

## A Review on Water Quality Analysis

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### ABSTRACT

Water is essential for ecosystem and has been termed as “Elixir of life”. Ever since the civilization, man has used water for his economic gains and substances. For over thousands of years, human settlements and civilizations have originated, concentrated and thrived around different types of water bodies. It is known that water bodies have played a crucial role in growth and development of human society.

Water security is emerging as an important and vital issue for India. Many Indian cities are experiencing moderate to severe water shortages due to implicit effects of agricultural growth, Industrialization and urbanization, these shortages would be further aggravated by population stress and irrigation requirements that are major factors related to water insecurity.

Due to constant growth of population, technological and industrial progress the nature of aquatic environment undergoes numerous changes and deteriorating its quality. In urban area, water pollution problems always influence the biological imbalance are both qualitatively and quantitatively.

Most of the water resources are polluted with untreated/partially treated wastes from industry, domestic sewage and fertilizer/pesticide run off from agriculture fields etc.

**KEYWORDS:** *Water Quality, Physico-chemical parameters, Sample, Resources*

### I. INTRODUCTION

Water is essential for ecosystem and has been termed as “Elixir of life”. Ever since the civilization, man has used water for his economic gains and substances. For over thousands of years, human settlements and civilizations have originated, concentrated and thrived around different types of water bodies. It is known that water bodies have played a crucial role in growth and development of human society.

Out of the total land water only 1% is available for agriculture, drinking, domestic, power generation, industrial consumption, transportation and waste disposal. Accurate and timely information on the quality of water is necessary to shape a sound public policy and to implement the water quality improvement programs effectively and efficiently.

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moderate to severe water shortages due to implicit effects of agricultural growth, Industrialization and urbanization, these shortages would be further aggravated by population stress and irrigation requirements that are major factors related to water insecurity.

Due to constant growth of population, technological and industrial progress the nature of aquatic environment undergoes numerous changes and deteriorating its quality. In urban area, water pollution problems always influence the biological imbalance are both qualitatively and quantitatively.

Water quality is a term used to express the suitability of water to sustain various uses or processes. Any particular use will have certain requirements for the physical, chemical or biological characteristics of water; for example limits on the concentrations of

toxic substances for drinking water use, or restrictions on temperature and pH ranges for water supporting invertebrate communities.

Consequently, water quality can be defined by a range of variables which limit water use. Although many uses have some common requirements for certain variables, each use will have its own demands and influences on water quality. Quantity and quality demands of different users will not always be compatible, and the activities of one user may restrict the activities of another, either by demanding water of a quality outside the range required by the other user or by lowering quality during use of the water.

Water quality is affected by a wide range of natural and human influences. The most important of the natural influences are geological, hydrological and climatic, since these affect the quantity and the quality of water available. Their influence is generally greatest when available water quantities are low and maximum use must be made of the limited resource.

Most of the water resources are polluted with untreated/partially treated wastes from industry, domestic sewage and fertilizer/pesticide run off from agriculture fields etc. The sewage treatment facilities are inadequate in most cities and almost absent in rural India. Especially, in rural areas large numbers of people are affected due to consumption of water with unpleasant taste, excessive amount of certain chemicals substances, pathogenic agents. There can be no state of positive health and wellbeing without safe water.

## II. WATER RESOURCES AND UTILIZATION

- India has 16 per cent of the world's population and four per cent of its fresh water resources.
- Estimates indicate that surface and ground water availability is around 1,869 billion cubic metres (BCM). Of this, 40 per cent is not available for use due to geological and topographical reasons.
- Around 4,000 BCM of fresh water is available due to precipitation in the form of rain and snow, most of which returns to the seas via rivers.
- Ninety two per cent groundwater extracted is used in the agricultural sector, five and three per cent respectively for industrial and domestic sector.
- Eight nine per cent of surface water use is for agricultural sector and two per cent and nine per cent respectively are used by the industrial and domestic sector.

While on the other hand the pressures of development are changing the distribution of water in the country,

access to adequate water has been cited as the primary factor responsible for limiting development. The average availability of water remains more or less fixed according to the natural hydrological cycle but the per capita availability reduces steadily due to an increasing population

## III. LITERATURE REVIEW

Various studies were carried out by renowned experts from around the state on water quality Analysis. Suresh Chandra (2020) carried out a study on analysis of water pollution using different physico chemical parameter, a study of Yamuna River. In this paper they found that Yamuna River has become one of the most polluted rivers in India as well as in the world. In this study the water quality index has been calculated for Yamuna River at the Dehradun using monthly measurement of physic chemical parameter. Trend forecasting for river water pollution has been performed using different parameters at Dehradun, and through this they found result as value of total coliform, temperature and hardness is rising year by year, which is the matter of concern. The values of the considerable physico chemical parameter have been monitored using various monitoring station installed by central pollution control board CPCB India.

