

## Chemical speciation and mobility of heavy metals in soils of refuse dumpsites in some urban towns in the Niger Delta of Nigeria

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**Abstract.** Refuse dumpsites often contain materials which are capable of polluting surrounding soils especially if the dumpsites are not adequately shielded from the surrounding area. This study examined chemical speciation and mobility of heavy metals in three urban towns in the Niger Delta. Soil samples were collected from three dumpsites in each of the three selected urban towns at 0-15 cm, 15-30 cm and 30-45 cm depths. The chemical speciation of the heavy metals in the soils was determined using the Tessier's sequential extraction procedure. The results showed that on the average, the residual fraction was the predominant fraction of all the metals except Pb which was dominant in the organic fraction. The mobility factor followed the order Zn > Fe > Pb > Cr > Ni > Cd > Cu. The study indicates that the metals studied do not pose environmental risk considering their relatively low concentrations and the chemical forms they are associated with. It is however recommended that the sites be continuously monitored because of the deleterious health effects of exposure to heavy metal pollution in the events of reclaim.

**Keywords:** heavy metals; speciation; mobility; dumpsite; soil; Niger Delta.

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