

---

**ENVIRONMENTAL POLLUTION AND ITS EFFECT ON HUMAN BEING**

Mrs. Prathibha Ursal,  
Assistant Professor,  
P.V.D.T. College Of Education For Women,  
SNDT Women's University, Nathibai Thackeray Road,  
Charchgate, Mumbai - 20

---

**ABSTRACT**

*Pollution means the direct or indirect changes in the environment which are harmful and undesirable to organisms and man. There are several kinds of pollution and the causes are also many. Due to a rapid rate of increase in the human population the space on earth available to each man is getting smaller. The needs of modern man are also increasing both in quantity and complexity whereas the storehouse of natural resources is limited. In the process of the manufacture of certain goods some materials are invariably thrown out as wastes. The amount of wastes that are dumped in soil, water and air have reached such proportions that due to limitation of space the waste dumping space of one section of population is the living space of another. Thus, in almost all countries, environmental pollution is on the increase and is due to the industrialization and technology. The components of the environment air and water are much more affected by the toxicants.*

---

**Key words :** *Environmental pollution, industrialization, population, toxicants.*

---

**INTRODUCTION**

The magnificent mountains, the lush green forests, the great rivers, the deep oceans and seas, the blue lagoons and lakes, marvelous reservoir of underground wealth ... water and minerals, the varieties of animals, the beautiful birds with all their musical tones, several insects, pests, tiny and invisible micro-organisms... all these constitute our planet Earth. As the knowledge goes till date, the Earth alone of the solar system supports life. Interactions between matter and energy and among various living species decide the composition of this planet and also, the ecological balance at a point of time.

Ancient man identified himself as part of Nature, lived as one among the various living species and competed with other animals only for food and shelter. But because of his superior mental faculties, he started dominating all other living species and used several of them for his comforts, for his betterment. In this pursuit, man slowly alienated himself from Nature. In order to overpower stronger animals he discovered the

metal iron (though accidentally). The discovery of making iron from its ore was an important break-through in human civilization. Discovery of petroleum and its various constituents revolutionized the civilization further. Thus man explored all the possible mineral sources stored beneath the earth and started extracting metals from them and then making several new alloys from metals. In his quest for more and more comforts, luxuries, wealth and power, man could, just in a span of around 200 years, do many wonders in the fields of agriculture, Medicine and Industry. Several new alloys, plastics, synthetic rubber, leather products, fossil fuels, nuclear fuels, petrochemicals, fertilizers, pesticides, pharmaceuticals, thousands of various other organic and inorganic chemicals have come into civilization. The civilization is totally changed. The change has been phenomenal.

Man, simultaneously, should have examined the consequences of his activities in terms of their possible negative impact on the environment in which he lives. But this point seems to have been long ignored until the accumulated effects of industrial civilization started threatening the very survival of mankind. It is only through post-mortem, man could realize the damage that has already been caused to the planet Earth because of non-biodegradable chemicals and other toxic constituents that were brought into atmosphere, water land and food, by himself. Technological advances with scant regard for environment, for preservation of ecological balance have seriously affected the quality of air, water and land.

If Man's intellect is responsible for all the progress of mankind, his arrogance and lack of wisdom to live in harmony with Nature are responsible for all the harmful effects on the environment, which we call 'pollution'. National Research Council Committee on pollution defined pollution as "an undesirable change in the physical, chemical or biological characteristics of our air, land and water that may or will harmfully affect human life or that of other desirable species, our industrial process, living conditions and cultural assets or that may or will waste or deteriorate our material sources".

## **WATER POLLUTION**

Water bodies such as ponds lakes or rivers have been used as dumps for the wastes of villages, towns and cities. There are different kinds of pollutants such as sewage, organic chemicals like detergents and pesticides, inorganic chemicals, harmful micro organisms and sediments. In the sea radioactive materials are also being dumped. Certain chemical processing industries discharge mercury components; these compounds in the form of chemical effluents get into the water and then to the aquatic environment, the effluents enter the bodies of animals and also human beings. Both the aquatic and marine environment be effected by the chemical toxicants. Mercury compounds which enter into the bodies of human beings leads to mercury poisoning-it results to the impairment of vision and muscles. Ultimately the patient suffers from

convulsions, madness, paralysis, coma and death.

