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"Management of land use systems for enhanced food security: conflicts, controversies and resolutions"

Application of Water Recovery Option for Agricultural Use in Developing Countries: Case Study of a Nigerian Community

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Abstract

Africa's current population of 1 billion people is estimated to increase to 1.8 billion in 2050. This compliments the fastest growing population rate which stands at 2.4 %. Moreover, 40 % of Africa's land is arid while another 27 % is desert leaving a common conclusion that water is a crucial resource with tremendous implication on African development. The rapid urbanisation and growing population in African cities has resulted in new water management challenges. About 85 % of water in Africa is used on agriculture. Only 10 % and 5 % are used in households and industries, respectively. The objective of this study was to appraise the different methods available for water collection, treatment and reuse for agricultural purposes in sub-Saharan Africa. The study involved the assessment of available methods used by farmers for the promotion of agriculture. The study deployed the use of in-depth interviews, onsite investigation and group discussions in various areas in a typical semi-urban city in southwest Nigeria. The procedure combines descriptive data on the amount of water used per day on farms, sources of the water used, purpose of the water used and the size of the farm. Results of this study showed that a comparatively large volume of water being used for agricultural sustenance is withdrawn from natural aquifer storages. This poses a challenge and threatens global effort of achieving the United Nation's water-related Millennium Development Goals (MDG 7c) in developing countries aimed at making potable water available for millions of people. It was concluded that a sustainable, de-centralised wastewater treatment plant can be deployed for irrigation purposes in order to reduce pressure from agriculture on groundwater resources and, at the same time, encourage artificial recharge of wells. Also, adequate and efficient water management procedures which would help to overcome emerging water challenges were proposed.

Keywords: Agriculture, Nigeria, reuse, treatment, wastewater

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