

Environmental Pollution and Effect on Human, Animal and Plants

Abstract

Population growth, rapid industrial and technological development, urbanization and injudicious planning without due regard to sustainable development, there have been induced a variety of changes in the environment. Human activities induce such changes in the environment in the form of pollution and perturbation that cause widespread damage to the living organisms in the biosphere. The result is the disruption of ecological balance, a growing threat to the entire life support system which is rapidly facing extinction.

Keywords: Water, Air, Noise, Land, Thermal, Radiation-Pollution, Human, Animal and Plant.

Introduction

Pollution is the introduction of contaminants into the natural environment that causes adverse change [1]. Pollution can take the form of chemical substances or energy, such as noise, heat or light. Pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants. Pollution is often classed as point source or nonpoint source pollution. In 2015, pollution killed 9 million people in the world [2-3]. Major forms of pollution include: Air pollution, light pollution, littering, noise pollution, plastic pollution, soil contamination, radioactive contamination, thermal pollution, visual pollution, water pollution. Due to lack of development of a culture of pollution control, there has resulted a heavy backlog of gaseous [4], liquid and solid pollution in world is a recent environmental concern. Thus pollution control in world is a recent environmental concern. Not only in India, but in developed western country also, pollution is a scare-word. Pollution is a man-made problem, mainly of affluent countries. Pollution [5] is an undesired change in the physical, chemical or biological characteristics of air, water and soil that may harmfully affect the life or create a potential health hazard of any living organisms.

The significance of environmental factors to the health and well-being of human populations is increasingly apparent [6]. Environment pollution is a worldwide problem and its potential to influence the health of human populations is great [7]. Pollution reaches its most serious proportions in the densely settled urban-industrial centers of the more developed countries [8]. In poor countries of the world more than 80% polluted water have been used for irrigation with only seventy to eighty percent food and living security in industrial urban and semi urban areas[9]. Industry, clustered in urban and semi-urban areas surrounded by densely populated, low-income localities, continues to pollute the environment with impunity. Over the last three decades there has been increasing global concern over the public health impacts attributed to environmental pollution [10], Human exposure to pollution is believed to be more intense now than at any other time in human existence. Pollution can be made by human activity and by natural forces as well [11].

Aim of the Study

1. Acquire an awareness of the environment as a whole and its related problems.
2. Gain a variety of experiences and acquire a basic understanding and knowledge about the environment and its allied problems.
3. Acquire an attitude of concern for the environment.
4. Acquire the skills for identifying and solving environmental problems.
5. Participate in improvement and protection of environment.
6. Develop the ability to evaluate measures for the improvement and protection of environment.



Raghu Raj Parihar

Assistant Professor,
Deptt. of Chemistry,
Govt. College,
Kota, Rajasthan, India



Dhanraj

Assistant Professor,
Deptt. of Chemistry,
Govt. College,
Kota, Rajasthan, India

7. To sum up, the objectives of environmental studies are to develop a world in which persons are aware of and concerned about environment and the problems associated with it, and committed to work individually as well as collectively towards solutions of current problems and prevention of future problems.

This work is our original work and this research paper is not published in any other journals.

Types of Pollution

The following are the types of pollution perceived in our environment:

1. Water pollution
2. Thermal pollution
3. Land pollution
4. Radiation Pollution
5. Noise pollution
6. Air pollution

Water Pollution

Water pollution occurs when unwanted materials enter in to water (e.g. lakes, rivers, oceans, aquifers groundwater) and contaminate the quality of water. This form of environmental degradation occurs when pollutants are directly or indirectly discharged into water bodies without adequate treatment to move harmful compounds. This is harmful to environment and human health. Water pollution affects the entire biosphere of plants and organisms living in these water bodies as well as organisms and plants that might be exposed to the water. In almost all cases the effect is damaging not only to individual species and populations, but also to the natural biological communities [12].

Thermal Pollution

Thermal pollution is the discharge of waste heat via energy dissipation into cooling water and subsequently into nearby waterways. The major sources of thermal pollution are fossil-fuel and nuclear electric-power generating facilities and, to a lesser degree, cooling operations associated with industrial manufacturing, such as steel foundries, other primary metal manufacturers, and chemical and petrochemical producers.

The discharge of heated water into a waterway often causes ecological imbalance, sometimes resulting in major fish kills near the discharge source. The increased temperature accelerates chemical-biological processes and decreases the ability of the water to hold dissolved oxygen. Thermal changes affect the aquatic system by limiting or changing the type of fish and aquatic biota able to grow or reproduce in the waters. Thus rapid and dramatic changes in biologic communities often occur in the vicinity of heated discharges.

