UNIVERSITY of ABERTAY DUNDEE

Programme- Urban Water / Environmental Management

Title – Transitioning Urban Water Management in Accra – application of CWB to inform transition process

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Abstract

Although water is the cornerstone of life on earth; as humans use it for drinking, washing, recreation, growing food, powering cities and running industries, while plants animals and habitats that support biological diversity also depend on it (Palaniappan et al. 2010), Winpenny (1994) believes that this resource is becoming one of the largest and certainly the most universal problems facing mankind as the earth moves into the 21st century. It is currently estimated that about 884 million people around the world do not have access to safe drinking water, 2.5 billion people are without adequate sanitation facilities (GDRC [No date]). Howe and van der Steen (2008) are of the view that cities will face ever increasing difficulties in managing scarcer and less reliable water resources due to escalating global change pressures, rising costs and other risks inherent to conventional urban water management strategies, and thus the need for a transition to an integrated approach to managing the urban water system.

SWITCH is the name of an EU funded action research programme which aims to bring about a paradigm shift in management of the components of the UWS from the conventional or ad hoc systems being implemented presently to a more coherent and integrated approach (SWITCH [No date]).

The study area is Accra, one of the 10 SWITCH demonstration cities, which faces a challenge in managing its water resources. It is estimated that while more that 50% of its residential population do not have access to yard or house connections, about 95% are not connected to the city sewerage network. The city also experiences annual flood events.

The researcher attempted to simulate the urban water cycle of Accra by applying a component of the CWIS tool, i.e. CWB. Relevant datasets were collected, processed and entered into the specified input files as instructed in the user guide. It was observed that the only feasible water management options that could be currently undertaken within the study area are unitblock raintank and wastewater treatment, which were selected.

It is rather unfortunate that the CWB model encountered some errors and failed to run. The researcher argued out why it is essential to use the CWB model, as the person using the model decides on which water management option or options to select, rather than the model simulating the actual conditions of the study area and suggesting the appropriate water management option based on the simulation. However, the researcher conceded that CWB, when running properly is a most useful tool for all stakeholders as it considers likely scenarios. Some likely scenarios such as the impacts of rapid increase in population, reduction in the water from mains supply, and the effects implementing SUDS can have within the study area were discussed.

The researcher is of the opinion that implementing rain harvesting and wastewater recycling will be beneficial within the study area as it will make water easily available to people where they need it. Although these sources may not provide potable water, they ensure that water is available for other activities such as flushing toilets, watering gardens among others, thus easing the pressure on mains supply as potable water may only be used for consumption purposes.