

The River Water Pollution in India & Abroad-A Critical Review to Study the Relationship among Different Physico-chemical Parameters

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Abstract Water is the elixir of life as there is no life without water and the rivers are the life line of our economy and culture. The river water pollution in India and abroad is a gigantic problem as it has affected not only of human and animal health but also the economy of the society as a whole. This work reviews a large number of research papers published by different researchers on river water pollution in India and abroad by critically analyzing and interpreting data on the different physico-chemical parameters and finds that the river water in India and abroad is highly polluted in respect of physically, chemically and bacteriologically with different hazardous pollutants including both chemical and microbial, coming from various sources such as industries, mines, agriculture, urban and domestic. Besides, this work finds and outlines the interrelationship among different physico-chemical parameters after careful analysis and interpretation of data and discussions published in different research papers. The dissolved oxygen (DO) and the pH are inversely related with temperature and turbidity and it is directly related with photosynthesis by autotrops. Further, biological oxygen demand (BOD) and free carbon dioxide are directly related with temperature. This review work gives opinions and suggestions to explain the experimental results by applying the standard concepts and outlines a brief guide line for the assessment of water pollution of river water.

Keywords: river water pollution, physico-chemical parameters, bacteriological parameters, relationship among different parameters

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1. Introduction

There are five basic elements, central to ecology, as described in Upanisada such as Kshiti, Aup, Tweja, Byoma and Marut : pancha tatwa yah adhar sharira. This means Kshiti (Soil), Aup (Water), Tweja (Fire), Byoma (Sky) and Marut (Air) are integral part of our living world as well as ecology [1,2]. Water is the most important one among these basic elements and it is elixir of life. The hymn IX of Book 10 of Rig Veda recognizes the ability of water to give life both in physical and spiritual senses from ancient times. Water is used as principal requirement for worships of God, Goddess, spiritual curses and in any spiritual donations and hence it finds a paramount place in socio-cultural and economic affairs of human beings. Out of many fresh water resources, the rivers are the lifeline of our economy and culture. Natural resources are the important wealth of our universe and water is one of them. According to the eminent Greek philosopher, Pindar, water is the best of all things. The importance of water has been observed since ancient times.

The people on globe are under tremendous threat due to undesired changes in the physical, chemical and biological characteristics of water. As a result of increased human population, industrialization, use of fertilizers, pesticides, herbicides and other anthropogenic activities, water is highly polluted with different harmful contaminants including microbiological, which pose a great challenge on the very existence of the living world. It is worth mentioning that agriculture sector, industrial sector and domestic sector consume 89%, 2% and 9% of the surface water available [3,4] respectively.

It is because of use of contaminated drinking water, human population suffers from various types of water borne diseases. Natural water containing different types of impurities are introduced into aquatic system by different ways such as weathering of rocks and leaching of soils, dissolutions of aerosol particles from the atmosphere and anthropogenic activities such as mining, processing and use of metal based materials [5]. The increased use of metal based fertilizer in agricultural revolution of the Government resulted rise of concentration of metal pollutants in fresh water reservoir due to water run-off. The fecal pollution of water causes water borne diseases which has led to the death of millions of people [6].

River Pollution I Chemical Analysis

L Darling-Hammond



River Pollution I Chemical Analysis:

River Pollution Louis Klein, 1959 **Chemical Analysis** Louis Klein, 2016-01-22 *River Pollution 1 Chemical Analysis* discusses methods of detecting and determining the various forms of pollution and the interpretation of results. It aims to provide a chemical background for and supplement to the information on analytical methods and to review critically other methods which may be useful in certain circumstances for research control work and field tests. The book begins with a description of river surveys and physical and chemical methods for determining river pollution. Separate chapters cover methods to determine the presence of dissolved oxygen, combined nitrogen, sulfur compounds, carbon dioxide, free chlorine, metallic contaminants, and carbon compounds. Subsequent chapters discuss the estimation of less important substances which may sometimes be encountered in pollution problems and the significance of chemical and physical tests and the interpretation of the results of an analysis. This book is intended for those interested in chemical analysis as applied to river pollution problems, sewage and trade wastes.

River Pollution Louis Klein, 1959 **River Pollution 1 Chemical Analysis** Louis Klein, 1971 **Water Resources Research Catalog**, 1966 **Cadmium in Water** Water Resources Scientific Information Center, 1973 **River Pollution: Chemical analysis. 2. Causes and effects. With chapters by J. R. Erichsen Jones and H.A. Hawks, and a section by A. L. Downing** Louis Klein, 1959. New edition of the author's *Aspects of river pollution* Heavy Metals in Water (excluding Mercury) Water Resources Scientific Information Center, 1977 Selected Water Resources Abstracts, 1989 *Environmental Protection Research Catalog: Indexes* Smithsonian Science Information Exchange, 1972 *Algae Abstracts* Office of Water Resources Research Staff, 2012-12-06

Algae Abstracts is the first in a series of bibliographies on water resources and pollution published by IFI Plenum Data Corporation in cooperation with the Water Resources Scientific Information Center (WRSIC). It is produced wholly from the information base comprising material abstracted and indexed for *Selected Water Resources Abstracts*. The bibliography is divided into volumes according to the publication dates of the source documents. Volume 1 contains 569 abstracts covering publication dates up to and including 1969. Volume 2 contains 730 abstracts covering the years 1970 to 1972. The material included in this bibliography represents computer selections based on the presence of a form of the word *alga* somewhere in the referenced citation. Substantively, the material typifies WRSIC's centers of competence approach to information support of the Office of Water Resources Research (OWRR) of the Department of the Interior. Most of the references in this bibliography are the work of the center of competence on eutrophication at the University of Wisconsin. The indexes refer to the WRSIC accession number which follows each abstract. The Significant Descriptor Index is made up of a fraction of the total descriptors and identifiers by which each paper has been indexed. It represents weighted terms that best describe the information content; this status is indicated by the asterisks which precede them. The General Index includes all the remaining descriptors and identifiers by which each paper in this bibliography has been indexed.

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