

## 7. Spatial patterns of urban soil pollution in metropolitan Lagos

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### Abstract:

Over the years, Lagos State has become an increasingly urban society. Recent population census has put Lagos among the first ten Mega-Cities of the World. With this current trend, the number of human activities has been increasing at a phenomenal rate especially in Metropolitan Lagos. Most of these human activities generate toxic substances that are transported considerable distances away from sources and become accumulated in soils, sediment, water bodies and fisheries. Urban soils are largely affected by impact of urbanization whose consumptive pattern is related to the social and economic aspect of the society. And the fact that the concentration, distribution and sources of these harmful heavy metals in the urban environment have implications for soils, sediment, water and fisheries on the one hand and human life quality on the other makes this study imperative.

A number of studies on pollution have been conducted depicting the patterns of the major components of pollution in Lagos. Such heavy metals as mercury, arsenic, copper, cyanide, iron, lead, cadmium, chromium, nickel, phenols are found in soils, sediment, water bodies and fisheries. Most of these studies have focused more on pollution of water bodies and aquatic resources. But hardly have any studies attempted correlation between human land use and urban soil pollution or mapped areas of potentials risks of urban soil pollution for biodiversity, residents and tourists.

The study therefore deploys geo accumulation index to map the spatial pattern of human activities and heavy metal distribution in urban soils of Metropolitan Lagos and its implications for environmental and human life quality. Spatial distribution maps depicting the concentration, distribution and concentrations of heavy metals in urban soils and patterns of land use units were generated. The influence of the spatial land use composition on the distribution of the heavy metal concentrations was statistically significant ( $p < 0.05$ ) with some variations among land uses. Spatial distribution maps of heavy metal concentrations indicate areas of potential risks of harmful heavy metals in the urban environment which enhances remediation and protection of the urban environment.

The managers of the urban environment could use this product to discern areas with potential risks of heavy metal pollutants to biodiversity, residents and tourists.

Keywords: Heavy metals, Urban Soils, Land use, Geo-accumulation index, Pollution

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