Usually mercury compounds enter the body system of fish and shell fish. There are no well defined 'safe limits' for different toxins or elements in humans, animals and or their eating food stuffs. The response of the defense system of a human body to different toxins varies differently

Pesticides, especially DDT, used in the control of mosquitoes and pests of agriculture have become the most serious pollutant of water.

Polluted waters are turbid, not pleasant for drinking, sometimes smell bad, and are not suitable for bathing or washing. They are generally harmful and diseases like typhoid, dysentery and cholera are spread through polluted waters. Still other sources of pollution in water are the modern washing powders called detergents. These act as nutrients for organisms in water and hasten the process of eutrophication. Aquatic weeds are also regarded as pollutants. They reduce the utility of ponds and lakes and shorten their life. Sodium, copper, chromium and cadmium are some of the more common effluent pollutants discharged from various kinds of factories. Metallic pollutants are very harmful for human health and therefore such affected waters need purification before supply by water works.

#### AIR POLLUTION

Pollutants in the atmosphere contaminate the air leading to air pollution. Atmospheric pollution is principally caused by man. Carbon monoxide, Sulphur hexafluoride, ammonia, hydrocarbons and ethylene which is present in automobile exhausts are the common air pollutants. Large quantities of particles enter into the atmosphere through technological activities. Hydrocarbons are emitted in huge quantity by the burning of petrol in the automobiles. Tetraethyl lead is commonly used as an additive to gasoline- it is blamed for causing atmospheric pollution and respiratory diseases in human beings. Another toxic pollutant is Peroxy acetyl nitrate, which is a by product of automobile exhausts, is reported to suppress photosynthesis.

Particulate pollutants reflect too much of light and reduce visibility, it is found that cement dust around cement factories settles on tree leaves and reduces the chlorophyll content and leaf sizes in many trees, thus reducing the overall primary production. There are many more kind of biological materials in the air like bacteria, fungal spores, pollen grains etc., which quite often cause allergy and bronchial troubles like asthma. Besides reducing visibility and causing diseases the particulate pollutants adversely affect plant life in a number of ways such as photosynthesis, necrosis in leaves and diseases.

Air pollution has created a considerable interest and a global effort is being made to control it. Air pollution has very bad effects on human health. Not only this but also it is responsible for corrosion of metals.

### SOIL POLLUTION

Arsenic, chromium and nickel are suspected to be increasing in quantity in the soil environment. Unrestricted use of fertilizers, pesticides and other chemicals add to the pollution. Effluents from fertilizers reduce both the quantity and quality of agricultural crops and the soil properties are also adversely affected. Consequently, many of the chemical elements find their way into the human body primarily through the food chain.

### SOLID WASTE POLLUTION

Most of our daily needs are obtained from the market in nicely packed containers made up of thin polythene, plastics, glass etc. After the use of contents the packing material is usually thrown out as garbage. Many of the old used up things like automobile spares, machines, cycle parts etc. are thrown out. Some of them are degradable by the activity of micro-organisms in nature and the materials are recycled but some are not easily degraded like metals, plastics, nylons and polythene. Solid wastes are assuming alarming proportions in affluent countries like those of America and Europe, where labour charges of waste collection are high.

### RADIOACTIVE POLLUTION

Nuclear war materials and test explosions are principal sources of radioactive wastes in the atmosphere, soil and water. Already two thousand nuclear detonations must have been done in underground, under ocean and in atmosphere and the cumulative radioactivity level is rising particularly in oceans. Ionizing radiations cause mutation, abnormality and lethality in many organisms, including man. Cancer is commonly caused even under low level exposures. Radiation effects persist for a very long period in the environment. Therefore, an utmost caution and complete foolproof of technology is needed in handling such scientific activities to prevent radioactive pollutions.

