



Water Pollution Definition

“The introduction (directly or indirectly) of substances or energy into the marine environment (including estuaries) results in deleterious effects to living resources, hazards to human health, hindrance to marine activities.

- United Nations, 1971



Types of Water Pollution

i. Surface water pollution:

Surface water includes natural water found on the earth's surface, like rivers, lakes, lagoons and oceans. Hazardous substances coming into contact with this surface water, dissolving or mixing physically with the water can be called surface water pollution.

ii. Groundwater pollution:

Groundwater contamination occurs when man-made products such as gasoline, oil and chemicals get into the ground water. In addition, untreated waste from septic tanks, toxic chemicals from underground storage tanks and leaky landfills contaminate groundwater.

iii. Microbiological pollution:

In many communities around the world, people drink untreated water (straight from a pond, river or stream). Sometimes there is natural pollution caused by micro-organism like viruses and bacteria. This natural pollution causes both aquatic and human illness.

iv. Oxygen depletion pollution:

When oxygen levels in the water are depleted, relatively harmless aerobic micro-organisms die and anaerobic micro-organisms begin to thrive. Some anaerobic micro-organisms are harmful to people, animals and the environment as they produce harmful toxins such as ammonia and sulfides.

Causes of Water Pollution



Water pollution is caused due to several reasons. Here are the few major causes of water pollution:

1. Discharge of sewage and waste water:

Sewage, garbage and liquid waste of households, agricultural runoff and effluents from factories are discharged into lakes and rivers. These wastes contain harmful chemicals and toxins which make the water poisonous for aquatic animals and plants.

2. Dumping of solid wastes:

The dumping of solid wastes and litters in water bodies cause huge problems.

3. Discharge of industrial wastes:

Industrial waste contains pollutants like asbestos, lead, mercury, grease oil and petrochemicals, which are extremely harmful to both people and environment.

4. Oil Spill:

Sea water gets polluted due to oil spilled from ships and tankers while travelling. The spilled oil does not dissolve in water and forms a thick sludge polluting the water.

5. Acid rain:

Acid rain is pollution of water caused by air pollution. When the acidic particles caused by air pollution in the atmosphere mix with water vapor, it results in acid rain.

6. Global warming:

Due to global warming, there is an increase in water temperature as a result aquatic plants and animals are affected.

7. Eutrophication:

Eutrophication is an increased level of nutrients in water bodies. This results in bloom of algae in water. It also depletes the oxygen in water which negatively affects fish and other aquatic animal population.

Effects of Water Pollution

Water pollution adversely affects the health and life of man, animals and plants alike. Polluted water is also harmful for agriculture as it adversely affects the crops and the soil fertility. Pollution of sea water damages the oceanic life. The effects can be catastrophic, depending on the kind of chemicals, concentrations of the pollutants. The effects of water pollution are varied and depend on what chemicals are dumped and in which locations.



Many water bodies near urban areas are highly polluted. This is the result of both garbage dumped by individuals and dangerous chemicals legally or illegally dumped by manufacturing industries, health centers and markets.

i. Death of aquatic animals:

The main problem caused by water pollution is that it kills organisms that depend on these water bodies. Dead fish, crabs, birds and sea gulls, dolphins, and many other animals often wind up on beaches, killed by pollutants in their habitat.

ii. Disruption of food-chains:

Pollution disrupts the natural food chain as well. Pollutants such as lead and cadmium are eaten by tiny animals. Later, these animals are consumed by fish and the food chain continues disrupted at all higher levels.

iii. Diseases:

The discharge of untreated and under-treated effluent contributes to severe ecological degradation. The indiscriminate human activities such as open defecation, solid waste dumping, discharge of drainage water are responsible for the pathogenic bacteria water-borne diseases like Hepatitis-A, Typhoid, Malaria, Dysentery, Jaundice, Dengue fever, Viral fever and Worm infections.

iv. Destruction of Ecosystems:

Ecosystems can be severely destroyed by water pollution. Many areas are now being affected by careless human pollution, and this pollution is coming back to hurt humans in many ways.

Remedial measures to control Water Pollution

1. Comprehensive water management plan.
2. Construction of proper storm drains and settling ponds.
3. Maintenance of drain line.
4. Effluent and sewage treatment plant.
5. Regular monitoring of water and waste water.
6. Stringent actions towards illegal dumping of waste into the water bodies.

Noise Pollution



Definition

Noise pollution is unwanted or excessive sound that can have deleterious effects on human health and environmental quality. Noise pollution is commonly generated by many factories. It also comes from highway, railway and airplane traffic and from outdoor construction activities.

-Jerry A. Nathanson and Richard E. Berg, 2018

i. Atmospheric Noise:

Atmospheric noise or static is caused by lightning discharges in thunderstorms and other natural electrical disturbances occurring in the atmosphere.

ii. Industrial Noise:

Industrial noise refers to noise that is created in the factories. Sound becomes noise if it becomes unwanted. Heavy industries like ship building, iron and steel have long been associated with Noise Induced Hearing Loss (NIHL).

iii. Man made Noise:

The main sources of man-made noise pollution are ships, aircraft, seismic exploration, marine construction, drilling and motor boats.

