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## ENRICHMENT FACTOR AND GEOACCUMULATION INDEX OF HEAVY METALS IN THE SURFACE SEDIMENTS IN THE SEMBRONG CATCHMENT

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## Abstract

Sembrong catchment is one of the important ecosystems in Peninsular Malaysia and it has evolved from a natural ecosystem to a human dominated ecosystem. Sembrong catchment is located in Kluang, Johor and the morphology provides important information about the physical characteristics with a freshwater reservoir of 7.7547 km<sup>2</sup>. The catchment area is approximately 130 km<sup>2</sup> with land use having changed significantly with increased agricultural activities covering 8% (1984) to 82% (2010). Therefore, this study focuses on heavy metals (Na, P, Cu, Zn, Al, Ni, Cr, Mn) and subsequently determines the degree of sediment contamination using the enrichment factor and geoaccumulation index. Surface sediment sampling involved twelve stations using plastic scopes for two different seasons and all samples were taken to the Radiochemistry and Environment Group (RAS), Nuclear Malaysia for preparation and analysis. All samples were analyzed using EDXRF (Energy Dispersive X-ray Fluorescence) spectrometry at the Materials Technology Group (MTeG), Nuclear Malaysia. Hence, with these two values of sediment contamination from activities in the surrounding area can be controlled from entering the Sembrong catchment area for the short and long term.

Keywords: Catchment, Ecosystem, Agricultural, Sediment, Surrounding