

GH RAISONI INSTITUTE OF BUSINESS MANAGEMENT

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Subject:- WATER POLLUTION

Roll no:- 21025

• What is water pollution?

Water pollution occurs when harmful substances-often chemicals or microorganisms a stream, river, lake, ocean, quifer, or other body of water, degrading water quality and rendering it toxic to humans or the environment.

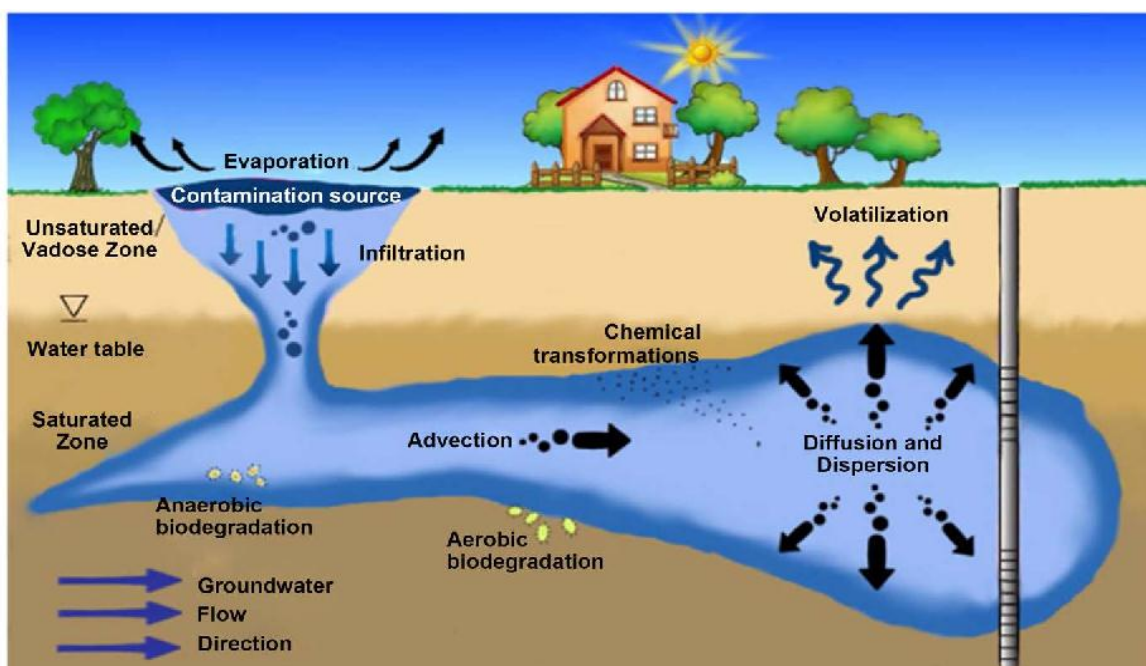


- **What are the Causes of Water Pollution?**

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 pollute. Toxic substances from farms, towns, and factories readily dissolve into and mix with it, causing water pollution.

