Farmer Acceptance and Agricultural Productivity in Innovative Water Harvesting Mechanisms for Drought-Prone Areas of Ethiopia's Arid Zones,

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Abstract

This study examines innovative water harvesting mechanisms in Ethiopia's arid zones to assess farmers' acceptance and their impact on agricultural productivity. Qualitative research methods were employed including semi-structured interviews with farmers from selected drought-prone areas, focus group discussions, and document analysis of government records and project reports. Farmers were categorized based on their level of acceptance to the new technologies and analysed for patterns in adoption behaviors. Farmers showed a preference for RWTs over solar pumps, with approximately 60% of respondents adopting at least one water harvesting technology by the end of the study period. There was a significant increase in agricultural productivity, particularly in maize yields, which grew by an average of 25% among adopters. The findings indicate that while farmers initially had concerns about cost and maintenance, they became more accepting over time. The adoption of water harvesting technologies has led to improved crop production and economic benefits for farmers in these areas. Government agencies should continue supporting the implementation of water harvesting projects with focus on community engagement and capacity building. Farmers need training programmes to enhance their skills in managing new technologies effectively.

Keywords: *African geography, agroecology, qualitative research, irrigation systems, farmer adaptation, rural development, case study*

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