TRACE METALS IN SURFACE WATER BODIES

J.A. Liyanage and S.A.A. Perera
Department of Chemistry, University of Kelaniya,

Uncontrolled discharges of heavy metals to surface water bodies pose a threat to humans, wild life, plants and to micro-organisms. In Sri Lanka heavy metals are used in a great number of industrial applications and metal waste from industry is a form of hazardous waste. This preliminary study was conducted to determine the levels of heavy metals in the surface water in Ekala area where some metal-based industries are located.

Samples were collected randomly through the drainage line from the main outlet, randomly and within two hour intervals, and also from drinking water wells around the area. Total concentrations of copper, cadmium, manganese, zinc and chromium were analysed by flameless atomic absorption spectroscopy and lead was determined by spectrophotometry. Values were compared with untreated and treated samples.

Results show that the effluent may some times be diluted before discharge to the main drainage system and the metal content is reduced when it go far from the main outlet. Copper and Cadmium values are within the recommended levels but lead and zinc concentrations are above the Maximum Concentration Limits (MCL) for surface water.

In well water manganese and chromium were present in very low or negligible amounts. Copper and cadmium concentrations are well within the maximum tolerance limits for drinking water bur lead and zinc values are higher than the recommended values. Metal concentrations are higher at the bottom level of the well water than the surface.