



## Detection gadget to cut losses from water leaks and illegal connections

**MONICAH MWANGI** @monicahmwangi / As the water and sanitation crisis persists, water service providers are struggling to tame huge losses from the non-revenue water. NRW is the difference between the amount of water put into the distribution system and the amount billed to consumers. In the year 2013-14 alone, Kenya lost approximately Sh10.6 billion due to NRW. Currently, the country loses about 430,000m<sup>3</sup>, equivalent to Sh12.2 billion per year.

Since 2014, the government has been piloting activities aimed at bringing NRW to acceptable levels, in a project done in collaboration with the Japan International Cooperation Agency. One of the target areas is Embu. The county recently hosted trainees from different water service providers. They were taken through different ways of identifying underground leaks, which is one of the leading causes of NRW. The two-day training was conducted by the Kenya Water Institute and Jica.

"So much revenue is being lost due to non-revenue water. We usually tend to think non-revenue water is only when a pipe bursts, but in most cases since a pipe burst is physical, technicians rush to the site within the shortest time," Kewi NRW coordinator Walter Museti said.

Museti said the highest amount of non-accounted water comes from underground leaks, which stay in that condition for a long time, losing hundreds of litres of water in a long period since they leak throughout. The magnitude of the smallest of leaks can be very expensive. "We did a study of a very small leak and realised we were losing Sh78,000 per month. And that was just one. Let's not assume them. They are worse than big bursts," he said.

### SENSORS IN PLACE

As the piloting continues, underground machines used to analyse and record how water is being used have been put in different parts of Embu. The machines sense any water that is getting lost at a certain distance of a water path, which is then checked and repaired.

"This machine traces and follows the lines and records whatever it gathers every 24 hours, which we then download and analyse for action. For instance, if the machine records a high amount of water being lost at a certain distance, that would mean there is an illegal connection, which we immediately check on," said Museti. They also check non-metallic pipes, which are replaced. They also have leak detectors and listening sticks, which they place on the surface of the water pipe paths. "To use these machines, one needs to learn how to distinguish between normal water flow sound and leak sound, which is usually ooze-ing," Museti said, adding that there are manual and electronic leak detectors.

While appreciating the NRW unit, Museti said they need to know their mandate at county levels. He hoped that they will soon replace the manual detectors with electronic ones, which can be monitored from computers.

### METER PROBLEMS

The Embu Water and Sanitation also blamed poor meter installation and poor readings for unaccounted water.

Ewasco MD Hamilton Karugendo said: "There should be different meters for different water flows. If a meter is supposed to read up to a certain flow and it exceeds, it will likely give wrong numbers." Karugendo said meter suppliers need to be vetted, since some sell substandard ones that give wrong readings. "I understand there is one guy who has dominated the market and it is a big problem," he said. As the world celebrates Water Day, Jica, through Japanese Ambassador Toshitsugu Uesawa, has reasserted its commitment to work with Kenya to tame the water losses.

"Our current work focuses on the reduction of NRW across Kenya by building the capacities of water service providers," Uesawa said. Apart from NRW, Jica has been rehabilitating existing water systems through Urban Water Supply Project. Among counties they have upgraded the systems include Meru, Narok and Embu.

The Star  
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2018, Page 21