

Effects of air pollution and air pollution control

1. Effects of air pollution

1.1. Health Effects

- Air pollution is a significant risk factor for multiple health conditions including respiratory infections, heart disease, and lung cancer, according to the WHO. The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing, asthma and aggravation of existing respiratory and cardiac conditions.
- Individual reactions to air pollutants depend on the type of pollutant a person is exposed to, the degree of exposure, the individual's health status and genetics. The most common sources of air pollution include particulates, ozone, nitrogen dioxide, and sulfur dioxide.
- Both indoor and outdoor air pollution have caused approximately 3.3 million deaths worldwide.
- Children aged less than five years that live in developing countries are the most vulnerable population in terms of total deaths attributable to indoor and outdoor air pollution.
- The World Health Organization states that 2.4 million people die each year from causes directly attributable to air pollution, with 1.5 million of these deaths attributable to indoor air pollution.

1.2. Environmental Effects

- Poisonous air pollutants (toxic chemicals in the air) can form acid rain. These destroy trees, crops, farms, animals and continue to make water bodies harmful to humans and animals that live and depend on water.
- It can also form dangerous ground level ozone.

1.3. Economical Effects

- Air pollution reduces agricultural crop and commercial forest yields by billions of money each year.
- This in addition to people staying off work for health reasons can cost the economy greatly.

2. Control measures to reduce air pollution

Prevention interventions are always a better way of controlling air pollution. These prevention methods can either come from government (laws) or by individual actions. In many big cities, monitoring equipments have been installed at many points in the city. Authorities read them regularly to check the quality of air.

2.1. Government (or community) level prevention

- Governments throughout the world have already taken action against air pollution by introducing green energy. Some governments are investing in wind energy and solar energy, as well as other renewable energy, to minimize burning of fossil fuels, which cause heavy air pollution.
- Governments are also forcing companies to be more responsible with their manufacturing activities, so that even though they still cause pollution, they are a lot controlled.
- Companies are also building more energy efficient cars, which pollute less than before.

2.2. Individual Level Prevention

- Encourage your family to use the bus, train or bike when commuting. If we all do this, there will be fewer cars on road and less fumes.
- Use energy (light, water, boiler, kettle and fire woods) wisely. This is because lots of fossil fuels are burned to generate electricity, and so if we can cut down the use, we will also cut down the amount of pollution we create.
- Recycle and re-use things. This will minimize the dependence of producing new things. Remember manufacturing industries create a lot of pollution, so if we can re-use things like shopping plastic bags, clothing, paper and bottles, it can help.

2.3. Control devices

The following items are commonly used as pollution control devices by industry or transportation devices. They can either destroy contaminants or remove them from an exhaust stream before it is emitted into the atmosphere.

2.3.1. Electrostatic precipitators

An electrostatic precipitator (ESP), or electrostatic air cleaner is a particulate collection device that removes particles from a flowing gas (such as air) using the force of an induced electrostatic charge. Electrostatic precipitators are highly efficient filtration devices that minimally impede the flow of gases through the device and can easily remove fine particulates such as dust and smoke from the air stream.

2.3.2. Bag houses

Designed to handle heavy dust loads, a dust collector consists of a blower, dust filter, a filter-cleaning system, and a dust removal system.

2.3.3. Particulate scrubbers

Wet scrubber is a form of pollution control technology. The term describes a variety of devices that use pollutants from a furnace flue gas or from other gas streams. In a wet scrubber, the polluted gas stream is brought into contact with the scrubbing liquid, by spraying it with the liquid, by forcing it through a pool of liquid, or by some other contact method, to remove the pollutants.

3. Some facts and statistics about air pollution

- Air pollution affects kids more than adults due to higher concentrations of polluted air in their systems per body size.
- India is the country with the worst air quality in the world.
- The European Union would save 161 billion Euros a year if deaths caused by air pollution were diminished.
- In large cities, over 80% of fatal pollutants that cause lung damage come from cars, buses, motorcycles and other vehicles on the road.
- According to the World Health Organization, there are as many deaths (1.3 million per year) in the world due to air pollution as there are deaths due to car accidents.
- The average adult breathes 3,000 gallons of air every day.
- The Great Smog of London in 1952 was one of the worst air pollution events in history with over 8,000 deaths.

- The largest cause of air pollution in Europe is road transportation with over 5,000 people dying each year from lung cancer and heart attacks caused by vehicle exhaust fumes.