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36. WATER POLLUTION IN INDIA: AN OVERVIEW

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ABSTRACT

Most ancient civilizations grew along the banks of rivers. Even today, millions of people all over the world live on the banks of rivers and depend on them for their survival. All of us have seen a river large or small either flowing through our town or somewhere else. Rivers are nothing more than surface water flowing down from a higher altitude to a lower altitude due to the pull of gravity. One river might have its source in a glacier another in a spring or a lake. Rivers carry dissolved minerals organic compounds, small grains of sand gravel and other material as they flow downstream. Rivers begin as small streams which grow wider as smaller streams and rivers join them along their course across the land. Eventually they flow into seas or oceans. Unfortunately most of the world's major rivers are heavily polluted. The pollution of environment is the gift of the Industrial revolution prior to this the agrarian cultures created significant environment deforestation and overgrazing. The Environmental degradation is a byproduct of modern civilization. Water Pollution is a major global problem which requires on going evaluation and revision of water resource policy at all levels. It has been suggested that water pollution is the leading worldwide cause of deaths and diseases and that it accounts for the deaths of more than 14,000 people daily. An estimated 580 people in India die of water pollution related illness every day.

INTRODUCTION

Water pollution is a major global problem which requires ongoing evaluation and revision of water resource policy at all levels. It has been suggested that water pollution is the leading worldwide cause of deaths and diseases and that it accounts for the deaths of more than 14,000 people daily. An estimated 580 people in India die of water pollution related illness every day. Water pollution is the contamination of water bodies such as rivers, lakes, oceans and groundwater. This occurs when pollutants are discharged directly or indirectly into water bodies without adequate treatment to remove harmful compounds. Humans are the cause of most of the pollution in our water ways and

polluted storm water is a major contributor to degradation of our water ways. When something is added to environment that makes it unclean or unsafe it is called pollution. Water pollution occurs when the water becomes over loaded with too much of one thing and the aquatic organisms cannot keep up with their cleaning responsibilities. Some organisms may die and others grow too fast. There are many types and sources of water pollution (such as sewage pollution) that can pollute surface water of ground water.

OBJECTIVES OF WATER POLLUTION

- Distinguish between point and non point sources of pollution.
- Identify the ways in which human waste water can cause water pollution.
- Evaluate the different technologies that humans have developed for treating waste water.
- Identify the major types of heavy metals and other substances that pose serious hazards to humans and the environment.
- Discuss the impact of oil spills and how such spills can be remediated.
- Identify contaminants that are non chemical pollutants.
- Explain the connections among industrialization affluence and water pollution legislation.

METHODOLOGY

The study is mainly descriptive in nature. Secondary data are used for the purpose of the study. The data was collected from websites, various articles and journals.

TYPES OF WATER POLLUTION

Water pollution any physical or chemical change in water that adversely affects the health of humans and other organisms.

- Sewage
- Disease causing agents
- Sediment pollution
- Inorganic plant and algal nutrients
- Organic compounds
- Inorganic chemicals
- Radioactive substances and
- Thermal pollution

MAIN CAUSES OF WATER POLLUTION IN INDIA

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

1. *Sewage and Waste Water*

Sewage garbage and liquid waste of households, agricultural lands and 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*

Dumping of solid wastes and litters in water bodies causes huge problems. Litters include glass, plastic, aluminum, Styrofoam, etc., different things take different amount of time to degrade in water. They affect aquatic plants and animals.

3. *Industrial Waste*

Industrial waste contains pollutants like asbestos, lead, mercury and petro chemicals which are extremely harmful to both people and environment industrial waste is discharged into lakes and rivers by using fresh water making the water contaminated.

4. *Oil Pollution*

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

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.

TREATING POLLUTED WATER

It is very important to prevent the pollution of water bodies and remove existing contaminants or reducing the concentration of these contaminants so as to make it fit for desired use following are some of the ways of treating polluted water.