- **Categories of Water Pollution**

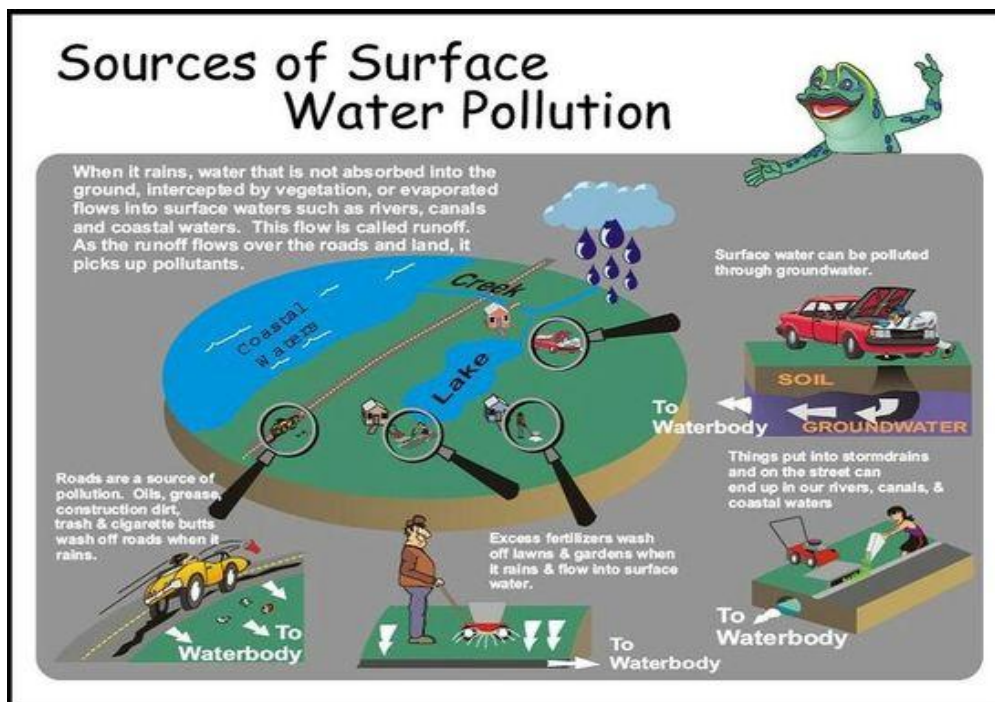
- ❖ **Groundwater**



When rain falls and seeps deep into the earth, filling the cracks, crevices, and porous spaces of an aquifer (basically an underground storehouse of water), it becomes groundwater—one of our least visible but most important natural resources. Nearly 40 percent of Americans rely on groundwater, pumped to the

earth's surface for drinking water. For some folks in rural areas, it's their only freshwater source. Groundwater gets polluted and fertilizers to waste leached from landfills and septic system-make their way into an aquifer, rendering it unsafe for human use. Ridding groundwater of contaminants can be difficult to impossible, as well as costly. Once polluted, and aquifer may be unusable for decades, or even thousands of years. Groundwater can also spread contamination far from the original polluting source as it seeps into streams, lakes, and oceans.

❖ Surface water



Covering about 70 percent of the earth, surface water is what fills our oceans, lakes, rivers, and all those other blue bits on the world map. Surface water from freshwater sources (that is, from sources other than the ocean) accounts for more than 60 percent of the water delivered to American homes. But a significant pool of that water is in peril. According to the most recent surveys on

national water quality from the U. S. Environmental Protection Agency, nearly half of our rivers and streams and more than one-third of our lakes are polluted and unfit for swimming, fishing, and drinking. Nutrient pollution, which includes nitrates and phosphates, is the leading types of contamination in these freshwater sources. While plants and animals need these nutrients to grow, they have becomes a major pollutant due to farm waste and fertilizer runoff. Municipal and industrial waste discharges contribute their fair share of toxins as well. There's also all the random junk that industry and individuals dump directly into waterways.

