

**EVALUATION OF WATER QUALITY OF KELANI RIVER  
WITH EMPHASIS ON CHROME LEATHER TANNING  
INDUSTRIAL EFFLUENTS**

A PROJECT REPORT PRESENTED BY

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The Kelani river is the second largest and the most polluted watershed in Sri Lanka due to rapid growth of industries in the vicinity of the river, specially in its lower reaches.

The main objective of this study is to evaluate the water and sediment quality at several selected locations (Six in number) along the Kelani river where tanning industries are located. Under this study several water quality parameters such as pH, electrical conductivity, turbidity, temperature, dissolved oxygen, dissolved chromium, hexavalent chromium and total chromium, sulphide content, chemical oxygen demand , biological oxygen demand and sediment quality parameters such as pH, electrical conductivity, and total chromium in the selected locations were measured.

Concentration of total chromium in the of Kelani river water at the selected locations varied between 0.01 mg/l – 0.47 mg/l and the total chromium content of sediment collected from the same locations in the river varied between 1.12 mg/l to 4.24 mg/l.

Concentration of total chromium in effluents of the two tanning industries varied from 0.07 mg/l – 5.8 mg/l and the total chromium content of sediment collected from the same locations varied between 43 mg/l to 143 mg/l.

Concentration of total chromium in water and sediment show a correlation and it also correlates with pH , organic matter and sulphide content in the water.

Concentration of hexavalent chromium in water is lower than the limit of detection of the method employed.

The effluent of the tanning industries has affected the water quality of the receiving water of the Kelani river.

Seasonal changes and sudden climatic changes can affect the water quality of the selected locations (eg with storm water, concentration of such pollutant can increase or decrease and during the drought condition concentration of such pollutants in river water may increase due to lack of dilution).

In addition to the liquid waste, the solid waste and sludge contribute to the pollution of the river water to some extent.

During heavy rainy seasons, most of the chromium pollutant adsorbed on sediment and may flow into the sea outfall causing accumulation in aquatic life of the marine water.

