



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 8.4
IJAR 2018; 4(3): 515-517
www.allresearchjournal.com
Received: 12-01-2018
Accepted: 18-02-2018

Chandni Kumari
Research Scholar,
Department of Zoology,
LNMU, Darbhanga, Bihar,
India

Study of environmental pollution and their effect

Chandni Kumari

Abstract

Environmental pollution may be defined as "the unfavourable alternation of our surroundings". It changes the quality of air, water and land which interferes with the health of humans and other life on earth. Environmental pollution is one of the most serious global challenges. Environmental pollution is one the major problems that affects biodiversity, ecosystem and human health worldwide by contaminating soil and water.

Phytoremediation, the use of plants for environmental restoration, exploits naturally occurring uptake capabilities of plant root systems together with the translocation, bioaccumulation or detoxifying abilities to clean up the surrounding environments. Phytoremediation is a cost- effective, environmentally friendly, nonintrusive and affordable technological solution used to extract or remove inactive metals and metal pollutants from contaminated soil and water.

Keywords: Environmental pollution, phytoremediation, bioaccumulation

Introduction

Environmental pollution is the unfavourable alteration of our surrounding, wholly or largely as a byproduct of man's action through direct or indirect effects of the changes in the energy pattern, radiation levels and chemical and physical constitution and abundance of organisms. Environmental pollution is a global problem and is common to both developed as well as developing countries, which attracts the long-term consequences. The decline in environmental quality as a consequence of pollution is evidenced by loss of vegetation, biological diversity, excessive amounts of harmful chemicals in the ambient atmosphere and in food grains and growing risks of environmental accidents and threats to life support systems.

Singh (1991) ^[1] has defined pollution in a very simple manner i.e. "Disequilibrium condition from equilibrium condition in any system". This definition may be applied to all types of pollution ranging from physical to economic, political, social and religious. Over the past couple of decades various sources of pollution were identified that altered the composition of water, air and soil of the environment. The substances that cause pollution are known as pollutants. A pollutant can be any chemical (toxic metal, radionuclides, gases, organophosphorus compound) or geochemical substances (dust, sediment), biological organism or product or physical substances (heat, radiation, sound wave) that is released intentionally or inadvertently by man into the environment with actual or potential adverse, harmful, unpleasant or inconvenient effect. Depending on the nature of pollutants and also subsequent pollution of environmental components the pollution may be categorized as follows:

1. Air Pollution
2. Water Pollution
3. Soil/Land Pollution
4. Noise Pollution
5. Radioactive pollution
6. Thermal Pollution

Among these types of pollution, air pollution is the main type threatening the environment, humans, plants, animals and all living organisms. Air pollution is a major problem of recent decades which has a serious toxicological impact on human health and the environment. The source of pollution vary from small unit of cigarettes and natural sources such as volcanic

Corresponding Author:
Chandni Kumari
Research Scholar,
Department of Zoology,
LNMU, Darbhanga, Bihar,
India

activities to large volume of emission from motor engines of automobiles and industrial activities.

(1) Air pollution

Definition: Air pollution is defined as all destructive effects of any sources which contributes to the pollution of the atmosphere and/or deterioration of the ecosystem.

Source: The source of air pollution are of two types:-

- 1) **Natural Source:** e.g.- Volcanic eruptions, forest fires, biological decay, pollen grains, marshes, radioactive material etc.
- 2) **Man-made (anthropogenic) activities:-** e.g.- Thermal power plants, Vehicular emissions, fossils fuel burning, agricultural activities etc.

Effect of air pollution: Effect of air pollution on living organism will not only be limited to the human and animal health but also include the whole environment. Different geographical conditions, global climate changes and the environmental variation affect the human health and the environment including the animal life.

(2) Water pollution

Definition:- Water pollution may be defined as "the alteration in physical, chemical and biological characteristics of water which may cause harmful effect on humans and aquatic life."

Source:- Source of water pollution are of two types:-

- 1) **Point Sources:-** Point sources are discharged pollutants at specific locations through pipes, ditches or sewers into bodies of surface water. e.g.- Includes factories, sewage treatment plant, abandoned underground mines and oil tankers.
- 2) **Non-point Source:-** They are usually large land areas or air sheds that pollute water by runoff, Subsurface flow or deposition from the atmosphere. Location of which cannot be easily identified. e.g.- Include acid deposition and runoff of chemical into surface water from croplands, logged forest, urban street, lawn, parking lots.

Effects of water pollution:- Water pollution is caused by waste water, sewage and fertilizer. The high levels of nutrients in these sources end up in bodies of water and promote algae and weed growth which can make the water undrinkable and depleted oxygen causing aquatic organism to die.

(3) Soil pollution

Definition: Soil pollution is defined as "the contamination of soil by human and natural activities which may cause harmful effect on living organism."

Source: Soil pollution mainly results from the following sources:-

- 1) Industrial waste
- 2) Urban waste
- 3) Agricultural practices
- 4) Radioactive pollutants
- 5) Biological agents.

