

LAND USE LAND COVER (LULC) AND WATER QUALITY ASSESSMENT IN AKKULAM-VELI LAKE BASIN, THIRUVANANTHAPURAM, KERALA, INDIA: A POST COVID-19 SCENARIO

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Abstract

This study uses a combination of GIS and the Water Quality Index (WQI) to assess and characterize the water quality in the Akkulam-Veli Lake Basin, one of the major lakes located in the city area, with a focus on the post-COVID-19 scenario. One of the most significant and vital aspects of surface water studies is the evaluation of water quality. Twenty-six samples were collected in November, 2020 from different areas of the basin. Physico-chemical characteristics such as TDS, pH, EC, Ca, K, Mg, Cl, SO₄, HCO₃, Fe, PO₄, Si, NO₂, Na, CO₃, and NO₃ were used to assess the quality of water. WQI calculation suggests that all the samples collected reflect the excellent category. Also, most of the parameters come under the permissible limit of BIS, (2012)/WHO, (2011) standards. Comparing with previous studies, the quality of water in the Lake Basin is in the excellent range after COVID-19 lockdown period. This clearly indicates that COVID-19 lockdown period has positively impacted the water quality characteristics in the basin. Land Use Land Cover (LULC) studies have revealed that, out of the 65 sq. km of study area, 20 sq. km was found to be covered with urban built-up (30%) area implying significant urbanization.

Keywords: Land Use Land Cover (LULC), Water Quality Index, Physico-chemical parameters, Correlation matrix