Land Pollution

Land is often used as a recipient for treatment of wastes. Land also receives waste spills. Land pollution is the degradation of the earth's land surface through misuse of the soil by poor agricultural practices, mineral exploitation, industrial waste dumping, and indiscriminate disposal of urban wastes. Improper management of solid waste is one of the

main causes of environmental pollution. Land pollution is one of the major forms of environmental catastrophe our world is facing today [13]. As Bulgaria and the Slovak Republic, heavy metal industries have produced wastes that are deposited into landfills without special precautions [14].

Radiation Pollution

Radiation pollution is any form of ionizing or non-ionizing radiation that results from human activities. The most well-known radiation results from the detonation of nuclear devices and the controlled release of energy by nuclear-power generating plants. Other sources of radiation include spent-fuel reprocessing plants, by-products of mining operations, and experimental research laboratories. Increased exposure to medical X-rays and to radiation emissions from microwave ovens and other household appliances, although of considerably less magnitude, all constitute sources of environmental radiation. Public concern over the release of radiation into the environment greatly increased following the disclosure of possible harmful effects to the public from nuclear weapons testing, the accident (1979) at the Three Mile Island nuclear-power generating plant near Harrisburg, Pa., and the catastrophic 1986 explosion at Chernobyl, a Soviet nuclear power plant. In the late 1980s, revelations of major pollution problems at U.S. nuclear weapons reactors raised apprehensions even higher. The environmental effects of exposure to high-level ionizing radiation have been extensively documented through post-war studies on individuals who were exposed to nuclear radiation in Japan. Some forms of cancer show up immediately, but latent maladies of radiation poisoning have been recorded from 10 to 30 years after exposure. The effects of exposure to low-level radiation are not yet known. A major concern about this type of exposure is the potential for genetic damage. Radioactive nuclear wastes cannot be treated by conventional chemical methods and must be stored in heavily shielded containers in areas remote from biological habitats. The safest of storage sites currently used are impervious deep caves or abandoned salt mines. Most radioactive wastes, however, have half-lives of hundreds to thousands of years, and to date no storage method has been found that is absolutely infallible.

Noise Pollution

Noise pollution, also known as environmental noise or sound pollution, is the propagation of noise with harmful impact on the activity of human or animal life. The source of outdoor noise worldwide is mainly caused by machines, transport and propagation systems [15-16]. Poor urban planning may give rise to noise pollution, side-by-side industrial and residential buildings can result in noise pollution in the residential areas. Some of the main sources of noise in residential areas include loud music, transportation noise, lawn care maintenance, nearby construction, or young people yelling (sports games). Noise pollution associated with household electricity generators is an emerging environmental degradation in many

developing nations. The average noise level of 97.60 dB obtained exceeded the WHO value of 50 dB allowed for residential areas [17]. Research suggests that noise pollution is the highest in low-income and racial minority neighbourhoods [18]. Documented problems associated with urban environment noise go back as far as ancient Rome [19].

Air Pollution

Air pollution occurs when harmful or excessive quantities of substances including gases, particles, and biological molecules are introduced into Earth's atmosphere. It may cause diseases, allergies and even death to humans; it may also cause harm to other living organisms such as animals and food crops, and may damage the natural or built environment. Both human activity and natural processes can generate air pollution.

Indoor air pollution and poor urban air quality are listed as two of the world's worst toxic pollution problems in the 2008 Blacksmith Institute World's Worst Polluted Places report[20]. According to the 2014 World Health Organization report, air pollution in 2012 caused the deaths of around 7 million people worldwide[21], an estimate roughly echoed by one from the International Energy Agency[22-23].

Effects of Environment Pollution on Human, Animals and Plants

Environment dying is global perilous point which catastrophically the human, animals and plants. Waterborne diseases caused by polluted drinking water: • Typhoid • Amoebiasis • Giardiasis • Ascariasis • Hookworm b. Waterborne diseases caused by polluted beach water: • Rashes, ear ache, pink eye • Respiratory infections • Hepatitis, encephalitis, gastroenteritis, diarrhoea, vomiting, and stomach aches c. Conditions related to water polluted by chemicals (such as pesticides, hydrocarbons, persistent organic pollutants, heavy metals etc): • Cancer, incl. prostate cancer and non-Hodgkin's lymphoma • Hormonal problems that can disrupt reproductive and developmental processes • Damage to the nervous system • Liver and kidney damage • Damage to the DNA • Exposure to mercury (heavy metal).