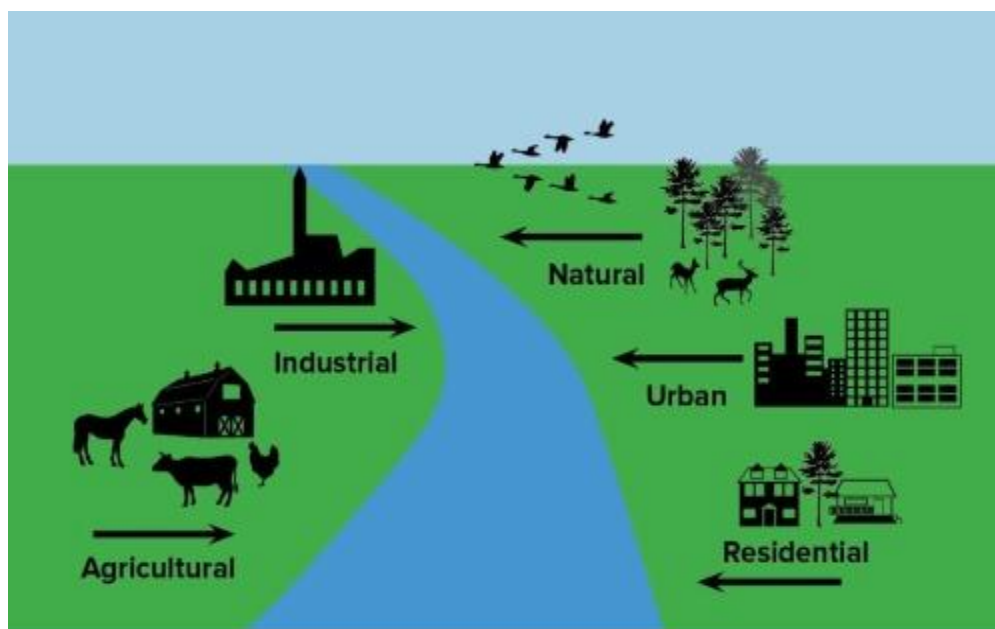
❖ Ocean water



Eighty percent of ocean pollution (also called marine pollution) originates on land- whether along the coast or far inland. Contaminants such as chemicals, nutrients, and heavy metals are carried from farms, factories, and cities by streams and rivers into

our bays and estuaries; from there they travel out to sea. Meanwhile, marine debris-particularly plastic-is blown in by the wind or washed in via storm drains and sewers. Our seas are also sometimes spoiled by oil spills and leaks-big and small-and are consistently soaking up carbon pollution from the air. The ocean absorbs as much as a quarter of man-made carbon emissions.

❖ Point source

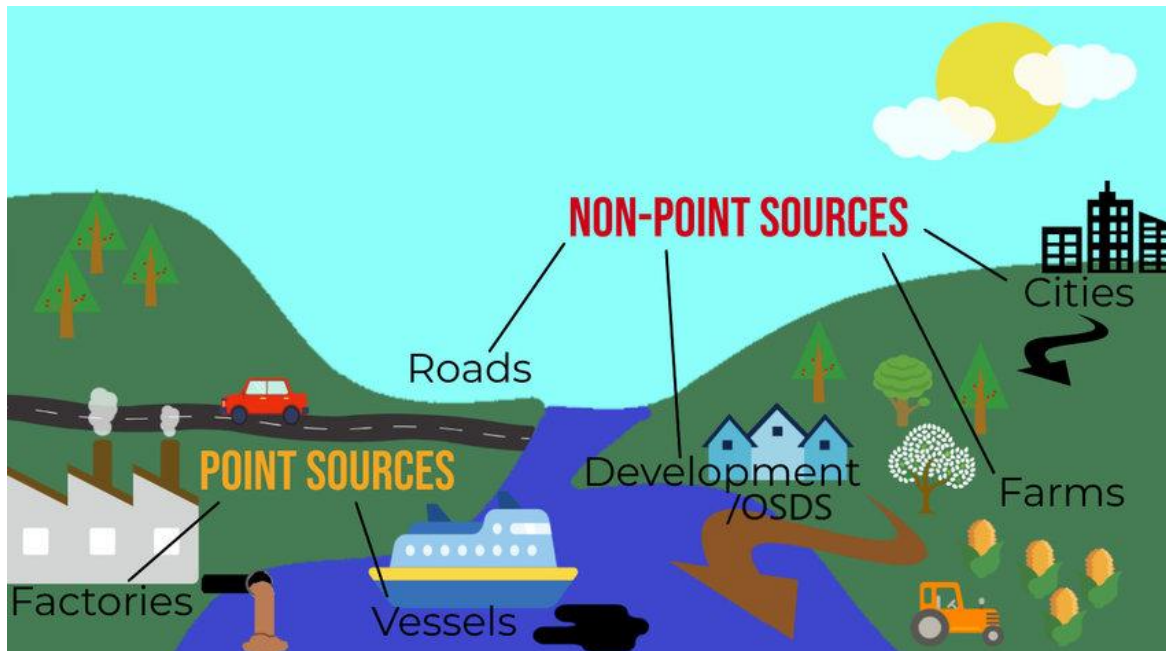


There are many possible sources of pollution in a watershed.

