

Assessment of Tapi River Water Quality from Jalgaon District of Maharashtra State

S.N.Patil¹, Jaydeep Nikam², M.V.Baride³, Anupama Patil⁴

¹*Reader, School of Environmental & Earth Sciences, North Maharashtra University, Jalgaon - 425001, India*

²*Yashwantrao Chavan Open Maharashtra University, Nashik*

³*Registrar North Maharashtra University, Jalgaon-425001, India.*

⁴*Assistant Geologist, Rural Water Supply Department Zilla Parishad Jalgaon - 425001, India*

The study involves the physico-chemical analysis of Tapi River. From the river, water samples were collected from 6 places during year 2007. Due to low level of water and domestic sewage discharge into the river at Bhusawal town, river water quality deteriorates.

The standard analytical procedures of APHA-AWWA-WPCF (1995) were adopted for the determination of dissolved constituents. Using titrimetric methods calcium; chlorides, total alkalinity, carbonates, bicarbonates and total hardness were analyzed. While sulphate, phosphate, nitrate (as NO₃), and silica (SiO₂) were analyzed by Spectrophotometric methods. The sodium and potassium were determined with the help of Corning 400 flame photometer. Fe and Mg were determined by using colorimetric techniques. The total dissolved solids were obtained using Hem's factor (1970). Hydrogeochemistry of Tapi water shows wider range in parameters like temperature, pH, conductivity, total dissolved solids, total hardness, total alkalinity, (CO₃, HCO₃) Ca, Mg, Na, K, Fe, Cl, SO₄, PO₄, NO₃, SiO₂. Other various characteristic ratios such as Sodium Absorption Ratio (SAR), Kelly's Ratio (KR), Soluble Sodium Percentage (SSP), Exchangeable sodium percentage (ESP), Residual Sodium Carbonate (RSC), Permeability Index (PI) and various Ionic concentration ratios viz. Na/Ca, Cl/SO₄, Ca / Mg, Cl/ HCO₃ were calculated for determining the salt concentrations of the area under study were calculated to ascertain the water quality for irrigation use. The present paper reveals that the quality of Tapi river water for irrigation suitability is describe in details in present paper.

Keywords: Drinking water quality, irrigation water quality