INDUSTRIAL TREATMENT

The raw sewage is needed to be treated correctly in a water treatment plant before it

can be safely released into the environment to reduce the amount and toxicity of waste, it is passed through a number of chambers and chemical processes in water treatment plant.

GENTRIFICATION

Conversion of nitrates in gas is called Gentrification. It is an ecological approach to prevent locating of nitrates in soil. It stops ground water from getting contaminated.

OZONE WASTE WATER TREATMENT

Ozone waste water treatment method is becoming very popular in this method; the pollutants in water are broken down by an ozone generator. Ozone oxidizes bacteria, molds organic material and other pollutants in water.

SEPTIC TANKS

Septic tanks are used to treat sewage at the place of location instead of treating in any plant or sewage system. This system is used at the individual building level. The sewage is separated into solid and liquid components and treated separately.

EFFECTS OF WATER POLLUTION

The water pollution is very harmful to humans, animals and water life. The effects can be catastrophic depending on the kind of chemicals, concentrations of the pollutants and where there are polluted. The effects of water pollution are varied and depend on what chemicals are dumped and in which locations.

Many water bodies near urban areas cities and towns 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, schools and market places.

DEATH OF WATER 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 living environment.

DISRUPTION OF FOOD-CHAIN

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

DISEASES

Eventually, humans are affected by this process as well. People can get diseases such as hepatitis by eating seafood that has been poisoned. In many poor nations, there is always outbreak of

cholera and diseases as a result of poor drinking water treatment from contaminated water.

DESTRUCTION OF ECOSYSTEMS

The interaction of living things in a place depending on each other for life can be severely changed or 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.

SIGNS OF WATER POLLUTION

- Bad taste of drinking water.
- Offensive odors from Lakes Rivers and ocean beaches.
- Unchecked growth of aquatic weeds in water bodies.
- Decrease in number of fish in fresh water, river water, sea water.
- Oil and grease floating on water surfaces.
- These disturb the normal uses of water for public water supply.; Recreation and aesthetics, Fish other aquatic life and wild life, Agriculture, Industry.

PREVENTION OF WATER POLLUTION

- Do not pour fat from cooking or any other type of fat, oil or grease down the sink. Keep a fat jar under the sink to collect the fat and discard in the solid waste when full.
- Do not dispose of household chemicals or cleaning agents down the sink or toilet. Simsbury has a hazardous waste collection day usually from 8:00 am to 1:00 pm at Henry James school Connecticut resource recovery authority lists all collection dates.
- Do not flush pills, liquid or powder medications or drugs down the toilet. For recommendations on proper disposal for all types of medical wastes.
- Avoid using a garbage disposal keep solid wastes solid. Make a compost pile from vegetable scraps.
- Install a water efficient toilet. In the meantime, put a brick or ½ gal container in the standard toilet tank to reduce water use per flush.
- Run the dishwasher or clothes washer only when you have a full load. This conserves electricity and water.
- Use the minimum amount of detergent and or bleach when you are washing clothes or dishes use only phosphate free soaps and detergents.
- Minimize the use of pesticides, herbicides, fertilizers. Do not dispose of these

chemicals, motor oil or other automotive fluids into the sanitary sewer or storm sewer systems. Both of them end at the river.

→ If you home has a sump pump or cellar drain make certain it does not drain into the sanitary sewer system.

CONCLUSION

Water pollution has the capabilities to disrupt life on our planet to a great extent. Congress has passed laws to try to combat water pollution thus acknowledging the fact that water pollution is indeed, a serious issue. But the government alone cannot solve the entire problem. We must become familiar with our local water resources and learn about ways for disposing harmful household wastes so they do not end up in sewage treatment plants that cannot handle them or landfills not designed to receive hazardous materials.

We must determine whether additional nutrients are needed before fertilizers are applied and look for alternatives where fertilizers might run off into surface waters. We have to preserve existing trees and plant new trees and shrubs to help prevent soil erosion and promote infiltration of water into the soil. Around our houses, we must keep litter, pet waste, leaves and grass clippings out of gutters and storm drains.

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