Water service delivery challenges – What role for water demand management?

Pippa Hetherington/Africa Media Online

Water conservation and water demand management (WC/WDM) initiatives have much to offer in terms of curbing South Africa's municipal water service delivery challenges, argues Jeremiah Mutamba of the TCTA.

Water is a precious yet scarce resource in South Africa. The recent countrywide protests for improved water (and other) services bear clear testimony of the deep-seated and potentially explosive water supply challenges that South Africa face. In extreme cases, lives have been lost and relations broken, as communities lost patience on waiting for reliable supply of the essential resource – water.

From across the country communities have taken to the streets to express their frustration on the lack of clean, safe and sustainable water supplies. While a number of these vexing challenges are due to capacity challenges, one cannot deny that some have a lot to do with the scarcity of the precious resource. This article looks at the South African water service delivery challenges in the lenses of resource availability as well as managerial and operational capacity in the country. The article also attempts to reconcile these challenges with the opportunities that water conservation and demand management initiatives could offer to rescue troubled communities.

HISTORICAL CONTEXT

South Africa has a long history of inequitable water policy. Following the country's democratisation in 1994, the South African government embarked on an ambitious programme to address historical inequalities and, in particular, to eradicate water supply and sanitation backlogs. These initiatives were underpinned by the development of sound policy and legislation – the principle pieces of legislation being the White Paper on National Water Policy of 1997, the National Water Services Act and the National Water Act (NWA), promulgated in 1998.

These pieces of legislation, together with supporting frameworks like the National Water Resources Strategy of 2004 (revised in 2013), and the National Water Conservation and Demand Management Strategy, redefined the South Africa water landscape – ushering a new era full of hope and expectations. The NWA, widely regarded as the most progressive pieces of legislation, recognises water as a basic human right and puts emphasis on sustainability, equitable access, and efficient use.

Courtesy of the new policies, it is reported that South Africa reduced its water services backlog from 41% in 1994 to 12% in 2009 and an estimated 5% currently. Also, South Africa achieved its Millennium Development Goal of halving, "by the year 2015... the proportion of people who are unable to reach or to afford safe drinking water" in 2005. Given the widely acclaimed water policy and the reported impeccable progress on redressing historical inequalities in water supply, one would least expect to see the violent water-related protests that have been recently witnessed across the country.

To fully grasp South Africa's water issues, it is essential to delineate the

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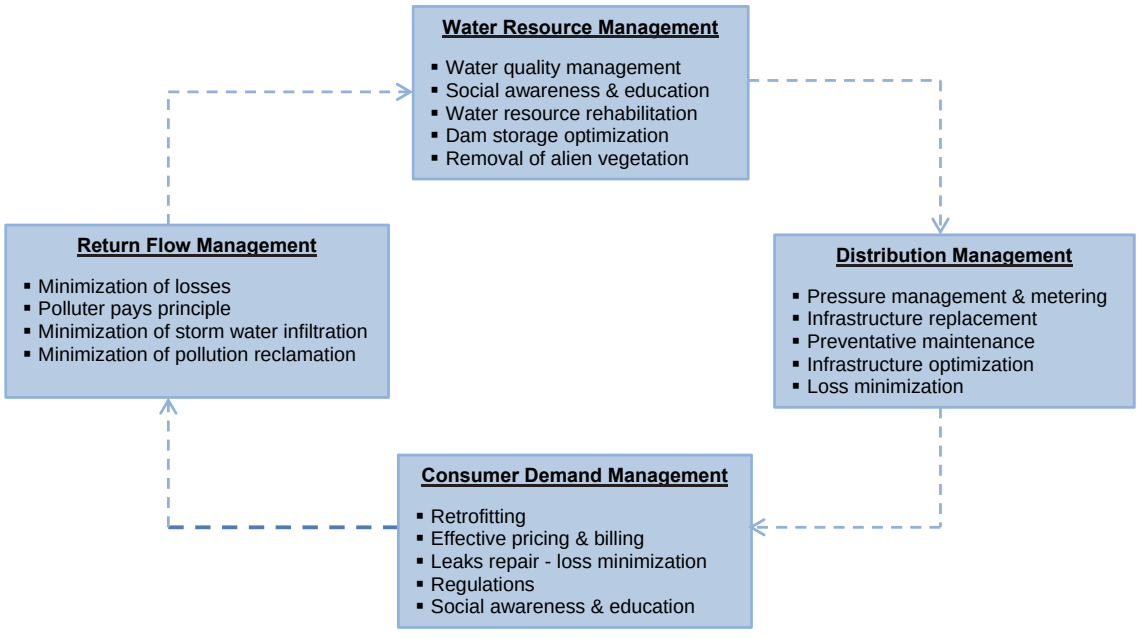

Adapted from Mwiinga *et al.*, 2008

Figure 1: *Components and elements of WCDM.*

sources of the prevailing water scarcity. Of course, in some cases water scarcity is due to natural or physical scarcity while in the majority of problem cases it is due to human or managerial factors. Water services providers (WSPs) often struggle to balance growing water demand with the limited [water] resources. As in other places, South African water demand is propelled by population growth, industrial development, expanding agriculture irrigation requirements, and a general increase in per capita water requirements due to improving lifestyles.

