

Rainwater harvesting: an alternative to safe water supply in Nigerian rural communities

Abstract :

Rainwater harvesting (RWH) is an economical small-scale technology that has the potential to augment safe water supply with least disturbance to the environment, especially in the drier regions. In Nigeria, less than half of the population has reasonable access to reliable water supply. This study in northeastern Nigeria determined the rate of water consumption and current water sources before estimating the amount of rainwater that can potentially be harvested. A survey on 200 households in four villages namely, Gayama, Akate, Sidi and Sabongari established that more than half of them rely on sources that are susceptible to drought, i.e. shallow hand-dug wells and natural water bodies, while only 3% harvest rainwater. Taraba and Gombe states where the villages are located have a mean annual rainfall of 1,064 mm and 915 mm respectively. Annual RWH potential per household was estimated to be 63.35 m³ for Taraba state and 54.47 m³ for Gombe state. The amount could meet the water demand for the village of Gayama although the other three villages would have to supplement their rainwater with other sources. There is therefore sufficient rainwater to supplement the need of the rural communities if the existing mechanism and low involvement of the villagers in RWH activities could be improved.