### NOISE POLLUTION

Sound is produced in many kinds of work and we use and enjoy sound in talk and music. Only when sound is not liked or is unwanted we call it as noise. When the loudness of the sound is irritating or unbearable we regard it as noise pollution. Loudness of sound can be measured in terms of energy, decibels. Scooters, trucks and buses create about 90dB. Uncomfortable noise inside factories usually exceeds 100 dB and jet planes while taking off create noise in the range of 150 dB and rocket engines about 180 dB. Sounds beyond 80 dB can be safely regarded as pollution for it harms our hearing ability. Beyond 100 dB the sound becomes very uncomfortable and beyond 120 it is painful. Noise interferes with communication, causes loss

of hearing and disturbs mental peace.

Persons living in the humdrum of cities and industrial townships become hard of hearing at young age. Noise also causes mental stress; increase in the rate of heart beat and sometimes, damages eye sight, brain and liver functioning.

If the wastes from different sources are utilized properly it will be a positive step to control pollution. For example paddy husk can be used as fuel. Activated carbon can be manufactured from paddy husk; carbon can be useful for decolourization of vegetable oils, sugar solutions etc. Rice bran is a rich source of oil which can be used for edible and industrial purposes. Similarly wheat bran can be utilized for the manufacture of amylase, amyloglucosidase and pectinolytic enzymes for food industry and fungal acid protease for leather industry.

Coconut and coir can be used as raw materials. Recently coconut pith is used in the joint fillers of road and buildings. Moreover, cement coconut pith concrete is used in thermal insulation. Many other by-products of agriculture can be used as useful products through proper processing

### EFFECTS ON HUMAN BEINGS

The development of any country depends on its geographical and environmental conditions. From the ancient time man is continuously exploiting and struggling with nature. Degradation of environment started with the development in the early man's life in the form of many inventions and discoveries. These resulted in the development of new tools and implements. He also made developments in other fields such as industry, nuclear and other technological developments which are causing degradation of environment.

**Development** - From the early time man is putting efforts for development such as agriculture, urbanization, industrialization, commercialization etc. All these developments have put stress on the environment because these required large spaces which forests have to be cut without taking into account its consequences. Advancement in agriculture lead to use of more chemical fertilizers, pesticides, weedicides, insecticides without taking into consideration their ill effects. The urbanization stresses on basic necessities like food, shelter clothing which directly influenced the forests. Industrialization posed a serious threat to biotic and abiotic components of the environment. As more and more industries are being set up those are polluting the environment with their emission and discharge effluents.

**Population Stress**- As population is increasing day by day their basic demands are at the increase. The ecological balance of the earth is disturbing because the natural resources are limited to meet



their demands. This increase in population is causing destruction of the environment. Therefore, it is necessary to save our environment by sustainable development. The increase in population should be at a rate that the resources should be exploited in a way that they not depleted.

**Present Scenario** - As we have already depleted lot of our natural resources it is the need of the day we should have a control on the unlimited use of our resources so that we could improve our environment. For this proper planning and management of resources as well as the environmental impact assessment should be done before establishing any developmental activity. Every person of the country should be aware of the consequences of changed environmental conditions. Non-governmental organizations also play important role in educating people and controlling environment. So it is important to safeguard our environment which in turn safeguards the living beings.

#### BIBLIOGRAPHY

1. C. A. Sastry, Proceedings of National Seminar on Pollution Control. Pondicherry (Central) University, 16-17, October 1989.
2. Christopher Flavin, Slowing Global Warming: A worldwide Strategy, world Watch Paper 91, published by world Watch institute, Washington, USA, October 1989.
3. Dix, H.M. Environmental pollution, John Wiley and sons, new York, 1981.
4. Ghose, N.C. and sharma, C.B. Pollution of Ganga River, Ashish Publishing House, New Delhi.
5. Richard P. Wayne. Chemistry of Atmosphere, Oxford Science Publications, London, 1983.
6. S.P. Mahajan, Pollution Control in Process industries, Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 1985.
7. The State of India's Environment, 1984-85. The Second Citizen's Report, Published by Centre for Science and Environment, New Delhi, 1985
8. TimmyKatyal and M.Satake, Environmental Pollution, Anmol Publications, New Delhi. 1989.
9. V.P. Kudesia, Water Pollution, Pragate Prakasan, Meerut, 1985
10. Warren Viessman, JR., Mark, J. Hammer, Water Supply and Pollution Control, Fourth Edition, Harper International and Row Publishers, New York, 1985.