Heavy Metals Contamination of Topsoil and Dispersion in the Vicinities of Reclaimed Auto-Repair Workshops in Iwo, Nigeria

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Abstract: Growing concern about reclamation of auto-repair workshop areas for residential and agricultural purposes makes risk assessment of heavy metal contamination in auto-repair workshop soils in Iwo, Nigeria imperative. In addition, the study is aimed at ascertaining the dispersion of contaminated heavy metals, notably Zn, Ni, Cr, Hg and Pb within the soil profile. Significant levels of contamination were found in view of elevated levels of the metals above background concentrations in control sites. Lead was the most significant contaminants and the degree of contamination was highest for Pb followed by Hg. Average factors of accumulation within the soil profile metals were Zn-3.37, Ni-3.38, Cr-6.22, Hg-14.5 and Pb-21.1. Average topsoil metal concentrations (0-10 cm) in auto-repair workshop areas were: Zn-0.90±0.5 mg kg⁻¹, Ni-11.5±3.3 mg kg⁻¹, Cr-5.3±2.3 mg kg⁻¹, Hg-9.4±4.6 mg kg⁻¹ and Pb-133±66 mg kg⁻¹. The detailed levels of total metal contamination for Pb and Hg exceed international thresholds for agricultural use. The general trend of dispersion of metal contaminants within the soil profile studied is Pb>> Ni> Hg> Cr>>Zn.