Assessment of Water Quality of Surface Water in Kalingarayan Canal for Heavy Metal Pollution, Tamil Nadu

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Abstract: Kalingarayan canal is one of the leading oldest canal in Erode district. Many industries are located along stretch of the canal and dumping most of the solids waste into the canal water. For the investigation, samples were collected from the above canal for analysing parameters like pH, EC, Fe, Cu, Mn, Cr, Zn, Cd, Pb and Ni for two years 2015 and 2016. The pH of the samples were in the alkaline state (7.2 to 7.89), whereas conductance was in the range of 529 - 2687 µs/cm. The average concentration of heavy metals in the surface water range from 0.045-8.530, 0.040-0.710, 0.023-0.723, 0.002-1.557, 0.001-0.009, 0.002-0.053, 0.009-0.097 and 0.140-2.698 mg/L for the metals Fe, Mn, Zn, Cu, Cd, Ni, Pb and Cr respectively. Heavy metal concentrations except Cd and Zn exceeds limit in all analysed samples in accordance with two standards, Bureau of Indian Standards and WHO. The dominance of various heavy metals in the surface water is follows the sequence: Fe > Cr > Cu > Zn > Mn > Pb > Ni> Cd. The results revealed that there was negatively correlation of Cd with all the variables. Mn is positively and significantly correlated (at 0.05 level) in summer season with all the other studied parameters. This study revealed that quality of water in the canal is affected by anthropogenic activities and industrialization.

Keywords: Surface water, Water quality, WHO, BIS, Correlation, Solid waste