

## A REVIEW OF AIR POLLUTION WITH RESPECT TO HEALTH ISSUES

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**Abstract** -Air pollution threatens the health, If human and other living beings in our earth planet. This is due to gases, dust particles, fumes, smoke or bad smell spread in the atmosphere. Air pollution creates smog and acid rain, causes cancer & respiratory diseases, the ozone layer atmosphere& it contributes to global warming. Air pollution indicators were assessed on a number of measures carbon monoxide, sulphur dioxide, nitrogen dioxide, ozone and particulate matter (PM<sub>10</sub>).State government & central government introduces the guidelines and the ordinances to restrict emissions in an effort to control pollution. As a native citizen we can apply the effort to reduce the pollution by car pooling or using public transportation. We can also use CFL energy efficient bulb or by little effort to reduce energy (electricity) use which reduce the pollution created by the energy power plants.

**Keywords** - Air Pollution, Health Issues, Air Pollution Indicators, CFL energy, Energy Power Plant.

### INTRODUCTION

Air pollution-created by biological materials, the chemical, particulates-all cause's harmful effect and create diseases or death to humans & animals plant. Pollutants which pollute air may be in the form of solid particles, liquid droplets or gases. Smog hanging over cities is the most familiar and obvious form of air pollution. But there are different kinds of pollution-some visible, some invisible that contribute to global warming. Generally any substance that people introduce into the atmosphere that has damaging effects on living things and the environment is considered air pollution. There may be natural or man-made pollutants may be:

**Primary Pollutants:** Primary pollutants are directly produced from a process, such as ash from a volcanic eruption the carbon dioxide gas from vehicle exhaust, smoke released from factories.

**Secondary Pollutants:** They are not directly emitted but it is the outcome of primary pollutants which react or interact. An important example of secondary pollutant is ground level ozone and petrochemical smog. Sometimes primary & secondary pollutants may be both we can say they are emitted directly and formed from primary pollutants.

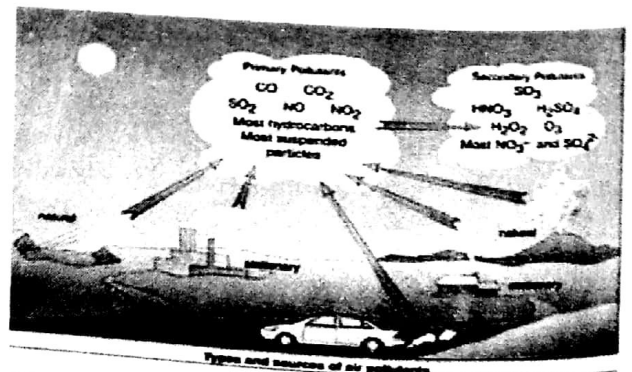


Figure 1. Types and sources of air pollution

By human activity the major pollutants are:

*Particulates:* Particulate matter (PM), atmosphere particulate matter or fine particles are tiny particles of solid or liquid suspended in a gas. Human activities, such as the burning of fossil fuels in vehicles, power plants & various industrial processes also generate significant amounts of aerosols.

*Ammonia (NH<sub>3</sub>):* Ammonia is a compound with NH<sub>3</sub> & emitted from agriculture processes. It is normally encountered as a gas with pungent odour. NH<sub>3</sub> either directly or indirectly is also building block for the synthesis of many pharmaceuticals.

*Radioactive Pollutants:* Produced by nuclear explosions, nuclear events, war explosives and natural process such as the radioactive decay of random.

*Toxic Metals:* Toxic metals such as lead, mercury & their compounds.

*Chlorofluoro Carbons:* (CFC<sub>s</sub>) harmful to ozone layer emitted from product currently banned from use.

*Carbon Dioxide:* It is colourless, odourless, non irritating poisonous gas. It is a product of incomplete combustion of fuel such as natural gas, coal or wood. Vehicular exhaust is a major source of carbon mono-oxide.

*Sulphur Oxides:* Sulphur dioxide, a chemical compound with formula SO<sub>2</sub>, it is produced by volcano, in various industrial processes coal, petroleum often contain sulphur compounds their combustion generates sulphur oxide. Further oxidation of SO<sub>2</sub>, usually in presence of a catalyst smell as NO<sub>2</sub>, forms H<sub>2</sub>SO<sub>4</sub> which creates acid rain. This is one of causes for concern over environmental impact.

*Volatiles Organic Compounds:* VOC<sub>s</sub> are important outdoor air pollutants. In this case two products creates problem methane (CH<sub>4</sub>), non methane (NMVOC<sub>s</sub>), methane create global warming. Significant green houses gases via their role in creating ozone & to

increase the CH<sub>4</sub>, fine particles could cause cardio pulmonary disease.