When contamination originates from a single source, it's called point source pollution. Examples include wastewater (also called effluent) discharged legally or illegally by a manufacturer, oil refinery, or wastewater treatment facility, as well as contamination from leaking septic systems, chemical and oil spills, and illegal dumping. The EPA regulates point source pollution by establishing limits on what can be discharged by a facility directly into a body of water. While point source pollution by establishing limits on what can be discharged by a facility directly into a body

of water. While point source pollution originates from a specific place, it can affect miles of waterway and ocean.

❖ Nonpoint source



Nonpoint source pollution is contamination derived from diffuse sources. These may include agricultural or stormwater runoff or debris blown into waterways from land. Nonpoint source pollution is the leading cause of water pollution in U. S. waters, but it's difficult to regulate, since there's no single, identifiable culprit.

❖ Transboundary



It goes without saying that water pollution can't be contained by a line on a map. Transboundary pollution is the result of contaminated water from one country spilling into the waters of another. Contamination can result from a disaster-like an oil spill- or the slow, downriver creep of industrial, agricultural, or municipal discharge.

- **The Most Common Types of Water Contamination**

- ❖ **Agricultural**



Not only is the agricultural sector the biggest consumer of global freshwater resources, with farming and livestock production using about 70 percent of the earth's surface water supplies, but it's also a serious water polluter. Around the world, agriculture is the leading cause of water degradation. In the United States, agricultural pollution is the top source of contamination in rivers and stream, the second-biggest source in wetlands, and the third main source in lakes. It's also a major contributor of contamination to estuaries and groundwater. Every time it rains,

fertilizers, pesticides, and animal waste from farms and live stock operations wash nutrients and pathogens –such bacteria and viruses-into our waterways.

❖ Sewage and wastewater



Used water is wastewater. It comes from our sinks, showers, and toilets (think sewage) and from commercial, industrial, and agricultural activities (think metals, solvents, and toxic sludge). The term also includes stormwater runoff, which occurs when rainfall carries road salts, oil, grease, chemicals, and debris from impermeable surfaces into our waterways. More than 80 percent of the world's wastewater flows back into the environment without being treated or reused, according to the United Nations; in some least-developed countries, the figure tops 95 percent. In the United States, wastewater treatment facilities process about 34 billion gallons of wastewater per day. These facilities reduce the amount of pollutants such as pathogens, phosphorus, and nitrogen in sewage, as well as heavy metals and toxic chemicals

in industrial waste, before discharging the treated waters back into waterways. That's when all goes well. But according to EPA estimates, our nation's aging and easily overwhelmed sewage treatment systems also release more than 850 billion gallons of untreated wastewater each year.

❖ Oil pollution



Big spills may dominate headlines, but consumers account for the vast majority of oil pollution in our seas, including oil and gasoline that drips from millions of cars and trucks every day. Moreover, nearly half of the estimated 1 million tons of oil that makes its way into marine environments each year comes not from tanker spills but from land based sources such as factories, farms, and cities. At sea, tanker spills account for about 10 percent of the oil in waters around the world, while regular operations of the shipping industry-through both legal and shipping industry-through both legal and illegal discharges-contribute about one third. Oil is also naturally released from under the ocean floor through fractures known as seeps.

❖ Radioactive substances



Radioactive waste is any pollution that emits radiation beyond what is naturally released by the environment. It's generated by uranium mining, nuclear power plants, and the production and testing of military weapons, as well as by universities and hospitals that use radioactive materials for research and medicine. Radioactive waste can persist in the environment for thousands of years, making disposal a major challenge. Consider the decommissioned Hanford nuclear weapons production site in Washington, where the cleanup of 56 million gallons of radioactive waste is expected to cost more than \$100 billion and last through 2060. Accidentally released or improperly disposed of contaminants threaten groundwater, surface water, and marine resources.

- What are the Effects or Water Pollution?