Traditionally, WSPs resorted to searching for and developing new water resources each time demand is close to exceeding existing supplies – approaches better known as supply-side water management. Supply-side approaches mainly involve design and development of new water infrastructure (e.g. dams, inter-basin transfer schemes, groundwater abstraction schemes, desalination plants, etc).

These approaches appeal and are subject to resource availability and are not forever sustainable, particularly in the South African context were most utilisable surface water resources have been allocated and/or developed. A second water resource management tier, critical to sustainable water supply but is often afforded less attention, is the principle of water conservation and demand management (WC/WDM).

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WATER DEMAND MANAGEMENT

WC/WDM appeals to and fosters efficient utilisation of the available resource. WC/WDM refers to the minimisation of water loss through efficient control of water supply and demand. The principle encompasses two sets of water management strategies, namely strategies for curtailing growth in the amount of water used [water demand management], and approaches to limit the loss or wastage of water and enhances the care and protection of water resources [water conservation]. By and large, WC/WDM approaches focus on improving water use efficiency and promoting sustainable development.

WC/WDM offers a number of tangible benefits. These benefits include: more efficient use of existing resources, cost savings to customers who pay only for received than water lost in distribution, consistent water supply, deferment of costly new water infrastructure, energy savings through deferred of large pumping facilities, improved water quality, and increased revenues for WSPs. In the context of current protests, WC/WDM can also be a vehicle for promoting socio-political objectives, such as equity and gender issues as well as creating harmonised and peaceful communities.

WC/WDM can create harmonised communities through carefully crafted and strategically implemented social awareness and education campaigns targeted at community level. The campaigns can incorporate basic water management principles, procedures to report water losses in communities (e.g. pipe bursts and difficult to detect leakages), home-level demand management approaches, as well as engendering a sense of community ownership of water assets through empowerment approaches. Such approaches also help reduce the levels of vandalism of communal water infrastructure.

APPLICATION OF WC/WDM CONCEPTS

Although WC/WDM offer attractive benefits and South Africa seem to have adopted the concepts in principle, their application have not been optimal. This sad scenario is best reflected in the level of non-revenue water (NRW) – a proxy/indicator for water use efficiency. Internationally, NRW between 5% and 15% is considered acceptable. In comparison, the national average NRW for South Africa is about 35%.

Some communities have NRW much higher than the national average. Classical examples include Mbombela Local Municipality (40-70%), Maquassi Local Municipality (45% - now reduced to 35%), and Emfuleni Local Municipality (49%). Such high levels of NRW are characterised by considerable leakages and unpaid for water bills. According to a report published by the Water Research Commission in 2012, although targets for reducing water loss have been set, activities at municipal level for realising these goals have been limited – mainly due to lack of planning and not fully understanding the potential benefits of WC/WDM. From the few examples of localised high NRW and the significantly high national average, it is clear that that there are still huge gaps and opportunities to optimise WC/WDM principles in South Africa.

Traditionally, increasing water demand has been met with the expansion of bulk water supply infrastructure.

OPPORTUNITIES FOR WC/WDM

In view of the recent water challenges, the related countrywide unrest and the broad water conservation and demand management principles, it is observable that there are opportunities for WC/WDM to help address some of the challenges. In this context water conservation approaches can leveraged to:

- ***Improve water scarcity awareness campaign:*** The crisis provides a great opportunity to, through social awareness and education programs reach out to communities and inform them of the scarcity of water in South Africa as well as the importance of frugal water management and utilisation.
- ***Promote broader stakeholder involvement:*** Stakeholder engagement forms a key element of integrated water resources management and WC/WDM. The crisis situation, though volatile at times, offers a platform for intense stakeholder engagement with an interested audience. Often, stakeholder engagements attract low attention and interest from residence. However, with the prevailing challenges community interest and attention are likely to be high – creating a conducive environment for heightened collaboration. The spin-off of such an approach is improving trust between the stakeholders and the water service providers.
- ***Reduce non-revenue water:*** Having driven home the points of water scarcity and collaborative management stated above, WSPs have a good chance of implementing water loss reduction initiatives in collaboration with the communities. Initiatives that can be promoted through community support include: water-wise gardening (e.g. grey water reuse) water harvesting, reporting of leakages and burst pipes, as well as reporting of unlawful connections.

In addition, the crisis offers WSPs with the chance to motivate for adequate budgets to carry-out water conservation and demand management initiatives – activities that are often relegated to the bottom of the normal budget transactions as they viewed as less fancy. The water protests could effectively catapult WC/WDM to high priority interventions by WSPs as WC/WDM initiatives are cheaper, simpler, and faster to implement compared to conventional measures.

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CONCLUSIONS AND RECOMMENDATIONS

Although South Africa has legislation and a water policy that give due credence to WC/WDM, its application has not been effective and optimal. However, there are tangible opportunities for improved application of WC/WDM measures – with potential positive outcomes. It can also be concluded that WCDM approaches have a fitting role in addressing some of the recent water-related challenges.

It should be acknowledged though that, given the explosive and tense nature of the current relationship between WSPs and communities, calculated approaches should be applied – with the potential outcomes of the interventions clearly and honestly explained to manage expectations. In the main, WC/WDM approaches have the potential to build grounded understanding of water supply and resources management among communities and officials as well as giving birth to a harmonious collaborative working environment in the sector.

- **Article references available on request** ❑