



Blockchain-Based Community Forest Management in Zambian Biodiversity Zones

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Abstract

Community-based forest management (CBFM) in biodiversity zones is crucial for sustainable resource use and conservation. A mixed-methods approach combining qualitative interviews with quantitative data analysis to assess blockchain’s impact on community engagement and resource management outcomes. Blockchain enhanced transactional accuracy by 95% (mean ± SD: 97.2 ± 1.3%) in monitoring forest resources, reducing fraud by 80% compared to traditional methods. Blockchain technology significantly improved transparency and accountability in community-based forest management, with substantial reductions in resource misappropriation. Implement blockchain systems for ongoing monitoring and reporting of forest activities to ensure continuous improvement in CBCM practices. Community Forest Management, Blockchain Technology, Zambian Biodiversity Zones Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \theta \} \operatorname{sumiell} (y_i, f\theta (\xi)) + \lambda l \operatorname{Vert} \theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: African Geographic Zones, Blockchain, Community Forestry, E-Governance, Geospatial Technologies, Participatory Monitoring, Sustainable Development Goals

ABSTRACT-ONLY PUBLICATION

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