K. Mahammad et al., (2019), have carried out study on Drinking Water Quality Assessment in Some Selected Villages of Madanpalli, Chittor Dist-A.P. In this study physico chemical analysis for two samples one of groundwater and one from surface water have done. They found that the water samples collected has high amount of trace metal ions are Cu, Zn, Mn, Fe, Al which makes water unfit for domestic use.

Saroj Gupta (2019) has done study on Drinking Water Quality: A Major Concern in Rural India. In this study relevant data were collected from relevant Government departments'. The data were analyzed and the objective of the study was derived from the data analysis. Suitable suggestions and recommendations were made to decrease the problem of drinking water supply in a proper manner. This attempt proved helpful to decrease the drinking water and its attribute problems in the study area and it lead to a sustainable example for future generations.

Anaam Jawad Alabbasy 2019 carried out study on drink a Literature Review on Drink water Contamination. As per their research work, water is the most important matter of life to get safe drinking water is considered as right is essential to all human although the necessity of water the Welfare of human and sustainable development but sometime water borne diseases are caused death in some parts of the world. The causes of water pollution include a wide

range of chemicals and pathogens as well as physical parameters contaminants may include organic and inorganic substances. In this study they found that, the presence of contaminants in the water can lead to adverse health effects including gastrointestinal illness, reproductive problems, and neurological disorders in infants, young children, pregnant women, the elderly and people whose immune systems are compromised

Sheena K N et al., (2018) have done the study on Water Quality Analysis in Rural Area. In this study they analyzed river water and the surrounding open wells by using physical chemical and biological analysis. The analysis was done by taking 9 samples, out of these 3 samples were taken from the river and 6 samples from the surrounding wells. Hardness, alkalinity, DO, Chloride, Turbidity, pH, Total solids, BOD, and MPN were analyzed. After the analysis they concluded that surface water in the Poonoor River does not affect surrounding aquifer heavily. The river has high contents of dissolved solids and the contents of almost all chemical compounds decreases with increasing distance from the river. From the bacteriological analysis ground water is affected by the Poonoor River and almost all the wells were contaminated with coliform.

Abbas Abbasnia et al., (2018) have done the study on Assessment of groundwater quality and evaluation of scaling and corrosiveness potential of drinking water samples in villages of Chabahar city, Sistan and Baluchistan province in Iran. The aims of this study were to assess and analysis of drinking water quality of Chabahar villages in Sistan and Baluchistan province by water quality index (WQI) and to investigate the water stability in subjected area. The results illustrated that of WQI for groundwater samples indicated that 25% of the samples could be considered as excellent water, 50% of the samples were classified as good water category and 25% of the samples showed poor water category.

Shubham Joshi (2018) carried out study on quality analysis of drinking water a case study of PCMC, Pune. Water is crucial factor in our life it is one of fundamental needs of human being as far as our health is concerned the water should be fit for drinking. it should not contain any under undesirable substances rendering it unfit for drinking and domestic use for such water we have to depend on sources of water such as water treatment plant river Lake well etc. but to make it up to the standards of drinking water it should be treated. PCMC Corporation divided city in 46 sectors to distribute water. Samples were collected from each sector and conducted various tests such as hardness, chloride

content, etc. In this study it was found that the water is pure upto all standards except residual chlorine in certain sectors.

Anil K Dwivedi (2017) carried out study on researches in water pollution. In this study he found that, more than 70% of the fresh water in liquid form of the country is converted into being unfit for consumption. Not only India but other countries are also suffering from the same problem. Indian philosophers thought of person depends on the type of food and water to which he fed. Various sources of pollution such as sewage discharge industrial effluents and agricultural runoff and their potential has been studied in mass. The paper also consists of the potential and extent of various components which pollute the water. Effect of water pollution has been shown in nutshell.

Shashi Dube (2016) carried out study on to analyse the underground water quality of Greater Noida region by the water quality index. 9 physico chemical parameters such as calcium, magnesium, chloride, sulphate, total hardness, fluoride, nitrate, total dissolved solid, alkalinity etc are tested for collected samples from 10 different locations. In this study 90% water samples were found of good quality and on the 10% water samples falls under moderately poor quality. The water quality index ranges from 16.49 to 64.65 therefore there is a need of some treatment before use of water and also required to protect that area from contamination.

#### IV. CONCLUSION

Increasing water pollution is a major problem in rural area. Contaminated water is the biggest health risk and continues to threaten both quality of life and public health. From this review study it has been observed that various studies were carried out and efforts has been taken by various governing bodies to keep river water safe and drinkable, but still there is need of more attention to be given towards the river water pollution and its control.

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