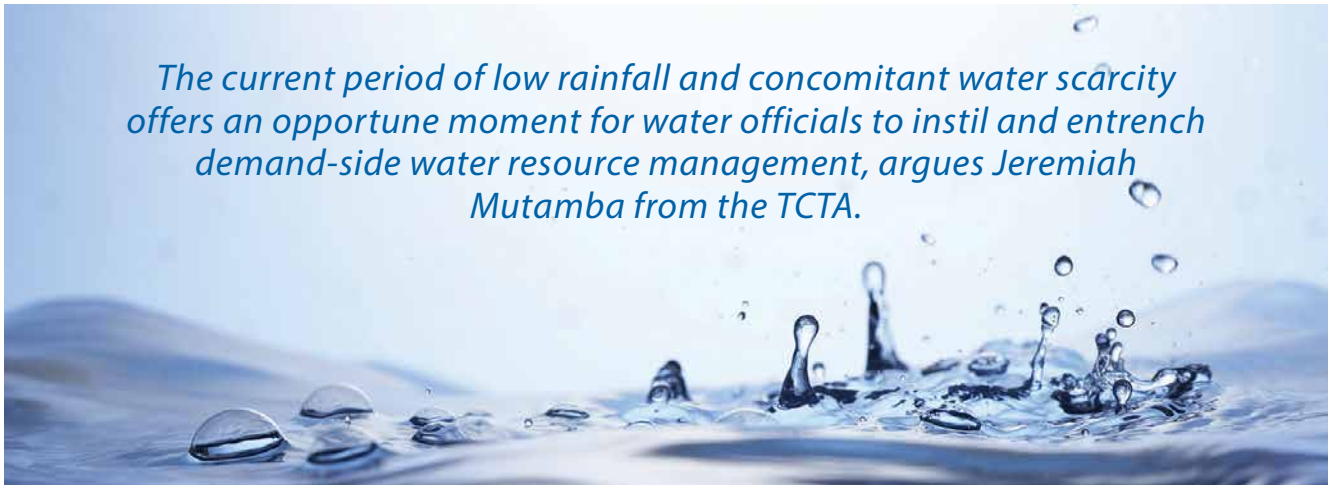
Demand side management

An opportune time to promote demand-side water management



The current period of low rainfall and concomitant water scarcity offers an opportune moment for water officials to instil and entrench demand-side water resource management, argues Jeremiah Mutamba from the TCTA.

Introduction

Traditionally, water resources management practitioners more easily opted for supply-oriented management practices to address water challenges. This practice persists despite it being acknowledged and widely held that integrated water resources management (IWRM) consists of both supply-side and demand-side management strategies.

It is, however, becoming increasingly clear that supply-side solutions are becoming more and more expensive as the easily accessible options have been fully developed, and new options are becoming difficult to find. Under these conditions, demand-side water management options become more attractive and easy to sell and can significantly assist in addressing local and national water challenges. The trouble is that water utilities and sector specialists have not succeeded much beyond theory to sell to the public and their counterparts the concepts of water conservation and demand management – to the effect that demand-side strategies have lagged behind in application.

Water resources management and demand-side strategies

Water management experts, managers and water utilities all advocate for integrated approaches to water resources management. All concur to the approach, with very few, if any, dissenting voices.

The IWRM paradigm consist of two distinct yet equally important parts, supply-side management strategies and demand-side management strategies. For more effective outcomes, the two strategy groups should be used conjunctively. However, in practice, the historic tendency has been to emphasise supply-oriented management and investment strategies.

This approach is also widely evident in South Africa, with great efforts expended on designing and construction of greenfields water supply infrastructure (for example, dams, transfer schemes and associated infrastructure) as solutions to meet growing water requirements. As a result, water management utilities have been on the receiving end, being criticised for predominantly focusing on supply-side strategies and for believing that water demand increases will be met by concomitant supply increases.

