Impact of Mining on Zambia's Agricultural Land Use Patterns

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Abstract

Mining activities in Zambia have expanded significantly over recent decades, leading to substantial changes in agricultural land use patterns within mining-affected areas. A mixed-methods approach was employed, including GIS mapping, satellite imagery analysis, and semi-structured interviews with local farmers. The data were collected from three mining districts representing various types of mineral extraction activities. The findings indicate a shift towards more intensive agricultural practices in proximity to mines (within 5 km), where there is an observed increase of 15% in the use of chemical fertilizers compared to non-mining areas. These changes reflect adaptive responses by farmers to optimise their crop yields amidst environmental and economic challenges posed by mining activities. Future research should focus on understanding long-term impacts, exploring sustainable agricultural practices that mitigate negative effects while maintaining productivity. The empirical specification follows $Y = \vec{\beta}_{0+\beta}\, p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Geography, Mining Impact, Land Use Change, Sustainable Agriculture, Geospatial Analysis, Participatory Mapping, Conservation Practices*

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