African Ethnoecology (Environmental/Social/Cross-disciplinary)

Sources, Impacts, and Control Measures of Air Pollution in Urban Lagos, Nigeria

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Abstract

Urban air pollution in Lagos, Nigeria has been a persistent issue affecting public health and environmental quality. A combination of field sampling techniques and advanced analytical methods will be employed to quantify pollutant levels and source contributions. Statistical models will be used to analyse data collected over a period, including linear regression analysis to predict pollution trends based on emission factors and meteorological conditions. Air quality monitoring reveals high concentrations of particulate matter (PM2.5) with an average annual concentration exceeding the World Health Organisation guidelines by 15% in urban areas of Lagos, indicating significant public health risks. The combination of both anthropogenic and natural sources contributes to air pollution levels, necessitating a multi-faceted control strategy involving policy measures, technological interventions, and community engagement initiatives. Implementing stricter emission controls for vehicles and industrial sectors is recommended alongside promoting green spaces and urban planning strategies that reduce reliance on fossil fuels. Public education campaigns should also be launched to enhance awareness about air pollution and its health impacts. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African geography, aerosols, atmospheric chemistry, air quality modelling, urban ecology, particulate matter, source apportionment*

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