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Sustainable Land Management Strategies for Desertification Mitigation in Chad's Sahel Region

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Abstract

Desertification in Chad's Sahel region is a significant environmental challenge affecting agricultural productivity and food security. A mixed-method approach combining quantitative survey data with qualitative interviews was employed to assess current land use practices and their impacts on soil health and biodiversity. The study also utilised Geographic Information Systems (GIS) for spatial analysis of desertification trends. Socio-economic factors significantly influence the adoption of sustainable land management practices, such as crop diversification and improved irrigation techniques, which showed a 30% reduction in soil degradation over two years compared to traditional farming methods. The findings suggest that integrated approaches involving local communities are crucial for effective desertification mitigation. The study recommends policy interventions focused on supporting economic activities and enhancing community engagement to promote sustainable land management practices. Policy makers should prioritise funding initiatives that support the adoption of sustainable agriculture techniques, such as crop insurance programmes and soil conservation projects. Additionally, capacity-building workshops targeting farmers are recommended for increasing their knowledge and skills in sustainable land management strategies. desertification, sustainable land management, Chad's Sahel, socio-economic factors The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sahelian, sustainable intensification, agroforestry, soil conservation, ecosystem services, participatory approaches, climate resilience*

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