



# Improving Water Pump Efficiency for Subsistence Farmers in Ethiopian Highlands: A Qualitative Study

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## Abstract

This study explores the challenges faced by subsistence farmers in the Ethiopian Highlands with regard to water pump efficiency and its impact on agricultural productivity. Qualitative research methods were employed through semi-structured interviews with farmers, focus group discussions, and document analysis of available records from to . Farmers reported a significant improvement in water pump efficiency when provided with training and maintenance support. The proportion of respondents who experienced increased yields was found to be around 45%. The study concludes that while initial improvements were evident, sustained operational challenges persist due to limited access to spare parts and financial constraints. Recommendation is for the implementation of a comprehensive maintenance programme supported by community-based initiatives and government subsidies to ensure long-term efficiency.

**Keywords:** *African Geography, Rural Development, Participatory Research, Case Study, Sustainability Analysis*

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