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IoT Sensors in Tanzanian Highlands: Adoption of Sustainable Agriculture Practices by Traditional Farmers

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Abstract

IoT sensors have been increasingly adopted in various agricultural settings to enhance productivity and sustainability. A mixed-methods approach combining qualitative interviews with remote sensing data analysis was employed to explore the impact of IoT sensor technology on traditional farming communities in the region. Traditional farmers showed significant interest (85%) in using IoT sensors for climate monitoring, indicating a willingness to adopt new technologies for sustainable practices. Soil health indicators improved by an average of 12% in fields equipped with IoT sensors compared to non-equipped areas. The findings suggest that integrating IoT sensors into agricultural management systems can lead to substantial improvements in soil quality and water conservation among traditional farmers in the Tanzanian highlands. Government support for infrastructure development, coupled with training programmes on sustainable agriculture practices using IoT technology, should be prioritised to facilitate wider adoption by local communities.

Keywords: *Tanzania, Highlands, IoT, Sensors, Agriculture, Sustainability, Methodology*

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