



Designing Affordable Irrigation Systems for Drought-Prone Mali Terrains

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Abstract

Irrigation systems are essential for agricultural productivity in drought-prone areas such as Mali's terrains. The methodology involves a mixed-methods approach combining surveys, cost-benefit analysis, and prototype testing. Data was collected from 50 farmers in Mali's semi-arid regions. Farmers reported an average increase of 20% in crop yields with the new irrigation systems compared to traditional methods. The design of low-cost irrigation systems for Mali demonstrated significant potential in increasing agricultural productivity while being economically viable. Further research should focus on scaling up these designs and integrating them into existing agricultural practices. Irrigation Systems, Low-Cost Design, Cost-Benefit Analysis, Agricultural Productivity The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \text{varepsilon}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Sub-Saharan, African, Spatial, Analytical, Housing, Geographic, Hydrology

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