African Restoration Ecology (Environmental Science)

Integrated Watershed Management Strategies for Sustainable Agriculture and Water Supply in Kenya

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Abstract

Integrated watershed management (IWM) is a holistic approach aimed at sustainable agriculture and water supply in diverse landscapes. A mixed-methods design including surveys, interviews, and GIS analysis was employed to assess the effectiveness of IWM practices across four pilot watersheds. An average increase of 15% in crop yields was observed within the treated areas, with a significant reduction (20%) in surface water runoff leading to enhanced groundwater recharge. The study provides empirical evidence supporting the efficacy of IWM practices for sustainable agriculture and water resources management in arid environments. Implementation of tailored IWM strategies should be prioritised, coupled with community engagement and monitoring systems to ensure long-term sustainability. Integrated Watershed Management, Sustainable Agriculture, Water Supply, Crop Yields, Groundwater Recharge The empirical specification follows $Y = \vec{\beta}_{0+\beta} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Watersheds, GIS Analysis, Participatory Mapping, Sustainable Agriculture, Riparian Zones, Water Harvesting Techniques, Soil Conservation Measures*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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