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Rural Water Management Strategies and Irrigation Techniques for Sustainability. Nigeria Case Study; Kwara State

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Abstract : Water is essential for sustaining life. As a limited resource, effective water management is vital. Water scarcity has become more common due to the effects of climate change, land degradation, deforestation, and population growth, especially in rural communities, which are more susceptible to water-related issues such as water shortage, water-borne disease, et c., due to the unsuccessful implementation of water policies and projects in Nigeria. Since rural communities generate the majority of agricultural products, they significantly impact on water management for sustainability. The development of methods to advance this goal for residential and agricultural usage in the present and the future is a challenge for rural residents. This study evaluated rural water supply systems and irrigation management techniques to conserve water in Kwara State, North-Central Nigeria. Suggesting some measures to conserve water resources for sustainability, off-season farming, and socioeconomic security that will remedy water degradation, unemployment which is one of the causes of insecurity in the country, by considering the use of fabricated or locally made irrigation equipment, which are affordable by rural farmers, among other recommendations. Questionnaires were distributed to respondents in the study area for quantitative evaluation of irrigation methods practices. For physicochemical investigation, samples were also gathered from their available water sources. According to the study's findings, 30 percent of farmers adopted intelligent irrigation management techniques to conserve water resources, saving 45% of the water previously used for irrigation. 70 % of farmers practice seasonal farming. Irrigation water is drawn from river channels, streams, and unlined and unprotected wells. 60% of these rural residents rely on private boreholes for their water needs, while 40% rely on government-supplied rural water. Therefore, the government must develop additional water projects, raise awareness, and offer irrigation techniques that are simple to adapt for water management, increasing socio-economic productivity, security, and water sustainability.

Keywords : water resource management, sustainability, irrigation, rural water management, irrigation management technique
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