Environmental Pollution: Cause, Effect and Their Control Measures

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Introduction

Environmental pollution is nothing but it refers to any addition or introduction of unwanted substances or material in the environment due to human activities which leads to undesirable changes in the environment and ecology or changes in living entities called the environment pollution. For example- Sewage water, being released in clean water sources like river, tank, ponds etc. is an example of water pollution. The different agents that cause environmental pollution are called pollutants. Pollutants can be a chemical, or, physical things that get added into the environments by accident that are directly or, indirectly harmful to people and other living things.

Depending upon the sources as well as pollutants, there are various types of environmental pollution

1. Air pollution
2. water pollution
3. soil pollution,
4. Noise pollution

Air pollution: Air pollution is the contamination of the indoor or, outdoor environment by atmosphere or, environment is called as air pollution.

Cause of Air pollution

a. Industrial emission, household emission, motor vehicle emission, forest fire etc are some common sources of air pollution.

b. Some of the radioactive gas "Radon" can emanate from certain rock and soil formation under natural phenomena.

Effects of Air pollution: Air pollution have many negative effects which are as follow-

a. Health issue: Air pollution can cause diseases, allergies and even death to human beings. It can also cause respiratory infections, heart diseases, chronic obstructive pulmonary disease, stroke and lung cancer etc.

b. Damage to environment: Air pollution can damage the natural environment and built environment.

c. Global warming: Air pollution contributes to global warming by producing greenhouse gasses, such as carbon di oxide and methane gas.

d. Acid rains: Gasses like So_2 andnN_2O are oxidized to form H_2SO_4 and Nitric acid along with water and precipitated as acid rain that damage the building metal, plants and animal. It also makes the soil acidic.

Measures taken to control Air pollution

1. Avoid using vehicles for shorter distance.
2. Energy conservation by switch off the electrical appliance.
3. Use of clean energy resources- use of solar, wind and geothermal energies reduce air pollution at a larger level.
4. By minimizing and reducing the use of fire and five products.
5. Fuel substitution is another way of controlling air pollution i.e petrol, and diesel are replaced by CNG (Compressed natural gas).
6. A very effective way of controlling air pollution is by diluting the air pollution
7. By planting tree i.e Afforestation i.e, that reduces a large no. of pollutants in the air.
8. By Air (Prevention and control of pollution) Act 1981.
9. BY adopting national clean Air programme (NCAP)
10. By continuous ambient air quality monitoring system (CAAQMS)
11. The great green wall of Arawalli

Water Pollution: Water pollution is the contamination of water bodies due to release of unwanted substance into sub-surface ground water, or, into water bodies like lakes, streams, river and ocean to a level which negatively impact the beneficial use of the water. Due to water pollution, dissolved oxygen (BOD) rise, aquatic species perish, eutrophication occurs, etc as a result of water pollution.

Cause of water pollution

1. Agriculture is the primary source of water pollution

2. Animal waste from farm and livestock operations.
3. Waste water flow in the water bodies without being treated from industry.
4. Nearly half of the estimated one million tons of oil spills over into marine environment.
5. Radioactive substance generated by Uranium mining, nuclear power plants, and the hospitals that use radioactive materials for research and medicine, these wastes can persist in the environment for thousands of years, making disposal a major challenge.

Effects of Water pollution: Water pollution has many effects which are as follows-

1. 1.It effects the human and animal health
2. It seriously damages our environment
3. It effects the economy of our country
4. It disrupts the food chain prevailed in ecosystem
5. It promotes the eutrophication i.e the addition of excess nutrients to a water bodies.
6. It creates air pollution
7. It adversely changes our climate

Control measures of water pollution

1. Treating waste water- Before discharge into river or, any water bodies.
2. Reducing fertilizer use
3. Reduce single use plastic
4. Disposing of waste material properly
5. Reducing the Co_2 emission
6. Using denitrification
7. Using ultraviolet light or ozone- These can disinfect and remove pathogens.
8. By adopting legislation and strict enforcement
9. By creating social awareness among people about the water pollution and the need for pure water.

Soil pollution: Soil pollution is the unfavorable alteration of soil by the addition or, removal of substance which decrease soil productivity and ground water quality is called soil pollution. It reduces the soil fertility, contaminate crops and effects the food security. It usually results from different human activities like dumping of waste material, use of agrochemical, mining operation and urbanization.