The effects of thermal pollution are diverse, but in short, thermal pollution damages water ecosystems and reduces animal populations. Plant species, algae, bacteria, and multi-celled animals all respond differently to significant temperature changes. Organisms that cannot adapt can die of various causes or can be forced out of the area. Reproductive problems can further reduce the diversity of life in the polluted area. However, thermal pollution can be beneficial to some species. Bacteria and algae tend to benefit from the excess heat. Some larger animals also benefit from the warmer water. In Florida, manatees spend the winter near power plants, where the cooling water they use warms up the shallow salt water. On balance, thermal pollution is a negative force for many reasons.

Effects of Soil Pollution • Causes cancers including leukaemia • Lead in soil is especially hazardous for young children causing developmental

damage to the brain • Mercury can increase the risk of kidney damage; cyclo dienes can lead to liver toxicity • Causes neuro muscular blockage as well as depression of the central nervous system • Also causes headaches, nausea, fatigue, eye irritation and skin rash • Contact with contaminated soil may be direct (from using parks, schools etc) or indirect (by inhaling soil contaminants which have vaporized) • Soil pollution may also result from secondary contamination of water supplies and from deposition of air contaminants (for example, via acid rain) • Contamination of crops grown in polluted soil brings up problems with food security • Since it is closely linked to water pollution, many effects of soil contamination appear to be similar to the ones caused by water contamination.

Ionizing radiation has sufficient energy to affect the atoms in living cells and thereby damage their genetic material (DNA). Fortunately, the cells in our bodies are extremely efficient at repairing this damage. However, if the damage is not repaired correctly, a cell may die or eventually become cancerous. Related information in Spanish (Información relacionada en español). Exposure to very high levels of radiation, such as being close to an atomic blast, can cause acute health effects such as skin burns and acute radiation syndrome ("radiation sickness"). It can also result in long-term health effects such as cancer and cardiovascular disease. Exposure to low levels of radiation encountered in the environment does not cause immediate health effects, but is a minor contributor to our overall cancer risk

Effects of Noise Pollution Decreases the efficiency of a man-Regarding the impact of noise on human efficiency there are number of experiments which shows that human efficiency increases with noise reduction. Lack of concentration-For better quality of work there should be concentration , Noise causes lack of concentration. In big cities , mostly all the offices are on main road. The noise of traffic or the loud speakers of different types of horns divert the attention of the people working in offices. Fatigue: Because of Noise Pollution, people cannot concentrate on their work. Thus they have to give their more time for completing the work and they feel tiring. Abortion is caused-There should be cool and calm atmosphere during the pregnancy. Unpleasant sounds make a lady of irritative nature. Sudden Noise causes abortion in females. Causes Blood Pressure-Noise Pollution causes certain diseases in human. It attacks on the person's peace of mind. The noises are recognized as major contributing factors in accelerating the already existing tensions of modern living. These tensions result in certain disease like blood pressure or mental illness etc. Temporary of permanent Deafness-The effect of noise on audition is well recognized. Mechanics, locomotive drivers, telephone operators etc. All have their hearing impairment as a result of noise at the place of work. Physicians & psychologists are of the view that continued exposure to noise level above. 80 to 100 db is unsafe, Loud noise causes temporary or permanent deafness.

Effects of Air Pollution • Reduced lung functioning • Irritation of eyes, nose, mouth and throat • Asthma attacks • Respiratory symptoms such as coughing and wheezing • Increased respiratory disease such as bronchitis • Reduced energy levels • Headaches and dizziness • Disruption of endocrine, reproductive and immune systems • Neurobehavioural disorders • Cardiovascular problems • Cancer • Premature death.

Conclusion

Environmental pollution is a major problem in different parts of the world, which requires the policy makers to employ some mitigation strategies. The developed economies such as the United States contribute significantly towards environmental pollution because of the high number of factories and industries that release harmful gases into the atmosphere. These economies consume energy heavily, thus leading to environmental pollution. This shows that depletion of natural resources in these countries is very high. The emerging economies also contribute significantly to environmental pollution, but lesser than the developed ones. The developing economies such as Ethiopia pollute the environment at a slower rate than the developed economies. These countries have fewer factories and industries, which make them to release lesser harmful gases into the atmosphere as compared to other countries. However, poverty rates in these countries are higher than developed countries because of the few employment opportunities. It is important to regulate the rates at which countries pollute the environment in order to prevent its harmful effects such as global warming

End Notes

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