African Mining Law and Policy (Law/Mining/Policy crossover)

Methodological Evaluation of Regional Monitoring Networks in Nigerian Mining: Quasi-Experimental Design

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Abstract

This study examines regional monitoring networks in Nigerian mining operations to evaluate their effectiveness and efficiency. A mixed-method approach combining qualitative ethnography and quantitative analysis was employed. Ethnographic data were collected via interviews, observations, and document reviews in four mining regions across Nigeria. The study utilised an interrupted time series (ITS) model to assess changes over time. Regional monitoring networks showed a significant improvement in environmental compliance rates by 15% after the implementation of new regulations compared to pre-intervention levels. The quasi-experimental design confirmed that regional monitoring networks contribute positively to regulatory adherence and operational efficiency in Nigerian mining sites. Implementing continuous data collection, enhancing stakeholder engagement, and strengthening enforcement mechanisms can further optimise the effectiveness of these networks. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African geography, ethnography, participant observation, qualitative analysis, sustainability assessments, energy consumption patterns, indigenous knowledge systems*

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