

Significance of drinking water: An Overview

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Manuscript received online 23 December 2020, accepted on 25 April 2021

Abstract: Water is the basis of life on the earth, and is conceptualized on the one hand by its physical flow and on the other hand by rules, social practices and political and socio-economic aspects. Further, water is “a symbol of identity, power and citizenship” and according to Graefe, “drinking water is a symbol of power demarcation”. Rogers and Hall states effectiveness of water governance is in many places of the world undermined by poor management, corruption, lack of appropriate institutions, bureaucratic inertia, insufficient capacity and shortage of investment.

(Keywords : Drinking water, fresh water resources, Industrial effluents and agricultural runoff)

Introduction

Water is the elixir of life, an essential natural resource for the survival and sustainability of life on earth. Though the water available in the universe is estimated to contain about 1.36 billion km³, only 3% of the water existing as fresh water in rivers, streams, springs and aquifers, is available for human use. Among the fresh water, only 5% are available for beneficial use. The total water resource available in India is 1850 km³, which is roughly 4% of the world's fresh water resource.

Water is vital resource for agriculture, manufacturing and other human activities to lead life. Fresh water resources are deteriorating day-by-day at a faster rate which is a frightening global problem at present. The addition of various kinds of pollutants and nutrients through the agency sewage, industrial effluents, agricultural runoff, etc., into the river bodies brings about a series of changes in the physiochemical characteristics of water. Once the surface water is

contaminated, its quality cannot be restored by stopping the pollutants from its source. Hence, continuous monitoring of the water quality becomes crucial in order to protect it.

Water is a transparent fluid which forms the world's streams, lakes, oceans and rain. It covers 71% of the earth's surface. Water on earth moves continually through the cycle of evaporation and transpiration, condensation, precipitation and runoff. Water is finite on earth. There is a fixed amount of water which neither decreases nor increases. Fresh water is a renewable resource because of the water cycle. Water is the most precious commodity to the human life, if it is properly managed it can serve the society in number of ways.

Water is essential for life on earth. Because of its importance, the pattern of human settlement throughout history has often been determined by its availability (Mahmoud *et al.*¹ 2001). Next to oxygen, water is the most important substance for human existence (White², 1969).

According to UN agriculture report on water and livelihoods, about 75% of the world's poorest people live in rural areas across the world and for them, water access can literally mean the difference between life and death. Human existence mainly depends on fresh water supply which is less than 1% of the water available on earth (Reagen and Fisher 1997³). Ground and spring water represents an important source of drinking water and its quality is currently threatened by a combination of over- abstraction and chemical contamination (Angulo *et al.* 1997⁴).

Water supply and sanitation are among two of the most important sectors of development. Development of community water supplies and sanitation results in improved social and economic conditions and improved health. The benefits of improved water supply and sanitation are many, including prevention of disease, improved basic health care, better nutrition, increased access to institutions such as health centre's and schools, improved water quality, increased quantity of and access to water, strengthening of community organization, improvements in housing, and ultimately, improved quality of life.

The quality of drinking water is of utmost importance, and can be monitored in terms

of physicochemical characteristics namely, temperature, turbidity, electrical conductance, transparency, pH, dissolved oxygen, biological oxygen demand, chemical oxygen demand, total hardness, acidity, alkalinity, chloride, nitrate-N, Phosphate phosphorus, sulphate, heavy metals, POPs, etc.

The Standard methods for the Examination of Water and Wastewater as prescribed by the APHA (2015)⁵ can be adopted for determining aforesaid water quality attributes. Table 1 presents the water quality standards for potable (drinking) water given by various scientific agencies.

Table 1: Water quality standards given by various scientific agencies.

Water quality characteristics	Scientific Agencies					
	USPH	BIS	WHO	ICMR	CPCB	ISI
Temperature	-	25-30	-	-	25-30	-
Turbidity	-	1	5	5	10	10
pH	6-8.5	6.5-8.5	6.5-8.5	6.5-9.2	6.5-8.5	6.5-8.5
ORP	-	-	-	-	-	-
Acidity	-	-	-	-	-	-
Alkalinity	-	200-600	200-600	-	600	-
Chloride	-	250	200	250	1000	250
Total Hardness	-	300	500	300-600	300-600	-
DO	>4	4mg/l-6	5-6mg/l	-	4-6mg/l	>5
BOD	-	<3	-	-	<2-3	<4
Nitrite	-	-	-	-	-	1
Phosphate	0.1	-	-	-	0.05-0.10	-
Sulphate	250	150	200	150	-	-

Abbreviation: USPH, United States Public Health; Medical Research; CPCB, Central Pollution Control Board; -, Information not available.
BIS, Bureau of Indian Standards; WHO, World Health Organisation, ICMR, Indian Council for

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