

Toxic metals in soil depths from selected abandoned sites: Occurrence, sources, ecological and human health risk

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Abstract. This study provides a comparative assessment of cadmium (Cd), lead (Pb), chromium (Cr), nickel (Ni), copper (Cu), manganese (Mn), zinc (Zn), and iron (Fe) pollution occurrence, sources, and exposure risk in soils from selected abandoned sites. The concentrations of metals were determined using atomic absorption spectrophotometry. The metals occurrence ranged from 0.02 (Zn) to 16600 mg kg⁻¹ (Fe) in the order of subsoil > topsoil with petroleum tank farm and fuel/gas service station exhibiting high metal loading. The sources of metals are anthropogenic and geologic. The hazard index values for infants' were higher than that of adults, and the inhalation risk for adults' was considerably higher than for infants' exposure. The ecological risk of Cd, Pb, Cr, Ni, and Zn falls in the contamination to pollution index. This study revealed the need for clean-up and restoration of abandoned site soils.

Keywords: land-use; toxic metals; anthropogenic; abandoned sites; exposure risk.

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