## CAUSES OF AIR POLLUTION

- *Burning Of Fossils Fuels:* Sulphur dioxide emitted from the combination of fossil fuels like coal, petroleum and other factory combustibles is one the major cause of air pollution. Pollution emitting from vehicle including trucks, cars, trains, airplanes cause immense amount of pollution.

We rely on them to fulfill our daily basic needs of transportation, but there overuse is killing our environments dangerous gases are polluting the environment. Carbon monoxide caused by improper or incomplete combustion and generally emitted from vehicles is another major pollutant along with nitrogen oxides that is produced from both natural and man-made processes.

- *Agricultural Activities:* Ammonia is very common by product from agriculture related activities and is one of the most hazardous gases in the atmosphere. Use of insecticides, pesticides and fertilizers in agricultural activities has grown quite a lot. They emit harmful chemicals into the air can also cause water pollution.
- *Exhaust From Factories And Industries:* Manufacturing industries release large amount of carbon monoxide, hydrocarbons, organic compounds and chemicals into the air thereby depleting the quality of air, manufacturing industries can be found at every corner of the earth and there is no large area that has not been affected by it.

Petroleum refineries also release hydrocarbons and various others chemicals that pollute the air and also cause land pollution.

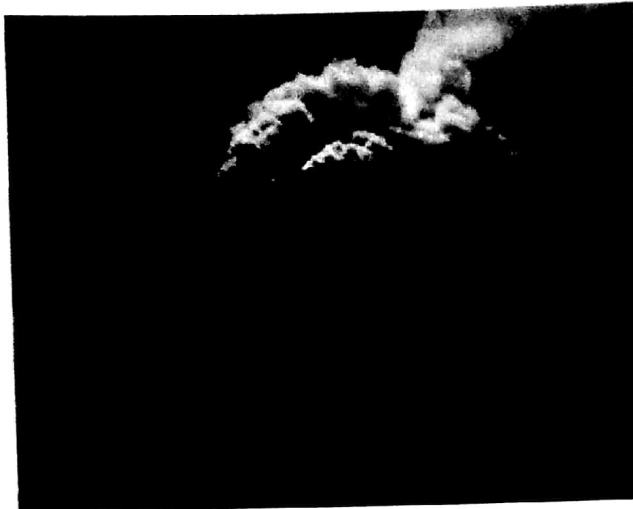


Figure 2. Emission from chimneys

- **Mining Operation:** Mining is a process where in minerals below the earth is extracted using large equipments. During the process dust and chemicals are released in the air causing massive air pollution. This is one of the reasons which are responsible for the deteriorating health conditions of workers and nearby residents.
- **Indoor Air Pollution:** Household cleaning products, paintings supplies emit toxic chemicals in the air and cause air pollution. Have you ever noticed that once you paint walls of your home, it creates some sort of smell which makes it literally impossible for you to breathe, suspended particulate matter popular by its acronym SPM, is another cause of pollution.

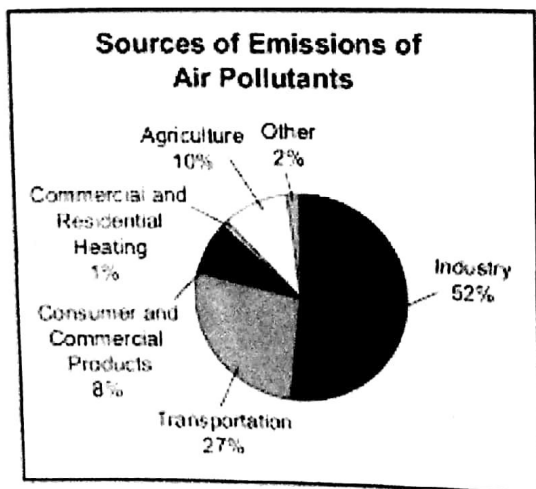


Figure 3. Sources of emissions of air pollutants

## EFFECTS OF AIR POLLUTION

**Respiratory and Heart Problem:** The effects of air pollution are alarming. They are known to create several respiratory and heart conditions along with cancer, among other threats to the body. Several millions are known to have died due to direct or indirect effects of air pollution. Children in areas exposed to air pollution are said to commonly suffer pneumonia and asthma.