Effect of soil pollution: These pollution effect and alter the chemical and biological properties of soil. Modern agricultural practices pollute the soil to a large extent. Today with the advancing agro-technology, huge quantities of fertilizers, pesticides, herbicides, weedicides are added to increase the crop yield. Apart from these farm wastes,

manure, slurry, debris, soil erosion containing mostly inorganic chemical are reported to cause soil pollution.

(4) Noise pollution

Definition: Noise pollution is defined as "the unwanted, unpleasant or disagreeable sound that causes discomfort for all living beings."

Noise Level: Normal conversation sound ranges from 35 dB to 60dB. Impairment of hearing takes place due to exposure to noise of 80 dB or more. Noise above 140 dB becomes painful.

Source: In the steel industry, transport, musical instrument, TV, VCR, radios, transistors, telephone and loudspeaker etc.

Effect of noise pollution: Noise pollution affects human health, comfort and efficiency. It causes contraction of blood vessels, makes the skin pale, leads to excessive secretion of adrenalin hormone into blood stream which is responsible for high blood pressure. Blaring sound have known to cause mental distress, heart attacks, neurological problems, birth defects and abortion.

(5) Radioactive pollutions

Definition: Radioactive pollution is defined as the increase in the natural radiation levels caused by human activities. It is estimated that about 20% of radiation we are exposed to is due to human activities.

Source: Various sources of radioactive pollution are grouped into two types:- (1) Natural Sources (2) Man-made (Anthropogenic) sources

Effect of radio active pollution: Radioactive radiation affect the cell in the body and the function of glands and organs. People suffer from blood cancer and bone cancer if exposed to doses around 100 to 1000 roentgens. Unlike the other pollution radioactive pollution can caused genetic disorders even in the subsequent generations. Unborn children are vulnerable to brain damage or mental retardation especially if irradiation occurs during formation of the central nervous system in early pregnancy.

(6) Thermal pollution

Definition: Thermal pollution is defined as the addition of excess of undesirable heat to water that makes it harmful to man, animal or aquatic life or otherwise causes significant departures from the normal activities of aquatic communities in water.

Sources: The following sources causes thermal Pollution:-

- a) Nuclear power plants
- b) Coal fired power plants
- c) Industrial effluents
- d) Domestic sewage
- e) Hydro-electric power

Effect of thermal pollution: concentration of dissolved oxygen (DO) decreases with increase in temperature of water. Change in temperature alters the seasonal variation in the type and abundance of lower organisms. The fish may lack the right food at the right time. Temperature is considered to be of vital significance to physiology metabolism and biological process in controlling respiratory rates, digestion, excretion and overall development of aquatic organisms. The temperature changes totally disrupt the entire ecosystem. Unutilized heat in water is responsible for direct mortality of aquatic organisms.

Conclusion

Environmental pollution is the build up and accumulation of toxic heavy metals in the air, water and land that reduce the ability of the contaminated sites to support life. The rise in human population density and anthropogenic activity has led to degradation of the Earth's surface through misuse of environmental resources and improper disposal of wastes. In addition, the advancements in science and technology as well as the increase in industry have led to an increase in the dumping of wastes, ranging from raw sewage to nuclear waste into the environment, which poses a serious problem for the survival of humanity. The conventional methods of waste disposables such as digging hole and dumping wastes, heat incineration and the chemical decomposition of contaminants were found to be more complex uneconomical and also lack public acceptance (Karigar and Rao 2011). Microbial bioremediation is an alternative, cost effective and eco-friendly technology that provides sustainable ways to clean up contaminated environment. Recently, a wide variety of organisms such as bacteria, fungi, algae and plants with efficient bioremediation properties were successfully employed for efficient removal of toxicants from the polluted environments (Vidal, 2001, Leung, 2004) [2].

References

1. Singh SK. Journal of Environmental management 1991;32(1):45-55.
2. Vidal. A brief outline of the development of bioremediation technologies is presented, pure Appl. Chem 2001;73(7):1163- 1172.
3. Pope CA, 3rd Dockery DW. Health effects of fine particulate air pollution: lines that connect J Air waste Manag Assoc 2006; 56(6):709-42.
4. Qian Z, He Q, Lin HM, Kong L, Bentley CM, Liu W, *et al.* High temperature Enhanced Acute mortality Effect of Ambient particle pollution in the “oven” city of wuhan, china, Environ Health perspect 2008;116:1172-80.
5. Kelishadi R, Poursafa P. Air pollution and non-respiratory health hazards for children Archives of Medical science 2010;6(4):483-495.
6. Abbasi T, Abbasi SA. Water quality indices based on bioassessment: the biotic indices. Journal of water and Health 2011;9(2):330-348.
7. Wilkinson P, Smith KR, Joffe M, Haines A. A global perspective energy: health effect and injustice. Lancet 2007, 12.