

HYDROCHEMISTRY OF HUB DAM OF PAKISTAN: WEATHERING PROCESSES AND WATER QUALITY ASSESSMENT

ARIF ZUBAIR, ABEDA BEGUM, MUHAMMAD IMRAN NASIR & A. FARHAN KHAN

Department of Environmental Science, Federal Urdu University of Arts, Science and Technology, Karachi, Pakistan

ABSTRACT

Water samples were collected from four sites of Hub reservoir and has been analyzed for assessing the ionic chemistry, weathering and geochemical processes that control the quality of water. Calcium, sodium and bicarbonate are found as the dominant chemical characteristic of the Hub reservoir. It is inferred that weathering of rock in the catchments area is mainly responsible for composition of water chemistry. The order in cations abundance is $\text{Ca}^{2+} > \text{Na}^+ > \text{Mg}^{2+} > \text{K}^{2+}$, contributing on average (mg l^{-1}) 8.43, 8.39, 2.16 and 0.87 % respectively. The water composition revealed that the rock weathering is the controlling factor at all sampling sites. Plots of saturation index of calcite (SIc) vs saturation index of dolomite (Sid) indicated the under saturation. The recorded values of sodium adsorption ratio (SAR), percent sodium (%Na), and residual sodium carbonate (RSC) showed that water of Hub reservoir is excellent to good quality regarding irrigation purpose. The obtained results are under the permissible limit of WHO standard indicating the suitability of water for the different purpose.

KEYWORDS: Hydrochemistry, Hub Reservoir, Water Quality Assessment