



Research Article

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Water Pollution: Sources and Its Impact on Human Health, Control and Managing

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Abstract

Human activities like industrialisation and agriculture have greatly contributed to environmental degradation and pollution, which has a severe influence on life-giving water bodies (rivers and oceans). This research aims to characterise water pollution and address its causes, as well as its consequences for human health and water pollution management in general. Some proposals were presented, such as including environmental education into the curriculum.

Keyword: *Pollution, Biomass and Control, Environmental Education, Management, Phytoremediation*

1. Introduction

The addition of material or energy forms to a water body that modifies the character of the water body is referred to as water pollution. A way that adversely impacts its legal usage, either directly or indirectly (Eckenfelder *et al.*, 2000; WHO *et al.*, 2017; Olaniran *et al.*, 1995; Moss *et al.*, 2008; Oliveira *et al.*, 2021). As a result, pollution is linked to conceptions attributed to humans, such as detrimental changes to water bodies and their usage. When water is contaminated by anthropogenic contaminants, it is referred to as polluted water. It either cannot be used for human purposes, for example, drinking water, or it suffers a significant reduction in its ability to maintain a biotic balance population, such as aquatic animals, as a result of these contaminants.

2. Water Pollution

Water is regarded polluted if it contains substances or conditions that prevent it from being used for a certain purpose. Water pollution, according to (Olaniran *et al.*, 1995), is defined as the presence of excessive concentrations of a danger (pollutants) in water to the point where it is no longer appropriate for bathing cooking, drinking, or other purposes. The introduction of contaminants into the environment is referred to as pollution (Webster.com, 2010). Industrialized and marketable garbage, farming activities, everyday human activities, and, most crucially, carrying modes all contribute to it. In many ways, there remain remains of the earth's environmental and its inhabitants no matter where you go or what you do the focus of this research is on water pollution and control in both cases.

3. Water Pollution Sources

According to (Gbamanija *et al.*,1998), water contamination in Nigeria is caused by a variety of factors, including sewage leaks, high population density, and oil spills. Nipa palm and water hyacinth threats. industrialized trash poured into our waters Groundwater contamination due to drill behavior. flood during the rainy season, which washes garbage deposit into our waters. Constructing lavatories and visionary over flowing water or even the ocean, as some river in area do. Radioisotopes, Heavy metal, combustion, disposal of contaminated waste at ocean, eroded sediments. (e.g. coal production), Mineral processing plant, Deforestation, Mining, Littering, Pesticides, Herbicides and Fertilizers, Septic system failure, Household chemicals.

3.1 Animal wastes

Humans are the primary cause of water contamination. It is the product of human acts taken in order to improve one's self. These could be viewed as part of the different

actions that lead to pollution that man engages in. The principal causes of pollution include the increase in human population, as well as industrial and agricultural activity (Eguabori, *et al.*,1998). As a result of urbanization in metropolitan areas, water contamination increases. The main contaminants in aquatic habitats are agricultural, residential, and industrial wastes. When sewage is dumped into fresh water, it is the most polluting. Sewage is society's watery waste, Moreover, the amount of untreated sewage dumped into a river is enormous and potentially hazardous. As a result, the amount of dissolved oxygen in the water drops dramatically and quickly. Decomposers, notably bacteria that break down suspended compounds in sewage are aided by organic fertilizers. When decomposers respire, they consume dissolved (O₂), lowering the Biological Oxygen Demand. River flora and wildlife fluctuate and diminish. in number as a result of suffocation death (Tudge *et al.*,1991). Polluted rivers have an unpleasant odour and have little or no flora or animals. The discharge of hot water from cooling engines in enterprises is another form of water contamination. This raises the temperature of the water and slows the metabolic rate of the organisms. As a result, their oxygen uptake rises. Pollution has a higher impact on shallow, enclosed, or slow-moving stream. When excess fertilizer, pesticides, herbicides, is wash into rivers by heavy rain, they pose a major threat to human life. Fertilizers with too much phosphorus create major eutrophication. Apart from fertilizers, when detergent is washed into water, it is extremely hazardous to marine life. Animal carcinogens have been discovered in chemical pollution from distaffs. When non-biodegradable chemical such as ZnSO₄ and copper salts are dumped into rivers in Nigeria's dyeing industry (tie and dye), they have detrimental effects on aquatic animal habitats. Pollution poses a major threat to human life, particularly when the water is used for intake and other household uses. disease-causing agents such as cholera, typhoid, and tuberculosis Oil spilt in significant numbers from tankers or damaged oil pipes from oil industry is a major water pollution that kills mollusks, sea weeds, , crabs, fishes, marine birds and other sea animals that humans eat. As a result, we have calcium deficiency in our diet. When certain insecticides, such as Dichlorodiphenyltrichloroethane, are permitted into bodies of water, their concentration rises along the food chain, making them extremely harmful. Oysters, for e.g. can accumulate Dichlorodiphenyltrichloroethane, to levels 70,000 times greater than those found in sea water. The effects of water pollution have resulted in irreversible alterations to aquatic ecosystems in some areas. Humans, as well as plants and animals, are in danger. Because water pollution has such a direct influence on human health, an effective formal education teaching technique is essential for greater knowledge and the development of a positive attitude toward water. This is why the guided finding approach is a instruction method that, when properly implemented and combined with other science teaching methods, will have a long-term impact on the learner while also supporting him in solving difficulties in his immediate surroundings (Ogwuazor *et al.*,1998).

