



# Sustainable Land Management Strategies for Desertification Mitigation in Tanzanian Sahel

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## Abstract

Desertification in the Tanzanian Sahel has led to significant land degradation, necessitating sustainable management strategies. A comprehensive analysis of SLM initiatives including soil conservation, reforestation, and agroforestry was conducted using a mixed-methods approach combining qualitative interviews with quantitative data on vegetation cover and soil quality. Soil erosion rates decreased by 25% in areas implementing SL methods compared to non-SL regions ( $p < 0.01$ ). Sustainable land management significantly reduced desertification indicators, highlighting the importance of integrated SLM practices. Promote government and community-led initiatives for widespread adoption of sustainable land management strategies. desertification, SL methods, reforestation, soil conservation The empirical specification follows  $Y = \beta_{0+\beta}^{-} p X + varepsilon$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *Desertification, Sahel, Conservation Agriculture, Agroforestry, Soil Erosion, Water Harvesting, Biomimicry*

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