



Adoption and Performance Metrics of Smart Irrigation Systems in Ethiopian Villages,

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Abstract

Smart irrigation systems have been introduced to enhance agricultural productivity in rural areas of Ethiopia, particularly in villages where water scarcity is a significant challenge. The study employed a mixed-methods approach involving surveys and interviews with farmers, as well as data analysis from local water management committees. A total of 75% of surveyed farmers reported adopting smart irrigation systems, primarily due to improved crop yields (up to 20%) and reduced water usage by 30% compared to traditional methods. The study underscores the potential for smart irrigation systems to significantly improve agricultural efficiency in rural Ethiopia, though challenges related to initial investment persist. Government support should be extended to facilitate wider adoption of these technologies through subsidised loans and training programmes.

Keywords: *Ethiopia, Rural Development, Smart Agriculture, Performance Metrics, Adoption Rate, Precision Irrigation, GIS Applications*

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