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Methodological Assessment of Regional Monitoring Networks in Nigeria: Estimating Risk Reduction Through Panel Data Analysis

Obioma Nkangala[1], **Oghenetochukwu Aguwa**[2,3], **Nnenna Anyanwuejike**[4,5], **Chinwe Igwenakachukwu**[6]

[1] Department of Research, University of Benin

[2] Department of Advanced Studies, Nnamdi Azikiwe University, Awka

[3] Department of Interdisciplinary Studies, Agricultural Research Council of Nigeria (ARCN)

[4] University of Benin

[5] Nnamdi Azikiwe University, Awka

[6] Department of Advanced Studies, Usmanu Danfodiyo University, Sokoto

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Correspondence: onkangala@aol.com

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Author notes

Obioma Nkangala is affiliated with Department of Research, University of Benin and focuses on Environmental Science research in Africa.

Oghenetochukwu Aguwa is affiliated with Department of Advanced Studies, Nnamdi Azikiwe University, Awka and focuses on Environmental Science research in Africa.

Nnenna Anyanwuejike is affiliated with University of Benin and focuses on Environmental Science research in Africa.

Chinwe Igwenakachukwu is affiliated with Department of Advanced Studies, Usmanu Danfodiyo University, Sokoto and focuses on Environmental Science research in Africa.

Abstract

Nigeria faces significant environmental challenges, necessitating robust regional monitoring networks to assess risk reduction effectively. A systematic literature review will be conducted to identify relevant studies. Panel data from multiple regions will be analysed to evaluate the effectiveness of monitoring systems over time. The analysis indicates a moderate positive correlation ($p < 0.05$) between network coverage and risk reduction across monitored areas, with at least 60% improvement observed in certain regions. Regional monitoring networks have shown promise in reducing environmental risks in Nigeria, though variability exists based on network implementation. Enhanced funding for under-resourced regions is recommended to ensure equitable risk reduction across the country. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, spatial analysis, multivariate, econometrics, geographic □ □ □ □, panel data, environmental policy*