

# **Assessment of the Spatial distribution and Chemical Speciation of Heavy Metals in Ikeja Wetland Sediments, Lagos, Southwestern Nigeria**

AJAYI F.F.<sup>1\*</sup> AND OLATUNJI A.S.<sup>2</sup>

<sup>1</sup>Department of Geology, University of Ibadan, Ibadan Nigeria  
(\*correspondence: felifunmi@gmail.com)

<sup>2</sup>Department of Geology, University of Ibadan, Ibadan Nigeria  
(akinadeshadrach@yahoo.com)

## **Introduction**

A study of selected heavy metals (Pb, Zn, Cu, Cd, Ni and Cr) in the sediments of Ikeja wetland, which is a major business district in Lagos, the commercial capital of Nigeria, was carried out to have insight into their Distribution, Bioavailability and Ecological risks.

## **Methodology and Results**

Analysis for selected heavy metals in eight undisturbed wetland sediment samples (30cm in length) using ICP-MS revealed concentrations (mg/kg) of Pb (9-614), Zn (36-1205), Cu (22-241), Cd (0.6-100.3) Ni (4-446) and Cr (14-418). The comparatively high levels of metals were generally found in the central region of the study area which drain the main industrial layout. Contamination Factor (CF) and Pollution Load Index (PLI) showed that Ikeja wetland is polluted with Pb, Zn and Cd.

However, since the determination of total metal concentration alone does not give accurate estimation of environmental impacts of metals<sup>[1]</sup>, additional studies using Chemical speciation revealed that the metals were of negligible Bioavailability, although, results showed that Cd and Zn have the highest risk of quick desorption and ease of release into the environment as they were present at >20% in the Exchangeable fraction. Furthermore, the mean Effect Range Median- Quotient (mERM -Q) and Principal Component Analysis (PCA) values suggested that contamination of the selected heavy metals emanated from anthropogenic sources.

[1] Hu J. Zhou S. Wu P. Qu k. (2017) PLoS ONE 12(12) 15.