

**GEOPHYSICAL INVESTIGATION OF LEACHATES CONTAMINATION OF
DUMPSITES IN CALABAR AND UGEP AREAS OF CROSS RIVER STATE,
SOUTHEASTERN NIGERIA.**

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ABSTRACT

In dumpsites located in Calabar and Ugep area of Cross River state Southeastern Nigeria, the lithologic strata were delineated and potential leachate plumes were identified using a combination of electrical resistivity and induced polarization approaches. Four profiles were employed to collect data on ERT/IP, and three VES was carried out around the two dumpsites. The outcome displays a five-layer model for VES and three to four zones for the ERT/IPT profiles. The longitudinal conductance (S) obtained from the primary geoelectric parameters reveals that the aquifer protective capacity rating of the study area is majorly poor for shallow (unconfined) aquifer and moderate for confined aquifers. Contaminants with properties ranging from unsaturated waste with high ion concentration to dense aqueous phase liquid contaminants with low resistivity and low chargeability values were observed. These contaminants were notice to have made a minimum lateral distance of 8m at the Lemna, Calabar dumpsite and 15m at the Ugep dumpsite. In light of the underlying geology, leachate contamination was interpreted based on the resistivity/IP anomalies. Building containment structures like waste cells will improve the dumpsite's efficient waste management procedures. Also, it is crucial to put the dumpsites out of commission immediately and take corrective measures to reduce and manage the hazards associated with contaminated soils that could be harmful to both human health and the environment.