

ABS TRAC

This study investigated the impact of socio-economic activities on water scarcity in Tanzania, with a focus on agricultural, industrial, and livestock practices. Utilizing the Commons and Water-Food-Energy Nexus frameworks, a cross-sectional design involving 150 participants was employed to address a gap in empirical research within the Rufiji basin in the Mbarali district. Data analysis was conducted through SPSS software. The findings revealed a significant positive correlation between heavy irrigation and water scarcity, emphasizing the need for targeted interventions in agricultural practices. Surprisingly, sustainable agricultural practices including precision irrigation and eco-friendly fertilizers, demonstrated substantial potential in mitigating water scarcity impacts. The study also exposed a significant positive relationship between industrial activities and water scarcity, aligning with established literature on industries contributing to water pollution and scarcity. Factors such as increased population, chemical-induced water degradation, and stresses from water cooling and fabrication highlighted the complex dynamics that policymakers need to address through stringent environmental regulations on industrial discharges. Livestock activities presented diverse perspectives among participants, with varying degrees of perceived impact. Pesticides-induced residual water emerged as a significant contributor to water stress in this context. Notable impacts were observed with fertilizer-induced water degradation and overgrazing in inadequate water, underscoring the pivotal role of pesticides in influencing water scarcity associated with livestock activities. In conclusion, the findings advocate for sustainable agricultural practices as a key avenue for addressing water scarcity challenges effectively. The study recommends stringent regulations on industrial activities to mitigate their environmental implications and emphasizes the need for tailored strategies in addressing livestock-related water scarcity, acknowledging diverse stakeholder perceptions.

Integrating community-focused programs and enforcing stringent environmental guidelines are essential components of a holistic approach to developing comprehensive solutions for tackling water scarcity challenges.