Cause of soil pollution: There are so many causes of soil pollution which are as follows

1. The industrial solid waste and sludge contains toxic organic and inorganic compounds as well as heavy metals cause the soil pollution when these things came in contact with the soil.
2. The radioactive waste from nuclear power plants and nuclear explosions also contaminates soil that cause the soil polluted.
3. Fly ash contains fine particulates which are released from thermal power plants. It settles on the ground and cause soil pollution.
4. The domestic waste which is rich in organic matt6er which undergoes to decompose and mixed to soil surface that cause the soil pollution.
5. The hospital waste also contains a variety of microbes like bacteria, viruses, amoeba that can cause seriously affect the soil pollution when these pathogens came into contact with the soil.
6. The agricultural chemicals like pesticides, insecticides, and inorganic fertilizers may pollute the soil when they come in contact with the soil.

Effects of soil pollution

a. Causes serious health problems- Toxic chemicals in the soil can reduce soil fertility, resulting in the decrease in crop yield. The contaminated soil is then used to grow fruits, vegetables and all other cereals, that are deficient in nutrients and may contains poisonous substance that cause serious health problems when we consume the affected or, deficient fruits, vegetables and other cereals crops.

b. Effects on plant and animals- Since soil pollution is often accompanied by a decrease in the availability of nutrients, plant life ceases to thrive in such soils. Plants that are grown in polluted soil may accumulated toxic substance are passed to the animals' species. So, the result is the loss or, extinction of many desirable animal species.

c. It can also contribute to acidic rains by releasing huge quantity of ammonia into the atmosphere.

d. It reduces the soil health and ultimately crop yield is greatly affected by soil pollution.

e. Soil pollution also affects the soil quality and soil texture.

Control of soil pollution: It can be controlled by the following ways-

1. Management of soil wastes include collection and categorization of wastes. Recovery of resources like scrape metals, plastic etc. for recycling and reuse and safe disposal with a minimum environmental hazard is to be followed.
2. Excavation and subsequent transportation of polluted soil to remote uninhabited location.
3. Afforestation and reforestation should be undertaken on a large scale to prevent soil erosion and also loss of soil nutrients.
4. Extraction of pollutants via thermal remediation- The temperature is raised in order to force the contaminants into the vapors phase after which they can be collected through vapor extraction.
5. Prevention of use of inorganic fertilizers to the crops and uses the organic fertilizers like cow manures, vermicompost, green-manuring etc. for soil amelioration for gaining higher crop yield.

Noise pollution: Sound is the main source of our communication. A low sound is pleasant and harmless. A loud unpleasant or, unwanted sound is called noise. So, a noise is a physical form of pollution. It is not harmful to air, soil and water but affects the animals including human beings. Noise is unwanted sound that is unpleasant, loud and disruptive. Humans have a hearing range called as audible range. Audible range depends upon frequency and loudness of sound. Normal frequency ranges for normal hearing from 20-20,000HZ and loudness ranges from 0 to 120dB. A decibel value above 80 is considered to be noise pollution.

Cause of noise pollution: The different sources associated with noise pollution which are as-

1. Industrial machinery
2. Road, rail and air transport
3. Loudspeakers
4. Construction equipment
5. Household appliance
6. Crackers

Effect of noise pollution

1. Noise seriously affects the heartbeats, breathings and can cause construction of blood vessels.
2. It can cause headache, sleeplessness, irritability and may seriously affects the productive performance of the human.
3. Loud noise (Above 130db) can cause damage to the ear drum, hair cells of cochlea (Organ of hearing) and thereby resulting in temporary or, permanent loss of hearing.
4. It can also seriously affect the concentration of students while learning.
5. It can also affect the blood pressure i.e, increase the Blood pressure
6. It also affects the physical development of foetus.

Control measure of noise pollution

1. The industries should be established away from residential area.

2. Trees should be planted along road side or, highways to reduce noise levels.

3. The industrial machinery and motor vehicle should be properly maintained in order to minimize the noise.

4. The use of loudspeaker and brusting of crackers should be restricted.

5. Effort must be made to create awareness among people about the harmful effects of noise and the need to control it.

Conclusions

In last, we conclude that our environmental pollution will affect life on earth and should be reduce as much as possible. We harm nature and in turn, nature will harm us more in intense form. Air, land, and water pollution have an impact on all ecosystems and our lives and can jeopardize our future generations. The importance of policies on public awareness and perception is recognized and can have an effective role in the protection of the environment.

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