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Integrated Water Resource Management Strategies in Dar es Salaam's Semi-Arid Areas: Efficiency and Equity Assessment in Irrigated Agriculture, Tanzania,

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Abstract

Integrated water resource management (IWRM) strategies have been implemented in semi-arid areas to enhance efficiency and equity in irrigated agriculture. A comprehensive search strategy was employed across multiple databases, including Web of Science, Scopus, and Google Scholar. Studies published between and were included based on predefined inclusion criteria related to IWRM strategies in semi-arid areas for irrigated agriculture. Analysis revealed a significant variation ($p < 0.05$) in water productivity across different IWRM approaches, with drip irrigation showing the highest efficiency compared to traditional flood irrigation methods. The review underscores the importance of adopting diverse and adaptive IWRM strategies tailored to local conditions for optimal resource management in semi-arid regions. Local governments should prioritise the integration of advanced water-saving technologies such as drip irrigation systems into existing agricultural practices, alongside community participation and sustainable land use planning. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Semi-arid, Tanzania, IWRM, GIS, sustainability, equity, efficiency*

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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