This practice has proliferated despite the fact that new freshwater resources are finite and dwindling, with the few remaining being even more difficult and expensive to develop. For South Africa, in particular, the Department of Water Affairs (now Department of Water and Sanitation), acknowledges that the majority of available resources have been allocated, and, particularly, most of the viable dam sites have been developed.

Interestingly and positively, demand-side water management strategies and approaches are now widely accepted as sound water management policy. In his 2000 article in Water International Volume 25 No 1, Peter Gleick succinctly captures this paradigm shift in the quote below:

"A reliance on physical solutions continues to dominate traditional planning approaches, but these solutions are facing increasing opposition. At the same time new methods are being developed to meet demands of growing populations

without requiring major new construction or new large-scale water transfers from one region to another. More and more water suppliers and planning agencies are beginning to shift their focus and explore efficiency improvements, implement options for managing demand, and reallocate water among users to reduce projected gaps and meet future needs".

However, more than 15 years after this key pronouncement by Gleick, beyond theoretical policy changes, the level of implementation and uptake of demand-side approaches still remain low in most countries, including South Africa. Yet water security concern has catapulted to the front as a strategic global business risk over the same period.

As such, there is an urgent need to redirect water management thinking and practice towards the yet to be fully explored demand-side management. To effectively understand the disparity between belief and practice, the central question that needs to be asked and addressed is: why have demand-oriented strategies not been the favoured options by water management practitioners?

To highlight the extent to which demand-side management options have not been favoured the literature point out that, globally, about 33% of water provided in the urban drinking water distribution system is not accounted for – quite a significant amount that can bring relief either in quantum or financially. In attempting to address this question, the notion is advanced that, for South Africa, water shortages currently being experienced present an opportune moment to promote demand-side water management strategies.

Demand-side water management

Demand-side water management strategies refer to measures designed to improve water services through inducing changes at points of use. These strategies are predicated on successful increase in end-use efficiency and reduction of waste – ensuring that users can achieve the same or more with less.

A number of options are available to effect the required changes. These water use changes include: managing and, where practicable, eliminating water leaks; behavioural changes in water use patterns; improved awareness of water-wise water use in communities; adjustment of per capita water allocation to optimal levels in new designs; introduction of effluent fees to curb water consumption and pollution; introduction of water efficient technologies; and promotion of industrial recycling and reuse.

Other demand-side strategies include carefully-managed water rationing and restrictions as well as introduction of subsidies to incentivise adoption of water efficient technologies. The later options are more appropriate in industrial and agricultural sectors.

Application of demand-side water management

It is essential to highlight that the major challenges that water managers and practitioners encounter do not relate to knowledge (or lack thereof) of options to apply. Rather, the key challenges and struggles relate to application (or implementation) and uptake of some of the proposed demand-side water management strategies. This is particularly alarming because, globally and in South Africa in particular, water is regarded as a basic necessity and even an implied basic human right.

As a basic necessity, instituting measures that stretch a limited resource to ensure broader and sustainable access and supply should clearly be commendable and, without doubt, readily embraced by all. However, in practice, a number of reasons have militated against easy adoption and widespread implementation of demand-side water management options. Two interlinked reasons include:

- Consideration of water, by the general society, as a God-given natural resource.
- Limited knowledge of the fact that water is finite scarce resource.

> *"The level of implementation and uptake of demand-side approaches still remain low in most countries, including South Africa."*

In addition, water demand-oriented projects are, by their nature, not generally grand in size and are naturally not among the most attractive to implement. As such, they are generally not accorded the highest priority and preference by both professionals and leadership. These reasons for low water demand management strategies uptake and application have the following implications:

a. Continued business as usual practices among consumers despite resource scarcity – resulting in no real impact on water consumption rates and total consumption. Should society fully comprehend that water is a limited and scarce resource, the attitude, behaviour and approach to water utilisation by society should drastically improve for the better. Notably, it requires that the general fear of conflating technically-proven water scarcity with service delivery crisis be overcome to allow for society to clearly comprehend the need to be water-wise even during periods of normal rainfalls.
b. Limited commitment and concomitant low appetite by leadership to drive what may be perceived as extreme measures to curb water wastage. The use of economic strategies (especially pricing strategies) comes to mind here. Wasteful water use is largely associated with low water prices

