



World Water Week 2015, WWW 2015

## Managing Change to Implement Integrated Urban Water Management in African Cities

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### Abstract

With increasing pressures from global changes (urbanization, climate change, etc.), cities in Africa will experience difficulties in efficiently managing water resources. Most of the urbanization in Africa over the next 30 years will occur in fast-growing small towns that lack mature infrastructure. This offers a unique opportunity to implement innovative solutions based on integrated urban water management (IUWM). While IUWM approaches have been widely reported in the literature, their application has been limited. This paper describes the African Water Facility's experience in applying the approach to three projects, in the Seychelles, Zimbabwe and Democratic Republic of Congo, which illustrate the types of challenges faced in different institutional frameworks and contexts (such as islands, a small town and a megacity). The paper identifies the critical issues for improving uptake and scaling up, including strong leadership, the commitment of government and the institutions involved, and a formal programme of capacity building and technical assistance.

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Peer-review under responsibility of the Stockholm International Water Institute

*Keywords: integrated urban water management; Africa; sustainable urban water use; managing change; lessons learned*

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## 1. Aim of the paper

Urbanization in Africa is characterized by insufficient basic infrastructure, particularly in low-income areas. A major challenge for urban water and sanitation is, therefore, serving the unserved. Most urban growth in Africa over the next 30 years will occur in fast-growing small towns. The fact that these emerging urban areas often do not have mature infrastructure and governance structures, and urban planning has not yet happened, means that there are real opportunities to implement innovative solutions based on the principles of integrated urban water management (IUWM) (Jacobsen *et al.*, 2013; Tsegaye *et al.*, 2012). Development plans in these emerging areas may allow direct implementation of radically different system configurations: where surface water, groundwater and storm water are combined as potential sources; where innovative solutions are applied that allow source separation of wastes and implementation of reclamation schemes (wastewater recycling, nutrient and energy recovery schemes); and where mixed land-use development, which promotes cascading water uses between the domestic, industrial and agricultural sectors, is considered. Although the potential to do things differently in these emerging areas exists, the window of opportunity to create a more sustainable pathway is relatively small (from five to 15 years) and hence quick action is needed if one is serious about creating a paradigm shift.

In general, the implementation of IUWM strategies in Africa is challenged by a complex set of factors including: technical and social issues affecting its demand. These factors include institutional fragmentation, stringent regulatory frameworks and the lack of appropriate economic and financial models that create incentives for safe and efficient reuse. In the region to date, many IUWM projects are pilot-scale projects of uncertain sustainability and replicability. Consequently, the principal challenges addressed by this paper are to develop mechanisms to increase the uptake and scaling up in Africa of innovations in the area of IUWM. This paper presents an innovative approach being applied by the African Water Facility (AWF) to do just this. Central to this approach is the establishment of local stakeholder platforms that consist of practitioners, researchers and policymakers who work collectively in developing locally appropriate solutions with a high level of ownership of the concepts and processes. This paper describes the experience of applying this approach in three African cities where critical issues for maximizing uptake and scaling up included strong leadership, the commitment of government and the institutions involved, and a formal programme of capacity building and technical assistance.

## 2. Africa's urban challenges

### 2.1. Urbanization and population growth

During the last two decades Africa has been experiencing the world's most rapid rate of urbanization at 3.9 per cent per year and this rate of growth is expected to hold until 2050. Urban population has grown around tenfold in Africa, from 44 million in 1965 to 412 million in 2010. With an estimated population in 2013 of one billion people, the proportion of Africans living in urban areas is projected to grow from 40 per cent to 56 per cent by 2050 (UNDESA, 2014). Most of Africa's urban growth is absorbed by its medium-sized cities (population less than 500,000) and smaller settlements. The growth has also been accommodated by the proliferation of slums, which has resulted in urban poverty and rising inequality.

The world's biggest slum population is in Africa with around 210 million people (about 60 per cent of the urban population), and it is these areas that account for the bulk of urban expansion in the most rapidly growing cities in sub-Saharan Africa (UN-Habitat, 2008). These settlements often lack access to water supplies, sanitation, solid waste management and electricity. All this contributes to water stress and water insecurity and is expected to exert huge pressure on urban water management.

Growing demand for water, coupled with its scarcity, is putting pressure on the water resources, the capacity of the water supply system to deliver water in quantity and quality to all and the capacity to manage increasing volumes of wastewater and faecal sludge. In addition, as a result of urban growth, the changing urban landscapes are affecting the local hydrological cycle and environment by reducing natural infiltration opportunities and producing rapid peak storm water flows (Jacobsen *et al.*, 2013).

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