Causes of Noise Pollution

i. Poor urban planning:

Improper urban planning will cause more nuisances among the city travelers.

ii. Sounds from motor vehicles:

Sounds from motor vehicles can cause temporary hearing loss.

iii. Crackers:



Enormous Crackers are used during some occasions. Such activities create a very louder noise to the level of harming the public. Sometimes, they may even cause deafness to children and aged.

iv. Factory machinery:

The industrial noise caused by continuous operation of mills, machines and pneumatic drills, is unbearable nuisance to the workers.

Effects of Noise Pollution a. Hearing Loss:

Chronic exposure to noise may cause noise-induced hearing loss. Older people are exposed to significant occupational noise and thereby reduced hearing sensitivity. **Damage**

Physiological and Psychological health:

Unwanted noise can damage physiological and psychological health. For example, annoyance and aggression, hypertension, and high stress levels.

Cardiovascular effects:

High noise levels can contribute to cardiovascular problems and exposure to blood pressure.

Detrimental effect on animals and aquatic life:

Noise can have a detrimental effect on animals, increasing the risk of death.

Effects on wildlife and aquatic animals:

It creates hormone imbalance, chronic stress, panic and escape behavior and injury.

Remedial measures to control Noise Pollution

1. Use of noise barriers
2. Newer roadway for surface transport
3. Traffic control
4. Regulating times for heavy vehicles
5. Installations of noise barriers in the work place
6. Regulation of Loudspeakers

Land Pollution Definition

The land pollution is defined as, “the degradation of land because of the disposal of waste on the land”. Any substance (solid, liquid or gaseous) that is discharged, emitted or



deposited in the environment in such a way that it alters the environment causes land pollution -Protection of the Environment Operations Act 1997

Types of Land Pollution

- i. **Solid waste:** It includes all kinds of rubbish like paper, plastic containers, bottles, cans, food, used cars, broken electronic goods, municipal waste and hospital waste.
- ii. **Pesticides and Fertilizers:** Many farming activities engage in the application of fertilizers, pesticides and insecticides for higher crop yield which pollute land.
- iii. **Deforestation:** Humans depend on trees for many things including life. Trees absorb carbon dioxide from the air and release Oxygen, which is needed for life. Forest helps replenish and help retain nutrients being washed away. Deforestation is led to land pollution.

Causes of Land Pollution

- i. **Deforestation and soil erosion:** Deforestation carried out to create dry lands is one of the major concerns. Land that is once converted into a dry or barren land, can never be made fertile again, whatever the magnitude of measures to convert it.
- ii. **Agricultural activities:** With growing human and pet animal population, demand for food has increased considerably. Farmers often use highly toxic fertilizers and pesticides to get rid of insects, fungi and bacteria from their crops. However the overuse of these chemicals, results in contamination and poisoning of land.
- iii. **Mining activities:** During extraction and mining activities, several land spaces are created beneath the surface.
- iv. **Landfills:** Each household produces tones of garbage each year due to changing economic lifestyle of the people. Garbage like plastic, paper, cloth, wood and hospital waste gets accumulated. Items that cannot be recycled become a part of the landfills that cause land pollution.
- v. **Industrialization:** Due to increasing consumerism more industries were developed which led to deforestation. Research and development paved the way for modern fertilizers and chemicals that were highly toxic and led to soil contamination.



vi. Construction activities: Due to urbanization, large amount of construction activities are taking place. This has resulted in large waste articles like wood, metal, bricks, plastic. These are dumped at the outskirts of urban areas that lead to land pollution.

vii. Nuclear waste: The leftover radioactive materials, harmful and toxic chemicals affect human health. They are dumped beneath the earth to avoid any casualty.

Effects of Land Pollution

1. Soil pollution: Soil pollution is another form of land pollution, where the upper layer of the soil is damaged. This is caused by the overuse of chemical fertilizers, and pesticides. This leads to loss of fertile land. Pesticides kill not only pests and also human beings.

2. Health Impact: The land when contaminated with toxic chemicals and pesticides lead to problem of skin cancer and human respiratory system. The toxic chemicals can reach our body through foods and vegetables.

3. Cause for Air pollution: Landfills and waste dumping lead to air pollution. The abnormal toxic substances spread in the atmosphere cause transmit respiratory diseases among the masses.

4. Effect on wildlife: The animal kingdom has suffered mostly in the past decades. They face a serious threat with regards to loss of habitat and natural environment. The constant human activity on land is leaving it polluted, forcing these species to move farther away. Sometimes several species are pushed to the verge of extinction or disappear due to no conducive environment.

Remedial measures to control Land Pollution

1. Making people aware about the concept of a Reduce, Recycle and Reuse
2. Buying biodegradable products
3. Minimizing the usage of pesticides
4. Shifting cultivation
5. Disposing unwanted garbage properly either by burning or by burying under the soil.
6. Minimizing the usage of plastics.