

Removal of heavy metals from wastewater by a constructed wetland system at Egerton University, Kenya

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Abstract: *The use of constructed wetlands for wastewater treatment has been proposed as an intermediate technological solution for handling wastewater. The aim of the study was to assess the efficiency of a constructed wetland at Egerton University, Kenya for heavy metals removal from wastewater. The wetland has been used for tertiary treatment of effluent from waste stabilization ponds system since 2007. An investigation was conducted between August 2013 and January 2014. Water samples were collected from the wetland and analysed for selected heavy metals (Pb, Cu, Cd and Zn) using Atomic Absorption Spectrophotometry (AAS). Temperature, pH, electrical conductivity and dissolved oxygen were also measured. Results indicated that the concentration of cadmium was below the detection limit. Influent levels of lead, copper and zinc were 1.25 mg/L, 1.09 mg/L and 0.15 mg/L respectively during the study period. The wetland effectively reduced Pb by 94%, Cu by 70% and Zn by 100%. Dissolved oxygen was generally low and did not show any significant difference in concentration across the wetland; while temperature, pH and electrical conductivity values in effluent were lower than in the influent. The study findings indicate that the constructed wetland was performing its function of heavy metal removal from wastewater.*

Key Words: *Constructed wetland, Heavy metals, Removal efficiency, wastewater.*
