

# Spatial analysis of water quality of the Karra River, Hetauda, Nepal

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## ABSTRACT

*The assessment of water quality of Karra River in Hetauda, Nepal was carried out by determining the changes in the concentration levels of eight physico-chemical parameters (pH, Electric conductivity (EC), bicarbonate, dissolved oxygen (DO), silica, chemical oxygen demand (COD), phosphate and nitrate). The samples were collected from upstream, industrial belt and downstream of the Karra River. The Karra River is the dumping ground for industrial effluents of Hetauda industrial district (HID). On analysis, the concentrations of most of the physico-chemicals parameters were found to be above the prescribed limits for industrial wastewater into inland surface waters. Dissolved Oxygen was found to be in the range of 0.49- 8.47 mg/L while COD, nitrate and phosphate were recorded in the range of 8.3-367 mg/L, 0.35- 78.22 mg/L and 0.01-1.64 mg/L, respectively. Concentrations of most of these parameters were within the prescribed limits in the samples collected from upstream and downstream, revealing the river still in good condition at these points indicating less human interference at the head water region and good self-purification capacity at downstream. However the concentrations of the pollutants' parameters are higher at the sample points just after effluent discharge.*

**Keywords:** Karra, River, industrial effluent, Hetauda industrial district, pollution.