



Building a Better post-COVID Water Sector

Advisory Note 3: Municipal Water Losses

How do water losses occur?

The most recent data in South Africa shows that approximately 41% of the potable water produced by municipalities is lost through leaks, or is water that is used but is not measured. The value of this lost water has conservatively been estimated to be in excess of R10 billion each year.

Water losses can result from burst or leaking pipes, or as a result of water theft, inaccurate water meters, false water meter readings and water released from connections such as fire hydrants.

How certain are we of these figures?

Until 2014, the national Department of Water and Sanitation ran two very effective initiatives to assess the performance of the 144 municipalities with responsibility for providing water to South African water users – the Blue Drop and No Drop programmes. These programmes enabled the national Department to effectively exercise oversight over the performance of municipalities in reducing water losses, but for reasons that have never been satisfactorily explained, these programmes were discontinued and therefore current reliable data on non-revenue water is generally not available.

Why emphasise water losses?

South Africa is classified as a highly water stressed country, with a relatively small amount of water available per person per year on account of the low annual average rainfall of about 450 mm per year, compared to the world average of 860 mm per year. To make matters worse the rainfall across South Africa is distributed very unevenly, with approximately 60% of the rain falling in just two provinces that cover 16% of the total area of our country.

The cost of reducing water losses is considerably lower than the cost of constructing new bulk water schemes to produce more water – in effect new bulk water schemes merely supply water leaks and unmetered supplies unless attention is given to reducing the losses. Reducing water losses results in reduced operating and capital expenditure as less electricity is needed to pump and treat water, less chemicals are required for water treatment and the construction of large bulk water supply schemes can be deferred.

Financial benefits of reducing water losses

The benefits of reducing water losses are in reduced operating expenditure, deferring the water resource expansion programme and the associated large capital expenditure, reducing the annual growth in water demand, improving management during droughts when water losses are a larger proportion of the restricted water demand, as well as providing opportunity for the design of more refined water resource solutions. There are examples where new water schemes have been deferred

by five years or more as a result of the introduction of water meters and other initiatives that reduced the demand for water.

What needs to be done?

Action is needed on two fronts:

- Firstly, more attention needs to be given by municipalities to ensure that water losses from burst and leaking pipes that have exceeded their useful lives are eliminated. This means that municipal capital budgets should make provision both for expanding the pipe network to be able to connect those without access to piped water, and for replacing existing sections of the pipe network that are failing.
- Similarly, sufficient funding should be made available to install and maintain water meters to accurately measure the volumes of water supplied to all customers, and also to replace water meters that have stopped recording or significantly under-record consumption as a consequence of meter aging.

A few other means of significantly reducing water losses include:

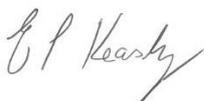
- Establish suitable supply zones to enable pressure management and zone metering of water consumption to be able to measure water losses by zone and for the analysis of minimum night-flows against metered consumption in each zone, so as to more effectively identify areas for leak detection and repair programmes.
- Reduce response times for isolating and then effecting repairs of bursts and leaks reported through a dedicated consumer call centre system.
- In addition, attention must be given to ensuring that meter readings are correctly recorded and that systems are put in place to ensure that false water meter readings that would result in reduced water accounts are detected.

Recommendations

In a developing country such as ours, water losses of less than 25% are achievable in the medium term. If municipalities do not have the capacity within their own organisations to reduce losses, there are many international examples where the private sector has been engaged through performance-based contracting to achieve targeted reductions.

A strong political message is required to make it clear that connecting illegally to the municipal water network is unacceptable. Not only do illegal connections increase apparent water losses, but also result in the water accounts of paying customers being increased to cover the cost of the water that is not paid for by those with illegal connections.

Finally, for effective oversight the Department of Water and Sanitation should as a matter of urgency reinstate its Blue Drop and No Drop reporting which addresses losses. Consolidating these two programmes into one would also make sense as there is a significant degree of overlap between the two.



Prof Elsabe Kearsley
President, South African Academy of Engineering
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