

# Charging for stormwater in South Africa

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## Abstract

The social, economic and environmental impacts of poor water quality on South Africa's urban aquatic systems are increasingly being highlighted by the media. Improving the water quality in these systems will require catchment-wide strategies, including the monitoring and management of point and non-point source pollution collected in stormwater. Significant costs may be incurred; however, international experience suggests that these are outweighed by the benefits.

Municipalities across South Africa charge their citizens for potable water and sewerage. Stormwater management, however, is generally funded through municipal rates. Competition with other pressing needs frequently results in the stormwater departments being significantly under-funded – at times only receiving a tenth of what is required for water quantity management. Internationally, an increasing number of cities have introduced a direct charge for stormwater management in order to secure the funding required to manage stormwater and its associated water pollution, and to serve as a disincentive to polluting practices on the part of landowners. In order to ensure adequate funding for stormwater management in South Africa, municipalities need to consider charging for stormwater management either based on an Equivalent Residential Unit (ERU) or Residential Equivalent Factor (REF), combined with an appropriate discount scheme for on-site stormwater management. Preliminary indicative rates have been calculated for municipalities across South Africa using the Damage Avoidance Cost (DAC) approach. The results indicate that the amount that municipalities could and should charge varies widely, from ZAR30 (2010) to ZAR110 (2010) per residential unit per month, depending on climatic zone and level of treatment.

**Keywords:** stormwater management, damage avoidance cost, stormwater utilities

## INTRODUCTION

The impact of poor water quality on South Africa's urban aquatic systems is increasingly being highlighted by the local media (Ndenze, 2011; eThekweni Municipality, 2011; SAPA, 2011; Oelofse, 2011; Helfrich, 2011; *Tatler*, 2011). Most reports focus on the failure of sewage systems (e.g. SAPA, 2011), due to the emotive nature of the pollution, and the ability to identify who is responsible due to the point source nature of sewage pollution. Stormwater pollution, on the other hand, is in general diffuse and therefore it is difficult to attribute responsibility. The Cities of Cape Town (CoCT, 2010), Johannesburg (CoJ, 2003) and Tshwane (CoT, 2002) all note in their State of the Environment Reports (SOER) that polluted stormwater is a significant contributor to the deteriorating water quality in their respective urban aquatic systems, as well as contributing to the failures of the sewage treatment works that become overloaded as a result of stormwater ingress into the foul sewer network. Improving the water quality in South Africa's urban aquatic systems will require catchment-wide strategies that consider the whole urban water cycle (UWC), including: water supply; sanitation; stormwater; and asset management. Appropriate management will require significant financial input in the short term, but it is important to recognise the ecosystem benefits that will result (TEEB, 2010). The focus of this paper is on how to raise finance for better stormwater management.

The UWC is currently managed in a fragmented manner in South Africa (Fisher-Jeffes et al., 2012). For example, in many of the larger cities, stormwater management is frequently the responsibility of the roads department. The poor integration of stormwater management with the rest of the UWC (Fisher-Jeffes et al., 2012) results in South African municipalities not having a holistic approach covering all water services. Stormwater management often ends up being inadequate – with those responsible for it operating with insufficient budgets due, in part, to institutional arrangements related to income generation for service provision. Stormwater is often managed as a potential flood hazard and disposed of as rapidly as possible. This approach focuses on managing quantity and ignores the management of quality.

Municipalities have a constitutional obligation to provide a safe, healthy environment while ensuring economic development and extending the provision of services in a progressive and sustainable manner (RSA, 1996). The management of stormwater is – partly owing to issues of underfunding – falling short of these aspirations. Municipal infrastructure in general in South Africa requires extensive re-investment in capital and maintenance expenditure: 'Extrapolated results suggest a current replacement cost [CRC] of ZAR723 billion for all municipal infrastructure under direct control of municipalities, and a depreciated replacement cost in the order of ZAR385 billion, which results in a weighted 53% [Depreciated Replacement Cost] DRC/CRC ratio. This ratio ranges from as low as 44% for solid waste facilities to 58% for roads and stormwater' (Boshoff, 2009).

This underfunding of stormwater management is not unique to South Africa; however the situation is particularly bad in South Africa. In South Africa, most funding for stormwater management comes from general municipal rates unlike, for example, potable water and electricity for which

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