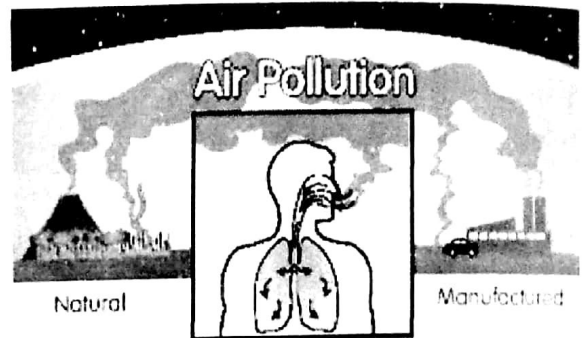


Figure 4. Harmful effects of air pollution on human beings

**Global Warming** Another direct effect is the immediate alterations that the world is witnessing due to global warming. With increased temperatures worldwide, increase in sea level and melting of ice from colder regions and icebergs, displacement and loss of habitat have already signaled an important disaster if actions for preservation and normalization aren't undertaken soon.

**Acid Rain:** Harmful gases like nitrogen oxides and sulphur dioxide are released into the atmosphere during the burning of fossil fuels. When it rains, the water droplets combines with these air pollutants, becomes acidic and then falls on the ground in the form of acid rain. Acid rain can cause great damage to human beings, animals and crops.

**Eutrophication:** It is a condition where high amount of nitrogen present in some pollutants gets developed on seas surface and ferns itself into a large and adversely affect fish, plants and animal species. The green colored algae that is present on lakes and ponds is due to presence of this chemical only.

*Effect on Wild Life:* Just like humans, animals also face some devastating effects of air pollution. Toxic chemicals present in the air can force wildlife species to move to new place and change their habitat. The toxic pollutants deposit over the surface of the water can also affect sea animals.

*Depletion in Ozone Layer:* Ozone exists in earth's stratosphere and is responsible for protecting humans from harmful ultraviolet (UV) rays. Earth's ozone layer is depleting due to the presence of chlorofluorocarbons, hydro chlorofluorocarbons in the atmosphere. Ozone layer will go then, it will emit harmful rays back on earth and can cause skin and eye related problems. UV rays also have the capability to affect crops.

### CONSEQUENCES OF AIR POLLUTION

Some pollutants if they are present in excessive quantities can produce chemical and physical alterations of the air, hampering its capacity to work correctly and guarantee our survival functions. Men's activity usually originates pollutants (anthropogenic origin), although in some cases natural sources contributes significantly. Most of human origin air pollution devices either from fossil fuels (their combustion is necessary to produce energy) or from industrial chemical processes. The environmental impact of air pollutants is variable some compounds mainly act at local level, where they are produced and distributed, while others affect entire regions. Some others have an impact on the whole planet. In fact, some atmospheric agents have a short life (a few hours on a few days) and after that they fall on the ground, while other pollutants keep active for long periods and can spread on a wider area. This type of pollutants can have an influence on environmental conditions at a continental, sometimes even planetary level with a negative impact on human health, even in places that are far away from the source of pollution. In most cases the type and quantity of pollutants emitted into

the atmosphere depend on the nature of the energy sources that are used and the raw materials that men use during production processes.

### SOLUTION FOR AIR POLLUTION

*Use Public Mode for Transportation:* Encourage people to use more and more public modes of transportation to reduce pollution. Also, try to make use of car pooling. If you and your colleagues come from the same locality and have same timing you can explore this option to save energy and money.

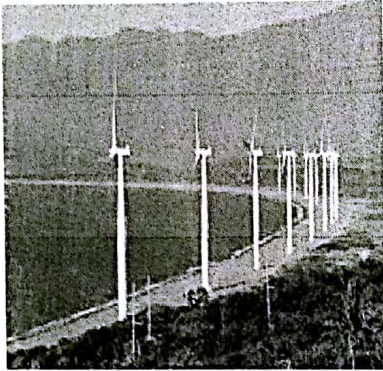
*Conserve Energy:* Switch off fans and lights when you are going out. Large amount of fossil fuels are burnt to produce electricity. You can save the environment from degradation by reducing the amount of fossil fuels to be burned.

*Understand The Concept Of Reduce, Reuse And Recycle:* Do not throw away items that are of no use to you. In fact reuse them for some other purpose. For e.g. you can use old jars to store cereals or pulses.

*Emphasis on Clean Energy Resources:* Clean energy technologies like solar, wind and geothermal are on high these days. Governments of various countries have been providing grants to consumers who are interested in installing solar panels for their home. This will go a long way to curb air pollution.

*Use Energy Efficient Devices:* CFL lights consume less electricity as against their counterparts. They live longer, consume less electricity, lower electricity bills and also help you to reduce pollution by consuming less energy. Several attempts are being made worldwide on personal, industrial and governmental levels to curb the intensity at which air pollution is rising and regain a balance as far as the proportions of the foundation gases are concerned. This is a direct attempt slacking global warming. We

are seeing a series of innovations and experiments aimed at alternate and unconventional options to reduce pollutants. Air pollutants are one of the larger mirrors of man's follies, and a challenge we need to overcome to see a tomorrow.



**Figure 5. Non conventional energy source**

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