

## The Role of Smart-Taps in Improving Water Accessibility in Rural Ghana

**Authors :** Ernestina Ohenewaah Denchie, Kevin Lo

**Abstract :** Access to clean water is a key element of sustainable development, yet many nations cannot provide reliable water supply to their inhabitants, particularly in rural areas. In Ghana, public smart taps with pre-paid tokens for public standpipe management have been introduced to enhance access to clean water in small towns and rural communities. This research article highlights the impact of pre-paid token systems on water accessibility in small towns and rural Ghana, focusing on their alignment with Sustainable Development Goal 6. We utilize the Technology Acceptance Model (TAM) with data obtained from both quantitative and qualitative responses to demonstrate the user's acceptance and overall effectiveness of the pre-paid token system in improving access to clean water. We find that among the characteristics of the pre-paid token system, convenience of use, user satisfaction, proximity and accessibility impact smart tap usage positively. Further analyses reveal that providing token loading points at vantage points within communities would improve smart tap usage by about 96%. Finally, our thematic analyses reveal that the problems of the smart tap system can be improved through regular maintenance and technical support, system improvement such as developing an online app for credit loading, restoring lost or unused credits, and better tracking of lost tokens.

**Keywords :** smart tap, pre-paid, technology acceptance model, water supply

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