

ABSTRACT

The study aimed to assess factors that affect the sustainability of rural water supply programs in Nduruma ward in Arusha District, Tanzania. Specifically, the study sought to identify the current maintenance practices of the Nduruma water project system in Arusha, determine the extent to which technology influences the sustainability of Nduruma water projects **and** to assess the extent to which the Nduruma community is participating in ensuring the sustainability of water systems in Arusha. The study adopted a cross section research design and had a sample of 55 respondents comprising 50 households and 5 officers from RUWASA. Both qualitative and quantitative data were collected by using questionnaire and interview method. The data were analyzed using descriptive and thematic analysis. The findings of this study highlight the importance of maintenance practices, technology utilization, and community participation in ensuring the sustainability of rural water supply programs in Nduruma ward. The study reveals that while maintenance activities are generally consistent, challenges exist in sourcing spare parts and implementing remote monitoring systems. The limitations of the gravity water pump system and the need for modernized bill payment methods have also been identified. Community involvement positively impacts water availability and satisfaction, emphasizing its significance. The conclusions suggest that addressing spare parts availability, infrastructure upgrades, community engagement, and digital payment solutions are critical for enhancing sustainability. Therefore, it is recommended to improve spare parts sourcing, implement remote monitoring, upgrade infrastructure, encourage community participation, and adopt modern payment systems. These recommendations provide essential guidance for ensuring sustainable and equitable access to clean water in rural areas.