep it well maintained and always replace it with the newer models.
15. Always support those companies which are committed to sustainable products.

1.6. CONCLUSION

So by reading all the above mentioned things we can come to a conclusion that in today's developed and developing world the major problem that is faced by everyone is air pollution and it is causing dangerous and harmful effects on human beings, animals, plants and atmosphere.

Industrialisation, cutting of trees for building houses factories and other things are the major reason for air pollution and if this problem of air pollution is not checked and controlled right now then it is going to have adverse effects on everything and it will become harder for us to live in such an polluted air.

Thus to have a healthy life for us and for everyone else we should reduce the amount of pollution that we all are producing by taking effective and simple measures. And we should always keep this thing in mind that "less pollution is better solution".