# Environmental Pollution (UNIT 3)

**Definition :**

* The most appropriate definition of environmental pollution would be the introduction of different harmful pollutants into certain environment that make this environment unhealthy to live in.
* **Pollution** is the introduction of [contaminants](https://en.wikipedia.org/wiki/Contaminant) into the natural environment that cause adverse change.Pollution can take the form of [chemical substances](https://en.wikipedia.org/wiki/Chemical_substance) or [energy](https://en.wikipedia.org/wiki/Energy), such as noise, heat or light. [Pollutants](https://en.wikipedia.org/wiki/Pollutant), the components of pollution, can be either foreign substances/energies or naturally occurring contaminants
* Environmental pollution is the discharge of material, in any physical state, that is dangerous to the environment or human health.
* **Environmental pollution** is “the **contamination** of the physical and biological components of the earth/atmosphere system to such an extent that normal **environmental processes** are adversely **affected**”
* Environmental pollution may be defined as undesirable change in the physical chemical or biological characteristicsof any component of the environment (air, water , soil) , Which can cause harmful effects.

**Pollutants definition** : a substance that pollutes something, especially water or the atmosphere.

Water Pollution :

**Defination :** Water pollution may be defined as “the alteration in physical, chemical and biological characteristics of water which may cause harmful effects on humans and aquatic life.”

**Source of Pollution**

**Point and non-point sources of water pollution:**

* Point sources These are pollutants that are discharged at specific locations through pipes, ditches or sewers into bodies of surface waters.
Ex: Factories, sewage treatment plants, abandoned underground mines and oil tankers.
* Non point sources These pollutants cannot be traced to a single point of discharge. They are large land areas or air-sheds that pollute water by runoff, subsurface flow or deposition from the atmosphere.

Ex: Acid deposition, runoff of chemicals into surface water from croplands, urban streets, lawns, golf courses and parking lots.

**Ground Water Pollution:**

* These are less prone to pollution
* Potential source include
* Open Septic Tank
* Deep well injection
* Mining
* Industrial Waste which is deep deposited

Now a days ground water also pollute because of arsenic, fluoride and nitrate also

**Surface Water pollution :**

* Sewage
* Industrial Effluent
* Synthetic Detergent
* Agro chemical
* Oil spills
* Waste heat

**Effect of Water Pollution:**

* Groundwater contamination from pesticides causes reproductive damage within wildlife in ecosystems.
* Sewage, fertilizer, and agricultural run-off contain organic materials that when discharged into waters, increase the growth of algae, which causes the depletion of oxygen.  The low oxygen levels are not able to support most indigenous organisms in the area and therefore upset the natural ecological balance in rivers and lakes.
* Swimming in and drinking contaminated water causes skin rashes and health problems like cancer, reproductive problems, typhoid fever and stomach sickness in humans.

* Industrial chemicals and agricultural pesticides that end up in aquatic environments can accumulate in fish that are later eaten by humans.
* Ecosystems are destroyed by the rising temperature in the water,
* Water pollution causes flooding due to the accumulation of solid waste and soil erosion in streams and rivers.
* Oil spills in the water causes animal to die when they ingest it or encounter it.  Oil does not dissolve in water so it causes suffocation in fish and birds.

**Remedial Measures to Control Water Pollution :**

* Judicious use of agrochemicals like pesticides and fertilizers which will reduce their surface run-off and leaching.
* Use of Nitrogen fixing plant to supplement the use of fertilizer.
* Adopting Integrated pest management to reduce the weight.
* Prevent run off of manure.
* Separate drainage for sewer and rain water should be provided to prevent overflow of sewage.
* Plantation of trees to prevent soil Erosion.
* For reduction the pollutant from point source, The sewage water must be treated before discharge.

**Land Pollution :**

**Defination : Land pollution is the deterioration (destruction) of the earth’s land surfaces, often directly or indirectly as a result of man’s activities and their misuse of land resources.**

**Source Of Land Pollution:**

Sources of Land pollution Include :

* Dumping of Material especially in form of Domestic Waste including garbage, rubbish material like glass, plastic, Polythene Bags, Metallic Cans, and Papers etc. During decomposition it generates toxic waste which pollutes the soil. Plastic is non Biodegradable but in due course of time it becomes brittle which affects the porosity of soil.
* Dumping of industrial waste and effluents discharged from chemical industries.
* Thermal power plant produce fly ash, which when dumped on land causes pollution
* Pesticides used to kill pests, remain in the soil for long time and effect the chemical composition of soil under temperature conditions.
* Industrial waste contains salts, toxic compounds, metals like mercury, lead, arsenic which pollute the ground water.
* Land receives excreta from humans and animal which contains pathogenic organisms like bacteria, virus, and intestinal worms which cause pollution of land.
* Often radioactive waste dumped in soil causes change in organic structure of soil.
* Excessive use of agro chemicals also pollutes land.
* During extraction and mining activities, several land spaces are created beneath the surface. We constant hear about land caving in; this is nothing but nature’s way of filling the spaces left out after mining or extraction activity

**Effect of Land 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, soil erosion caused by running water and other pest control measures; this leads to loss of fertile land for agriculture, forest cover, fodder patches for grazing etc.
* The effects of land pollution are very hazardous and can lead to the loss of ecosystems. When land is polluted, it directly or indirectly affects the [climate patterns](https://www.conserve-energy-future.com/ClimateChangeEffects.php).
* When deforestation is committed, the tree cover is reduced. This leads to a steep imbalance in the rain cycle.
* 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 that we eat as they are grown in polluted soil.
* Landfills across the city keep on growing due to increase in waste and are later burned which leads to air pollution.
* The discharge of chemicals on land, makes it dangerous for the ecosystem too. These chemicals are consumed by the animals and plants and thereby make their way in the ecosystem.

**Solutions for Land Pollution**

1. Make people aware about the concept of Reduce, Recycle and Reuse.

2. Reduce the use of pesticides and fertilizers in agricultural activities.

3. Avoid buying packages items as they will lead to garbage and end up in landfill site.

4. Ensure that you do not litter on the ground and do proper disposal of garbage.

5. Buy biodegradable products.

6. Do [Organic gardening](https://www.conserve-energy-future.com/OrganicGardening.php) and eat organic food that will be grown without the use of pesticides.

7. Create dumping ground away from residential areas.