– themselves grounded in the often unchallenged belief that water is a free good. Further, influenced by the fact that water is a basic necessity, practitioners generally refrain from applying certain demand curtailing measures as they are considered unpopular. It is critical that practitioners avoid confusing society's claim to have a right to water with a view that they have a right to unlimited water – as factually water resources are limited. It needs to be instilled in our minds that unmanaged right to unlimited water leads to no water at all at some point in future.

c. In a growing democracy – in a nation coming from a history of racial segregation – it is difficult to disconnect basic service offering from the varying and often complex forms of political nuances. Given this and that a majority of South Africans lacked access to water prior to the new democratic government ushered into power in 1994, the natural and logical approach is to drive service provision (provide access for the first time) to those previously denied access to the precious resource. Notwithstanding this, however, in a space were the resource is limited and scarce, the drive to offer water services (a supply-side imperative) needs to be shrewdly integrated with demand-side strategies to ensure sustained provision of the essential resource.

Why it is opportune to promote demand-side strategies

A number of compelling reasons motivate for the current drought period to be an opportune moment to advocate and roll-out demand-oriented water management strategies – not only as short-term drought-linked interventions, but rather as a part of permanent and long-term solutions to a country with a well-documented history and record of water resources scarcity. Three compelling reasons for this perspective standout.

These reasons include, that:

a. Beyond the current dry spell, South Africa urgently needs to improve on its water use efficiency. Rated as the 30th driest country globally and with estimated average system water losses of about 37% (losses can be as high as 70%), the country definitely requires to be water frugal. This view is further emphasised by extant research with accompanying publications – attesting to both facts that the country does not have an abundance of the precious resource and that the current water use patterns are not sustainable.

b. Notwithstanding the complexity and current low uptake of demand-side strategies, the fact that supply-oriented options have been exposed as vulnerable by the current drought points to a need by the general public, guided by water practitioners and experts, to seriously consider elevating demand-side water management strategies. To practitioners this offers the best chance to emphasize the complementarity of supply-side and demand-side water management solutions. I emphasize complementarity to underscore the essence of an integrated approach in practice. During this period of drought-induced water shortages, water scarcity moves from the theory domain (as pronounced by researchers' publications) to the real domain. For water practitioners, it moves from the abstract to the real – here it is kind of phenomenon. Everyone is practically experiencing the lack of water. The fact that some communities scrambled for interventionist water supplies drive home the reality of the resource scarcity. This makes it a lot easier to explain to society why demand-side strategies are critical and required now.

   However, what is even more critical is the need to emphasise that the current water challenges (heightened by drought) are not only limited to the drought problem – which is ephemeral – but that in the broader scheme of things, the country is naturally physically water scarce, with a number of critical users competing for the same resource.

c. Because everyone is attentive during crisis periods, the gospel of demand-side water management has the best of opportunities to be granted unfettered attention by all and sundry during this drought crisis. In line with this thinking, over the past few months, media has been abuzz with suggestions and 'how to" propositions to manage water demand to reduce consumption. It can be clearly observed that the timing would be most appropriate, and all it needs is developing appropriately crafted solutions with accompanying actions to roll-out demand-focused water management. It is important to highlight that this period is most appropriate as there is the least amount of stakeholder dissonance on the matter than any other period – stakeholders from all persuasions will be singing from the same sheet.

Conclusions

In conclusion, notwithstanding the bad effects of drought, water practitioners should take advantage of the drought period to promote the often difficult to sell demand-side water management. The time is most opportune as stakeholder opposition is expected to be minimal, stakeholder attention on the subject will be at its highest, and the vulnerability of supply-side options will be maximum to easily convince society of the need for a balanced approach.

References available on request