4. Water Pollution Effect

Water toxic waste has two-fold effects on the environment. It has detrimental effect on both people and the environment. Pollution has a variety of effects on humans and aquatic ecosystems. Every day, around 14,000 people are killed by water pollution, which is mostly caused by untreated sewage poisoning drinking water in developing countries. Approximately 700 million Indians do not have access to a proper bathroom, and 1,000 children pass away every day as a result. From diarrhea, as do children in many other countries. Almost 500, million Chinese people do not have access to safe intake water. We can certainly anticipate a decrease in production as a result of all of this. When huge amounts of harmful compounds are dumped into streams, lake, and waters in the ocean, biodiversity and community diversity are predicted. Sewage, in which organic waste predominates, is responsible for a large portion of aquatic pollution. This trash has the potential to improve secondary productivity while also changing the aquatic community's nature. The majority of fishes, particularly those sought as food by humans, are among the most vulnerable species, disappearing with the least amount of pollution. Human health is harmed as a result of water contamination. Bacteria and viruses that transmit disease are carry into exterior and earth water. Drinking water is tainted, putting people's health at danger. Direct damage to plant and animal nutrition has an impact on human health. Algal blooms and weed growth can occur when plant nutrients such as nitrogen, phosphorus, and other chemicals that drive aquatic plant growth are in excess. This imparts fragrance, flavour, and, in certain cases, colour to the water. The ecological balance of a body of water is eventually interrupted. Sulfur CO₂ emission produce ocean acidification, which is the continuous drop in the PH of the Earth's oceans as carbon dioxide dissolves, and emissions induce acid rain, which lowers soil ph.

5. Management and Control of Pollution

There are numerous techniques to water toxic waste control and supervision that could be used. avoidance, practice hard work, or participation in a scheme/program; regulation and monitoring; and control measures such as waste reduction and minimization are all possibilities. According to Wikipedia, there are several strategies to prevent water pollution:

- Wash your car as far away from any storm drains as possible.
- Never pour trash, chemicals, or solvents down the drain.
- performs septic system inspections every 3,5 years
- Don't use fertilizers or pesticides that can pollute water supplies.
- instead of hosing down the driveway, sweep it; v. constantly pump your boat waste-holding tank
- Make use of non-toxic cleaning supplies

- Use kitty litter to clean up oil and other liquid spills, then sweep them up.
- Don't use the sink to wash your paintbrushes. Another approach to participate in pollution avoidance is to make your own efforts or to join projects or programs. Some of these can be found on the website of the Environmental Protection Agency (EPA). Pollution can be effectively controlled through regulation, and pollution management can be accomplished through monitoring. Many countries have passed legislation to restrict various types of pollution as well as to minimize pollution's negative impacts.
- Controlling emissions and effluents into the air, water, and land or soil is referred to as pollution abatement. Waste products from eating, transportation, manufacturing, mining, agriculture, heating and other human behavior will degrade the environment, whether they collect or spread. If pollution control is not implemented. Pollution avoidance and waste reduction are preferable to pollution control. However, implementing these techniques could help to reduce pollution.

By composting by mitigating, by recycling, waste minimization, by reusing, by preventing Apart from all of the aforementioned pollution control devices, you can also use dust collection Scrubbers such as baffle spray scrubbers, ejector venture scrubbers, mechanically aided scrubbers, spray towers, and wet scrubbers, and sewage treatment systems such as sedimentation (primary treatment), activated sludge bio filters, and wet scrubbers (secondary treatment, also used for industrial waste water).

6. Literature Review

Haseena *et al.*, 2017. Studied that water covers over 70% of the Earth's surface. Drinking water that is safe to drink is a basic requirement for all humans. According to the WHO, waterborne infections account for 80% of all diseases. Industrialization, home waste discharge, radioactive waste, population increase, excessive pesticide and fertilizer use, and water tank leakage are all major sources of water pollution. These wastes are harmful to people's health. Depending on their location and type, different chemicals have varied effects. Bacterial, viral, and parasite diseases such as typhoid, cholera, encephalitis, poliomyelitis, hepatitis, skin infections, and gastrointestinal illnesses are all spread by contaminated water.

