

The background of the slide features a large, faint watermark of the Jadavpur University logo. The logo is circular with a scalloped outer edge. Inside the circle, there is a central emblem consisting of three stylized flames or petals. Above the emblem, the text "যাদবপুর বিশ্ববিদ্যালয়" (Jadavpur University) is written in Bengali script. Below the emblem, the text "জাদবপুর বিশ্ববিদ্যালয়" (Jadavpur University) is written in Bengali script. The entire logo is rendered in a light gray color.

Water pollution

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Water Pollution- Definition

- ❑ Water pollution can be defined as alteration in physical, chemical or biological characteristics of water, making it unsuitable for designated best use in its natural state.
- ❑ World Health Organization (WHO) has defined water pollution as inclusion of any foreign material either from natural or other sources into a water body, thereby changing the natural qualities of water and making it unusable for its intended purpose.

Sources of Water Pollution

- Natural Sources
- Anthropogenic sources
 - ❑ Household wastewater generated from various use of water for domestic purposes.
 - ❑ Industrial wastewater constitutes different organic or inorganic chemicals.
 - ❑ The oil spills causing pollution in marine environment.
 - ❑ Nuclear waste from nuclear power plants containing radioactive substances.
 - ❑ Thermal pollution caused by hot water from thermal power stations.

Effects of Water Pollution

❑ Effects on Man

- Several water-borne ailments like cholera, typhoid, diarrhea, dysentery, hepatitis, polio and jaundice are caused due to consumption of polluted water.
- Heavy metals (lead, mercury, cadmium etc.), pesticides, cyanides and many other organic and inorganic compounds present in wastewater polluting a water body cause various types of diseases.

Effects on Animals, Marine Life and Vegetation

❑ Eutrophication

Phenomenal growth of phytoplankton and algae is caused due to nutrient accumulation, thereby reducing the penetration of oxygen, light and heat into the water body.

❑ Biomagnification

Increasing the concentration of various toxic substances along the food chain is commonly known as biomagnification. Acute diseases manifest in the higher species due to concentrated toxic substances.

Control of Water Pollution

❑ Point Sources

➤ Treatment Plants

Three stages of treatment are suggested for treating municipal wastewater and industrial wastewaters containing non-toxic and biodegradable organic compounds.

➤ Primary Treatment

Screens, grit chamber and primary clarifiers

➤ Secondary Treatment

The organic matter is biologically degraded by micro-organisms under aerobic, anoxic or anaerobic condition.

➤ Tertiary Treatment

Nutrients like nitrogen, phosphorus are removed.

Control of Water Pollution

❑ Non-Point Sources

- Run-off of manure is diverted to a basin for settling
- Surface run-off not to be mixed up with wastewater
- Judicious use of agro-chemicals like bio-fertilizers and bio-pesticides

Control of Water Pollution

❑ Control of Marine Pollution

- Using less toxic offshore drilling fluids
- Cleaning onboard prior to discharge
- Shipment of wastes ashore for recycling, landfill or incineration
- Offshore cuttings re-injection

Water Pollution Related Acts

- ❑ Central Pollution Control Board (CPCB) has set up the standards to protect the water resources for various uses. The Water (Prevention and Control of Pollution) Act, 1974 was introduced to control water pollution.