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Perspective

Clean Water: An Important Factor Influencing Public Health

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INTRODUCTION

One of the most valuable, essential and important factors influencing public health is clean water. Human health is concerned about the quality of drinking water in both developed and developing nations worldwide. While a declining water quality is a major concern to human health and welfare, a high-quality drinking water supply is crucial for public health and welfare. Access to clean drinking water is still a problem in India, even with the country's significant investments in sanitation and drinking water. Wastes produced by modernization have a negative impact on the environment and as time goes on, environmental damage is exacerbated by the introduction of new, dangerous items. The majority of the damage is done to our water bodies because so much waste water or sewage, is dumped into cities and rural regions. One of the major rivers in Jammu and Kashmir, the Tawi, has declined recently, which has had a negative effect on the supply of water, particularly in Jammu city. Numerous physical and chemical characteristics were examined in water samples. It was discovered that the numerous sewage input sites that enter the River Tawi have a negative impact on the water's quality and render it unsafe for residential usage. The entire study demonstrates that sewage incursion from Gujar Nagar to Prem Nagar raises the values of several parameters, including pH, DO, EC, temperature and others and alters the quality of the river water.

DESCRIPTION

A sufficient supply of safe drinking water is essential for survival and a key factor in determining one's standard of living. Numerous illnesses, such as cholera, hepatitis, fluorosis and diarrhea¹, can be brought on by

inadequate or non-existent access to a safe water source. These illnesses may limit the productivity and development of human resources, particularly among the impoverished. The National Water Policy of 2002 states that "adequate safe drinking water facilities should be provided to the entire population both in urban and rural areas," reflecting the importance placed on clean drinking water. Whenever there isn't a substitute source of drinking water, irrigation and multifunctional projects should always include a drinking water component.

Water and air temperature

Water temperature essentially affects aquatic species' biochemical responses, which makes it significant. In this investigation, the average temperature of the water was between 18 and 21°C and the average temperature of the air was between 24 and 26°C.

Electrical conductivity

Electrical conductivity is a metric used to quantify the ability of water to carry electric current and to evaluate the quality of the water. Its value is determined by the ion concentration and degree of dissociation, temperature and ion migration velocity in the electric field. Therefore, conductivity rises in tandem with an increase in dissolved salt content. It is dependent on the temperature, mobility, valence, total concentration and presence of ions. Our water sample's EC falls between 272.1 to 434.1 ms⁻¹.

Total dissolved solids

TDS are produced by the weathering and dissolving of rocks and soil, which includes the dissolution of gypsum, lime and other slowly dissolved soil minerals. Colour, taste and aroma that are visually unappealing can be caused by dissolved mineral gases and organic

ingredients. The WHO and Indian standards state that the TDS value for drinking water should be less than 500 mg/L; however, in the event that no other alternative source is available, the limit can be increased to 1500 mg/L. The TDS values in our water sample range from 151.8 to 245.8 mg/l. Due to variations in the solubility of minerals, TDS concentrations in water vary significantly between geological locations.

Turbidity

A fluid's turbidity is its cloudiness, which is brought on by individual particles that are usually undetectable to the human eye. Turbidity measurement is a crucial water quality test. Nephelometric Turbidity Units (NTUs) are used to measure the amount of light suspended in water and 5 NTU is often considered safe for human consumption. Turbidity in surface waterways is influenced by the kind of stream bed, water velocity, channel depth, bank type and channel geometry. The turbidity values in the current investigation vary from 72 to 95.

Dissolved oxygen

An essential water quality metric for evaluating water pollution is dissolved oxygen. Water contains fixed oxygen as a result of primary synthesis or direct dissolution from the atmosphere. Our water samples have dissolved oxygen in the range of 3.2 to 9.0.

CONCLUSION

Nearly everything has a slightly acidic hydrogen content in the water. Significant electrical conductivity values in water samples indicate significant salinity at all sites. The sewage water's alkalinity was within acceptable and conventional bounds. The suggested and standard values for calcium and magnesium concentrations are not exceeded. Sewage water samples had low dissolved oxygen concentrations due to the presence of organic materials at the majority of the sites. Prem Nagar is the research area's most affected site. The high level of sewage entering from hotel residential areas is the cause of that. Elevated readings of specific parameters, such as pH, DO and EC, suggest the presence of pollution in the Tawi River.