- ❖ On human health

The key Health Problems
Caused by Water Pollution



Diarrhea



Vomiting



Typhoid



Diphtheria



Hepatitis



Kidney Damage



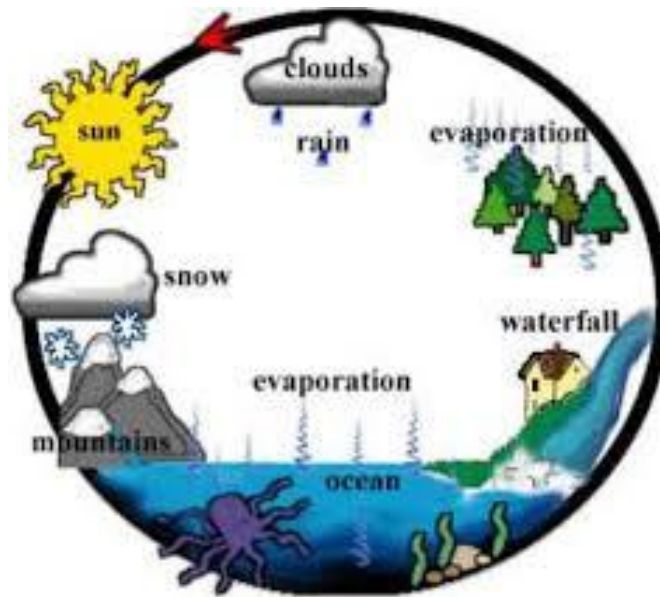
Nerve Disorders



Skin Lesions

To put it bluntly: Water pollution kills. In fact, it caused 1.8 million deaths in 2015, according to a study published in The Lancet. Contaminated water can also make you ill. Every year, unsafe water sickens about 1 billion people. And low-income communities are disproportionately at risk because their homes are often closest to the most polluting industries. Waterborne pathogens, in the form of disease-causing bacteria and viruses from human and animal waste, are a major cause of illness from contaminated drinking water. Diseases spread by unsafe water include cholera, giardia, and typhoid. Even in wealthy nations, accidental or illegal releases from sewage treatment facilities, as well as runoff from farms and urban areas, contribute harmful pathogens to waterways.

❖ On the environment



In order to thrive, healthy ecosystems rely on a complex web of animals, plants, bacteria, and fungi—all of which interact, directly or indirectly, with each other. Harm to any of these organisms can create a chain effect, imperiling entire aquatic environments. When water pollution causes an algal bloom in a lake or marine environment, the proliferation of newly introduced nutrients stimulates plant and algae growth, which in turn reduces oxygen levels in the water. This dearth of oxygen, known as eutrophication, suffocates plants and animals and can create "dead zones," where waters are essentially devoid of life. In certain cases, these harmful algal blooms can also produce neurotoxins that affect wildlife, from whales to sea turtles.

• What Can You Do To Prevent Water Pollution?

❖ On the environment



It's easy to tsk-tsk the oil company with a leaking tanker, but we're all accountable to some degree for today's water pollution problem. Fortunately, there are some simple ways you can prevent water contamination or at least limit your contribution to it:

- Learn about the unique qualities of water where you live. Where does your water come from? Is the wastewater from your home treated? Where does stormwater flow to? Is your area in a drought? Start building a picture of the situation so you can discover where your actions will have the most impact -and see if your neighbors would be interested in joining in!
- Reduce your plastic consumption and reuse or recycle plastic when you can.
- Properly dispose of chemical cleaners,

- oils, and nonbiodegradable items to keep them from going down the drain.
- Maintain your car so it doesn't leak oil, antifreeze, or coolant.
- If you have a yard, consider landscaping that reduces runoff and avoid applying pesticides and herbicides.
- Don't flush your old medications! Dispose of them in the trash to prevent them from entering local waterways.
- Be mindful of anything you pour into storm sewers, since that waste often won't be treated before being released into local waterways. If you notice a storm sewer blocked by litter, clean it up to keep that trash out of the water. (You'll also help prevent troublesome street floods in a heavy storm.)



Thank You

