

How tech can conserve and improve access to water

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5 Mar 2019

As South Africa commemorates National Water Week from 17 to 23 March to highlight the scarcity of this vital resource, municipalities and utilities around the country are increasingly turning to technology to help them with both conservation, and expanding accessibility to more communities.



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The precarious nature of South Africa's water supply came to the fore with worldwide media attention being given to the now averted Day Zero, the day by which Cape Town would become the first major city globally to have run out of potable water. According to a World Health Organisation report, more than two billion people lack access to clean and safe drinking water globally. In South Africa alone, this figure is estimated at 8.2 million people.

In order to address this, South Africa's Water Services Act stipulates, amongst others, that everyone has a right of access to basic water supply and basic sanitation, and that every water services institution must take reasonable measures to realise those rights.

Even though South Africa is listed as the 30th driest country in the world, a lack of proper awareness means that water usage stands at over 235 litres per capita daily, compared to the global average of 173 litres. A reason for this could be South Africa's history of low water tariffs. Another could be that the consumer just doesn't know how much they use until their statement arrives.

Managing water with smart tech

One way to achieve sustainable water management is to understand and manage consumption by utilities and end-users. But as it stands, there is no accurate data, as consumers often pay based on estimates, and we lose 37% of our water in the current infrastructure.

To overcome this, municipalities are increasingly turning to advanced meter reading (AMR) and advanced metering infrastructure (AMI), which gives them accurate data in near real time, helping them cut down on non-revenue water losses and enabling them to bill more accurately.

AMI essentially offers an integrated system of smart meters, communications networks, and data management systems that enable two-way communication between utilities and customers. This allows for the remote control, configuration and management of smart meters on a fixed network, located anywhere, via the cloud or over a local private network.

Prepaid water: access, control and transparency

Prepaid metering further gives consumers financial control and enabling municipalities to measure, manage, and bill, accurately and in real time. With prepaid meters, users don't have to wait until month-end to see that it wasn't the best idea to water the garden every day, or to find out that they have a leak.

Much like prepaid electricity or airtime, pay-as-you-go water systems give lower-income earners more financial control by enabling payment in smaller, frequent increments, thereby preventing debt, which can compound on a post-paid arrangement.

Furthermore, these systems cater for free basic water requirements at a device level, and is able to dispense a predetermined amount of water daily at scheduled times, with a top-up option for those who wish to pay for additional water over and above their free allocation.

Depending on the municipality and their respective bylaws, this varies from 6,000 litres to 9,000 litres per month per household. In exceptional circumstances, provision can even be made for 'lifeline credit' which allows consumers to go into negative credit should they need, and emergency reserve water which is made available if the consumer has no credit and is facing an emergency such as a fire.

Collecting data from prepaid meters is also more efficient than the manual collection required for post-paid meters, with a radio link receiver being vehicle-mounted, or carried by municipality personnel. Data is transmitted to the receiver as soon as it is within signal of the meter, so meter readers don't need to enter the property.

Information is key

Mobile applications can give users the ability to monitor consumption, view their device status, load prepaid water credit, and monitor their credit in certain instances - and research has shown that consumers tend to reduce their usage once there is awareness.

While smart metering systems are more expensive than conventional metering, this is outweighed by the convenience of financial control, having real time visibility on consumption. If there is continuous flow of water over an extended period of time, a possible leak is logged, helping cut down on wastage.

According to the WWF, 98% of South Africa's water has already been allocated to users, leaving little surplus water to expand access and cater for growing demand. Meanwhile, the country spends R7bn a year on water losses alone, money that could be used to upgrade infrastructure and build more catchment facilities.

The only sustainable, long-term solution is for municipalities and utilities to turn to technology-based solutions to better conserve, manage and distribute the limited water resources that they have.

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