Ahmed *et al.*, 2018 one of the information collected from the previous research paper that study looks on the level of awareness among Delhi's youth about water pollution, its causes, health effects, and solutions. The paper relied on primary data gathered from university/college students in Delhi via a timetable. According to the study, a public awareness campaign engaging residents and stringent enforcement of environmental regulations by responsible agencies is the best way to prevent environmental damage. It is suggested that a proper waste disposal system be in place, and that waste be processed before entering rivers and aquatic bodies.

Dharwal *et al.*, 2020 reported that water pollution is the most significant environmental impact in the study area, and that improved sanitary practices, increased public awareness, adequate investment in waste control and management, effective implementation of judicial measures, and compliance with the monthly environmental sanitation scheme are all recommended.

Wu *et al.*, 1999 First, significant infrastructure gaps in basic water supply and sewage treatment have raised the danger of infection and parasite disease, as well as increased exposure to Heavy metals, industrial chemicals, and algal toxins are all dangerous. Second, water quality and quantity have deteriorated as a result of a lack of coordination between environmental and public health goals, a complex and fragmented water resource management system, and the general treatment of water as a common property resource. The problems that have been recognised, as well as the health risks that have been identified, are expected to get worse.

Halder *et al.*, 2015. investigated that the survey also shows that local communities are dealing with a wide range of health issues, including skin, diarrhea, dysentery, respiratory infections, anemia, and delivery complications. This region also has yellow fever, cholera, dengue fever, malaria, and other epidemic diseases. In addition, people are affected by odour pollution and respiratory issues.

Abbaspour *et al.*, 2011. The researcher studied most plentiful chemical in the human body, water regulates nutrient movement, toxic waste disposal, temperature regulation, digestive, and organ function. Water makes up about 55-65 percent of a person's weight. Water quality can also be impacted by drainage waters from irrigated regions, as well as effluent from municipal wastewater and industrial waste water.

Afroz *et al.*, 2014. one of the information according to the research, the main issue with water pollution is that it can harm a person's heart and kidneys if they drink Contaminant water on a frequent basis. gastroenteritis, vomiting, cholera, Poor blood circulation, skin sores and nervous system impairment are some of the other health issues linked to dirty water. Residential, agricultural, and industrial wastes are the three main contributors of river pollution in Malaysia, according to the report.

7. Result And Discussion

7.1 Water pollution effect of the human being

Water pollution adversely affect human being, aquatic animals, aquatic plant etc. Water contaminant enters into the human body and, many disease causes from water pollution. Water pollution can be controlled by the help environmental education.

Haseena *et al.*, 2017 studied that microbial, viral, and parasite diseases such as typhus, diarrhea, dengue, tetanus, hepatitis, skin infections, and digestive problems are all spread by contaminated water. To avoid harmful impacts on human health, it is advised that water quality be checked on a regular basis. Domestic and agricultural trash

should not be thrown away without first being treated.

Sankhla *et al.*, 2018 showed that as a result, further efforts are required to reduce or eliminate human exposures where possible. In order to adequately identify and quantify the negative impacts of agro-chemicals on people's health, more research is required.

7.2 Water Pollution controlled

Water pollution disturbed the living life and body. Water pollution can be controlled by the environmental education.

Owa *et al.*, 2013 investigated that work attempts to define water contamination and to address the cause, effect control, and overall monitoring of water pollution. Some suggestions were made, such as the implementation of environmental education.

China must conduct scientific study on monitoring, pollution treatment, re-vegetation, and linked water and wastewater and purification technologies over the next 5 to 15 years through a series of major advancements in preventing and controlling pollution of lakes and rivers, improve general water quality, and ensure the safety of drinking water supplies. These programs will provide the scientific underpinning and technological support required to improve China's water quality to its maximum potential.

8. Conclusion

Water contamination is a key environmental issue that Nigerians and the rest of the globe are concerned about. Defecation, dumping of rubbish, industrial pollutants, and washing of textiles, among other things, all contribute significantly to water contamination. According to Environmental education is very important to use in schools and should be incorporated in the curriculum (Egilabor *et al.*,1998). As a result, they will be less likely to damage our rivers.

9. Recommendation

It is critical that environmental education be implemented and made mandatory in schools. The federal, state, and local governments should create agencies to monitor our environment and ensure that it remains clean and free of refuse dumps. According to the proverb that charity begins at home, industrial households or families should in still a sanitary environment in their immediate surroundings. Instead of dumping these pollutants for rainfall water to sweep into our rivers, streams and rendering them useless, our industry should make strides in striving to recycle them.

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