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Water Pollution- A Serious Threat to the Natural Environment

- ***A grave contemporary challenge***

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Abstract

In olden days, human needs were very limited, he could satisfy his wants using very little amount of natural resources. But today, everywhere there is a huge demand of natural resources especially energy like in transportation, agriculture, business, telecommunication, domestic requirement etc. as we know that most of energy come from fossil fuels like oil, coal and natural gas etc. they increase the CO_2 concentrations and other greenhouse gases in the existing atmosphere upto a large extent. Eventually, there will be a big role of these gases in environment pollution, global warming and environmental crisis.

As reported by several researchers that the natural crisis is not only the result of natural calamities but also is the consequence of lack of good govt planning, increase in industries and human waste and above all lack of public awareness towards environmental conservation, especially water conservation.

This endeavour highlights upon the role of a teacher and society towards generating the awareness of water conservation among the common public.

INTRODUCTION

Water has always been considered as the most precious gift of supreme power. The survival of whole universe is dependent on water. Due to this reason, it is called that water is life. The primary reason is that every living element on earth consists of approximately 65% to 70% of water in their body. We cannot think of life without water whether it is plants, animals, humans and other living things.

The releasing of untreated effluents regularly from various industries in water bodies begets the problem of the accumulation of toxic heavy metals in water bodies. Heavy metals are known as not bio-degradable and often tend to augment in living organism and causing cancerous diseases and various types of disorders in human and animals since effluents from large number of industries like paper industries, sugar industriesetccarry toxic metals like lead, Hg, Cd and As etc.

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Objectives of the study

1. To understand the concept of the water pollution
2. To highlight the physical, Chemical and biological characteristics of water
3. To pinpoint the sources/causes of water pollution
4. To mention major pollutant categories of water pollutions
5. To highlight the effects and health hazards regarding water pollutions
6. To study the pathological effects of heavy metal water pollution
7. To mention the ways to control the water pollution
8. To highlight the water pollution legislature
9. To pinpoint the ways to water quality management in rivers
10. To study the significance of awareness programmes via college and mass media

The Concept of theWater Pollution

Water pollution is a world-wide phenomenon. As we know that chemically, pure water is the collection of H_2O molecule. When there is any change in the structure of water is considered as water pollution. Ground water is the dominant resource in rural area especially in India to meet the drinking needs of the people. But now-a-days, the shallower wells are found to be more affected by fluoride, arsenic, salt, iron or microbial contamination. The over-use of pesticides and chemical in agriculture is considered as main cause of ground water pollution in rural areas.

Water pollution refers to the presence in water, of some foreign substances or impurities (organic, inorganic, radiological or biological) in such quantity so as to constitute a health hazard by lowering the beings or other living creatures or to the industrial operations or the structure of water itself. In short, any alteration in the physical, chemical or biological properties of water as well as any impurities due to any foreign substance causing a health hazard and eventually results in a decrease in the utility of water is water pollution. Water accepts and holds the foreign impurities or substances in the following various ways-

The Physical, Chemical and Biological Characteristics of Water

Water is a transparent, tasteless and odorless substance on the earth planet and made of billions of molecules. It flows as liquid (at standard temperature and pressure) in river, stream and oceans; is found as solid ice at the north and South Pole and is also found as gas (vapor) in the atmosphere. Water is the life for plants and all living organisms. We need it in all necessary activities e.g. drinking, taking a bath, cooking, watering the plants and for many other things. It is a chemical compound and polar molecule. The ability of ions and other molecules to dissolve in water is due

to polarity. A water molecule has 3 atoms – two hydrogen (H) atoms and one oxygen (O) atom. The chemical formula for water is H_2O.

Effects of Water Pollutants

Pollutants	Effects
1. Organic wastes	Promote decomposition, causing deoxygenation and death of animals, anaerobic (oxygen hating) bacteria produce foul smelling gases, scum and sludge form and render water unfit
2. Pathogens	Disease of human and domestic animals
3. Phosphates and nitrates in fertilizers and detergents	Promote algal growth, causing deoxygenation and death of animals, decay of dead algae produces foul gases, silt and decaying matter may fill up the water body.
4. Toxic chemical (Hg, As, Pb, Cyanide)	Reach human and animals bodies through poisoning, disease and death as they accumulate in bodies
5. Oil	Kills animals by catching fire and by reducing oxygen and plant life
6. Radioactive wastes	Reach human and animals bodies via food chain and cause death
7. Solid particles	Cause turbidity that reduces light for photosynthesis and this causes loss of water life
8. Heat	Warm water holds less O_2insufficient to support life
9. Non-degradable pesticides	Reach human body via food chain, affect nervous system
10. Broad spectrum pesticides	Causes large scale destruction of aquatic life
11. Fluorides	Fluorosis
12. Dyes: Fe and Cr compounds	Change colour of water

13. Fe, Cl, Mn, HC, Phenol	Make water distasteful
14. Cl, H_2S, NH_3	Impart unpleasant ordour to water
15. Detergent, Soaps	Cause from formation
16. Corrosive materials	Spoil waste water treatment plants
17. Organic sulphur	Hampers nitrification

Source-Foundation of Environmental Studies, *Galgotia Publication PVT Ltd, New Delhi*

Pathological Effects of Heavy Metal Water Pollution on Man

Metal	Pathological Effects
1. Mercury	Foetal disorder
2. Lead	Neurological disorders, kidney damage, gastrointestinal, pulmonary disorders, genetic damage, brain, lever and kidney damage, anemia, vomiting and loss of appetite
3. Arsenic	Disturbed peripheral circulation, mental disorders, liver, cirrhosis, lung cancer, ulcers in gastrointestinal track, kidney damage
4. Cadmium	Bone deformation, Kidney damage, injury to central nervous system, liver, growth retardation
5. Copper	Sporadic fever, Hypertension
6. Barium	Excessive salivation, vomiting, diarrhea, paralysis, colin pain
7. Zinc	Renel damage, cramps
8. Chromium	Nephritis, gastrointestinal ulceration, cancer, disease of central nervous system
9. Cobalt	Diarrhea, low B.P., lung irritation, bone deformities, paralysis

Source- Environmental Studies**,** *S.K. Kataria and Sons, Publishers and Distributors, Delhi*

The Ways to Control the Water Pollution

Teacher can play a creative role in generating the water saving awareness in children. For this very purpose, following are the functions of a conscious and environment loving teacher to protect and care of basic human right to life.

1. Every day, at the time of prayer, teacher can easily develop the faith in children about our environment conservation ie our future.
2. Drinking Arranging the educational tour to visit the place where there is scarcity of pure water like Rajasthan, Bangalore etc

3. Arranging the speeches, seminars and workshops by expert resource persons over water saving and conservation.
4. Arranging the competition on water saving and conservation
5. Promoting Parents of students for water harvesting plants
6. Collect the wasted RO water for other uses
7. Government should have control over the untreated waste effluents of various industries like paper, sugar industries etc.
8. NGT time to time should make inspections suddenly to have the control over untreated waste effluents.

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