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WATER POLLUTION

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Water pollution (or aquatic pollution) is the contamination of water bodies, usually as a result of human activities, so that it negatively affects its uses. Water bodies include lakes, rivers, oceans, aquifers, reservoirs and groundwater. Water pollution results when contaminants are introduced into these water bodies. Water pollution can be attributed to one of four sources: sewage discharges, industrial activities, agricultural activities, and urban runoff including storm water. It can be grouped into surface water pollution (either fresh water pollution or marine pollution) or groundwater pollution. For example, releasing inadequately treated wastewater into natural waters can lead to degradation of these aquatic ecosystems. Water pollution can also lead to water-borne diseases for people using polluted water for drinking, bathing, washing or irrigation. Water pollution reduces the ability of the body of water to provide the ecosystem services (such as drinking water) that it would otherwise provide.

Sources of water pollution are either point sources or non-point sources. Point sources have one identifiable cause, such as a storm drain, a wastewater treatment plant or an oil spill. Non-point sources are more diffuse, such as agricultural runoff. Pollution is the result of the cumulative effect over time. Pollution may take the form of toxic substances (e.g., oil, metals, plastics, pesticides, persistent organic pollutants, industrial waste products), stressful conditions (e.g., changes of pH, hypoxia or anoxia, increased temperatures, excessive turbidity, unpleasant taste or odor, and changes of salinity), or pathogenic organisms. Contaminants may include organic and inorganic substances. Heat can also be a pollutant, and this is called thermal pollution. A common cause of thermal pollution is the use of water as a coolant by power plants and industrial manufacturers.

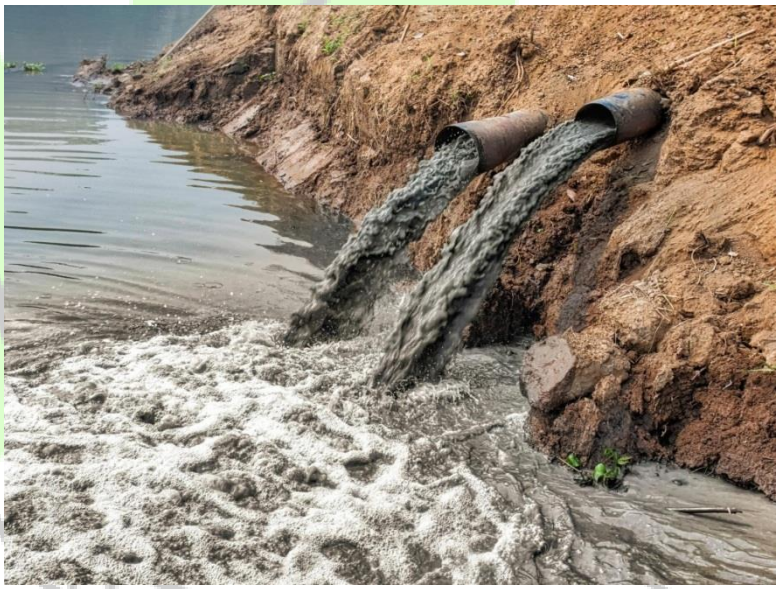
Control of water pollution requires appropriate infrastructure and management plans as well as legislation. Technology solutions can include improving sanitation, sewage treatment, industrial wastewater treatment, agricultural wastewater treatment, erosion control, sediment control and

control of urban runoff (including storm water management). Effective control of urban runoff includes reducing speed and quantity of flow.

DEFINITION

A practical definition of water pollution is: "Water pollution is the addition of substances or energy forms that directly or indirectly alter the nature of the water body in such a manner that negatively affects its legitimate uses". Therefore, pollution is associated with concepts attributed to humans, namely the negative alterations and the uses of the water body. Water is typically referred to as polluted when it is impaired by anthropogenic contaminants. Due to these contaminants it either does not support a human use, such as drinking water, or undergoes a marked shift in its ability to support its biotic communities, such as fish.

