# Rainwater Harvesting: An Alternative Source of Water for Domestic Use in Rural Ghana under Climate Change (The Case of Kpando)

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## ABSTRACT

Accessibility to clean and potable water has become a major problem for urban and rural inhabitants over the past decade and this is largely attributable to the growth in human population coupled with the increasing rate of deforestation. Approximately 880 million people lack access to safe drinking water in Africa with the lowest coverage found in Sub- Saharan Africa. The unpredictable climatic conditions being experienced world-wide poses a great threat to predisposing populations to water shortages. Vulnerability of Ghana to increased climate change has been reported to be high. Among the many adaptation measures suggested for impact on water resources, this study specifically suggests Rainwater Harvesting as an adaptation measure to serve as an alternative water source especially as a buffer in the dry season. Its effectiveness lies in the fact that the rainfall pattern has not changed much with the peak season still between May and September. Water quality analysis of borehole water sources, stream water sources and rainwater collected from different catchments and tanks was conducted to determine their suitability for domestic uses. The analysis indicated that bacterial quality of rainwater was poor but better than water from the streams and in some cases the boreholes and the physical and chemical qualities varied between catchments. Water collected from thatch roofs had a higher pH, turbidity and iron values. The same was realized for water from the streams. Water from galvanized roofs also had higher values for iron. Bacteriological analysis showed varying degrees of contamination of all water samples, with almost all samples containing high numbers of heterotrophic plate counts. The results of the study suggest that the quality of rainwater should not be taken for granted. There is also the need for appropriate treatment measures to ensure that roof harvested rainwater meet a potable standard.

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