

## HEAVY METAL DISTRIBUTION AND POLLUTION ASSESSMENT USING ENVIRONMENTAL INDICES IN THE SURFACE SEDIMENTS OF SUNDARBANS DELTA, INDIA

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### Abstract

An attempt was made to identify the sources and distribution of heavy metals in Sundarbans Delta. The estuarine regions of Hooghly River and mangrove areas of Sundarbans were sampled (n=60) and analyzed for heavy metal content (Fe, Mn, Zn, Cu, Ni, Cr, Co and Pb). Different environmental indices (Enrichment Factors, Contamination Factors, Pollution Load Index and Geoaccumulation Index) were calculated based on both global shale value and local background values to assess the degree of contamination. Considering global shale values, low values were observed for all the indices against local background values, though the sediments were moderately polluted with Cu, Mn, Ni and Zn. This indicated that the latter is more suited for assessing contamination levels. In both the areas, Fe-Mn oxy-hydroxides were observed to be the major controlling factor for heavy metal accumulation along with mud and organic carbon content. These systems are under moderate stress of anthropogenic activities and effluent discharges.

*Keywords:* Heavy metal; Surface Sediment; Hooghly estuary; Sundarbans mangrove; Enrichment Factor (EF); Contamination Factor (CF)