DISEASES, MEDICAL PROBLEMS



Water pollutants may cause disease or act as poisons. Bacteria and parasites in poorly treated sewage may enter drinking water supplies and cause digestive problems such as cholera and diarrhea. Hazardous chemicals, pesticides, and herbicides from industries, farms, homes and golf courses can cause acute toxicity and immediate death, or chronic toxicity that can lead to neurological problems or cancers. Many water pollutants enter our bodies when we use water for drinking and food preparation. The pollutants enter the digestive tract. From there, they can reach other organs in the body and cause various illnesses. Chemicals come in contact with the skin from washing clothes, or from swimming in polluted water and may lead to skin irritations. Hazardous chemicals in water systems can also affect the animals and plants which live there. Sometimes these organisms will survive with the chemicals in their systems, only to be eaten by humans who may then become mildly ill or develop stronger toxic symptoms. The animals and plants themselves may die or not reproduce properly.

WHAT YOU CAN DO?

Use less water: Clean, fresh water may seem plentiful, but there is a limited amount available on earth. Use water-saving devices on sinks, in toilets, and in showers. Take short showers instead of baths. Do not run the water constantly while brushing your teeth. Wash clothes when you have a full load of laundry. Only water your lawn and plants when absolutely necessary.

Avoid pouring chemicals down the drain: Use fewer chemicals and cleaners around the home. Not only will you cut down on indoor air pollution, but also on the amount of chemicals entering the

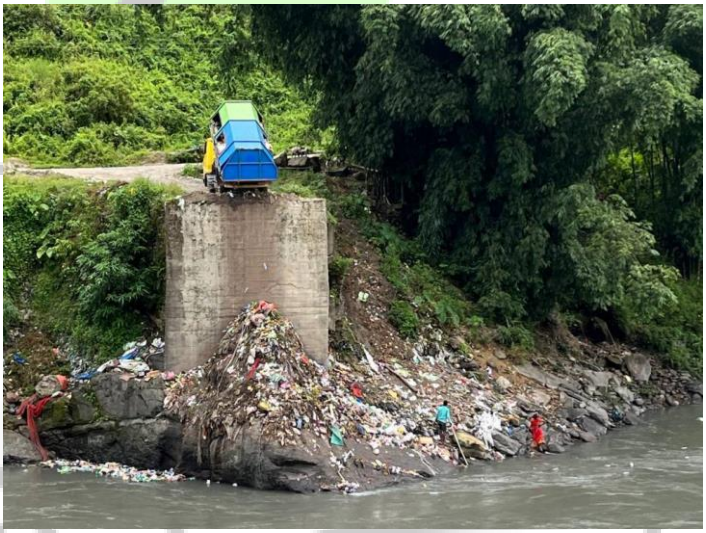
water system. If necessary, use biodegradable cleaners. Do not pour oil or other chemicals into the drainage system on the street.

Have your water checked for lead contamination: Many homes have lead pipes or lead around connections on the pipes which carry water to their homes. Since this lead may enter your drinking water and cause medical problems in young children, you might want to have the water tested. If lead is present, installing a filter may solve the problem.

Do not pollute outdoor water sources: Do not pour oil or other chemicals into the drainage system on the street. A little oil can kill many plants and animals. Do not litter, especially near water. Litter may be eaten as food by animals and cause harm to them. Do not use pesticides on lawns, or use only organic ones. Use less fertilizer, also. All these can enter our water sources.

SOURCES AND EFFECTS OF WATER POLLUTION

Water pollution can be caused in a number of ways, one of the most polluting being city sewage and industrial waste discharge. Indirect sources of water pollution include contaminants that enter the water supply from soils or groundwater systems and from the atmosphere via rain.



Soils and ground waters contain the residue of human agricultural practices and also improperly disposed of industrial wastes.

British poet W H Auden once noted "Thousands have lived without love, not one without water" Yet while we all know water is crucial for life, we trash it anyway. Some environment, polluting rivers, lakes and oceans.

Water is uniquely vulnerable to pollution, known as a "Universal solvent", water is able to dissolve more substances than any other liquid on earth. It's the reason we have kool-aid and brilliant blue waterfalls. It's also why water is so easily polluted. Toxic substances from farms, towns, and factories readily dissolve into and mix with it, causing water pollution.

Water pollutants come from either point sources or dispersed sources. A point sources is a pipe or channel, such as those used for discharge from an industrial facility or a city sewage system. A dispersed (or non-point) source is a very broad unconfined area from which a variety of pollutants enter the water body, such as the runoff from an agricultural area.

Domestic sewage is the primary source of pathogens (disease causing microorganism) and putrescible organic substances. Because pathogens are excreted in feces, all sewage from cities and towns is likely to contain pathogens of some type, potentially presenting a direct threat to public health.