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## Pollution

Pollution is the introduction of harmful materials into the environment. These harmful materials are called **Pollutions**.

**Pollution** is the intro of contamination into the natural environment that causes adverse change.

In 2020 pollution killed 9million people worldwide.

Many type of pollution like:- **Air pollution, Noise Pollution, Plastic Pollution, Soil Pollution, Radioactive pollution, Water Pollution, Visual Pollution, and Thermal Pollution.**

**1) Water Pollution:-** Water Pollution is the Contamination of water bodies usually as a result of human activities.

When harmful substances often chemical or microorganism contamination a stream river, Lake, Ocean, or other body of water degrading water quality and rendering it toxic to human or the environment.

## Factors Contributing Water Pollution and their effects:-

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

**Industrial waste:-** Industrial waste contains pollution like asbestos,lead, mercury and petrochemical which are extremely harmful to bath people and environment.

Industrial waste is discharged into likes and rivers by using flesh water making the water Pollution.

**Acid Rain:-** Acid rain is pollution of water caused by Air pollution in the atmosphere (ATM) mix with water vapour it result in acid rain.

**Global warming:-** There is an increase in water temperature.

The increase in temperature results in death of aquatic plants and animals. This also result in bleaching of coral reels in water.

**Oil Pollution:-** Sea water gets pollutied due to oil spilled from ships and tankers while traveling.

The spilled oil does not dissolve in water and forms a thick sludge Pollution the water.

**Domestic waste water Pollution:-** It mainly caused by sewage.

Sewage is defined as the water borne waste derived includes human excreted, Soaps, organic materials, detergents, paper and clothes.



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## *Treatment of domestic waste water Pollution:-*

They waste water potable and usable by employing wastewater treatment technologies that filter and treat the wastewater by removing contamination such as sewage and chemicals.

Four common ways to treat wastewater include:-

- Physical water treatment
- Biological Water treatment
- Chemical Water treatment
- Sludge water treatment

• **Physical water treatment:-** In this methods are used for cleaning the wastewater processes like screening, sedimentation and skimming are used to remove the solids no chemical are involved in this process.

The main techniques of physical waste water treatment including sedimentation which is a process of suspending the heavy particles from the wastewaterwater.

It insoluble material settled down at bottom you can separate the pure water.

• **Biological Water treatment:-** This use various biological processes to break down the organic matter present in wastewater such as soap, human waste oil and food etc.

It can be divided into three categories:-

(1) **Aerobic processes:-** Bacteria decomposes the organic matter and converts it into carbon dioxide that can be used by plants. Oxygen is used in this process.

(2) **Anaerobic Processes:-** Here fermentation is used for fermenting the waste at a specific temperature. Oxygen is not used in anaerobic process.

(3) **Composting:-** A type of Aerobic process where wastewater is treated by mixing it with sawdust or other carbon sources.



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## Chemical Water Treatment:-

(a) The use of chemicals in water chlorine an oxidising chemical is commonly used to kill bacteria which decomposes water by adding contaminate to it.

Another oxidising agent used for purifying the wastewater is Ozone.

(b) Neutralization is a technique where an acid or base is added to bring the water to its natural pH of 7 chemicals prevent the bacteria from reproducing in water thus making the water pure.

- **Sludge water treatment:-** This is a solid liquid separation process where the least possible residual moisture is required in the solid phase and the lowest possible solid particles residuals are required in the separated liquid phase.

