

SURFACE MINING AND HEAVY METAL POLLUTION OF WATER AND SOIL: A CASE STUDY IN SIM LONG COAL FIELD IN SAHEBGANJ DISTRICT, JHARKHAND

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ABSTRACT

This study is an attempt to assess the extent of toxic metals, including Fe, Cu, Zn, Mn, Pb, Cd and Ni in surface water, groundwater, river sediment and crop field soil samples collected from Simlong coalfield area in Sahebganj district of Jharkhand state. The chemical results of water samples show that the mean concentrations of Fe, Cu and Mn exceed the value of ISI (1993) whereas Zn level is within the permissible limit in all water samples except one groundwater sample where it exceeded the ISI value for drinking water. Pb, Cd and Ni are absent in all water samples analyzed. Results reveal wide variation in toxic metal content in river sediment and crop field soil samples. The mean concentrations of Fe, Cu, Zn and Mn in soil samples are far above than their critical limit for crop whereas concentrations of Pb, Cd and Ni ranged from below detection limit to trace amount both in the river sediment and the crop field soil.

KEYWORDS: Coalmines, Groundwater, Heavy Metals, Sahebganj, Soil, Surface Water