

지속가능한 생활용 우수시스템 개발 사례
A Case Study of Sustainable Potential of Rainwater System
Development for Household Water Consumption in Nigeria

바시르 아델러둔, 최경숙
Bashir Adelodun*, Kyung-Sook Choi**

.....
Abstract

Rainwater harvesting system (RWH) can provide a relief for the household and farmers especially in areas with intense water scarcity during the long lull of rainy season. However, much attention has not been given to this alternative water source in Nigeria. This paper estimates the per capita water demand for 1,950 inhabitants and rainwater potential in Ojonbodu Estate, Oyo State, Nigeria, using data from detailed questionnaires, water consumption calculator software, and 20-year rainfall data. The potential rainwater estimation was based on amount of precipitation, size of catchment and runoff coefficient. Consequently, using estimated values of 39420 m³ and 6.5114 x 10⁷ m³ for per capita consumption and potential rainwater respectively, the rainwater harvesting system was designed for rainwater collection, and storage. The harvested rainwater was 450, 000 m³ with collection efficiency of 69.16 %, which exceeded the household water consumption requirement. Thus, the harvested rainwater was able to meet the estimated water demand of the Ojonbodu Estate households during the period of water scarcity.

Keywords : Rainwater harvesting, water demand, households

* PhD Student, Dept. of Agricultural Civil Engineering, Kyungpook National University

** Professor, Dept. of Agricultural Civil Engineering, Kyungpook National University **E-mail : ks.choi@knu.ac.kr