

## Water and Sanitation in the News

### New device could offer a solution to South Africa's leaking pipes

Researchers at the University of Cape Town (UCT) have developed a novel device that could help to contain the massive amount of water lost through leaking pipes in South Africa.

UCT Department of Civil Engineering researcher Professor Kobus van Zyl says the device is able to do a sophisticated pressure test on an isolated section of pipe. "Through this, we are able to see what the condition of the pipe is. We can see the leakage rate as well as determine three different types of leaks," he explained.

Data is sent to a central service through a cell phone or laptop application, making the operator "the eyes and ears of the municipality". The first field trials have been run in Cape Town in the first few months of this year and the technology is due to be patented soon.

Van Zyl, who has been studying the leaks in South Africa's water distribution systems for more than a decade, says at least one-third of the water within the system does not reach people. Much of it is lost through leaking pipes.

He told a UCT Café Scientifique function at the Irma Stern Museum, in Cape Town, that this was untenable, particularly in a country such as South Africa, which was water-scarce. "Water supplies are shrinking and the quality of water resources is deteriorating. We need to think long-term to be sustainable. We need to convince the people on the ground and our councillors in municipalities to stick to a long-term plan."

Van Zyl said a system of "water-shedding" in which water is switched off at 22:00 and then on again at 04:00, was not the answer to the water shortage problem in South Africa. "A water pipe is very different to an electricity wire," said Van Zyl. He said intermittent water supply was a magnet for stormwater and pollution and bacteria to enter the drinking water supply. "I won't drink water from a tap in a place with intermittent water supply because you cannot rely on the water being safe to drink."

Van Zyl said political interference in municipalities was having a detrimental effect on the provision of quality water. He said municipal civil engineers were often rushed into finishing work to meet housing project deadlines and allow councillors to meet their targets. Substandard plumbing fittings were used, leading to problems down the line. "We may have solved a housing problem, but we have a leakage problem, so it's not sustainable."

"Corruption filtering into the system also has downstream effects. The poor have to bear the brunt of this as they have to put up with

infrastructure that is not up to scratch. "It's like stealing from the poor," said Van Zyl.

He said a leak detection system could help to stem the vast quantities of water that are lost across cities and towns in South Africa. "Technology that identifies a leak can solve a problem. These kind of devices could ensure that maintenance is done. We're hoping to bring together different parties to create solutions to some of these problems."

Sources: *Engineering News, 07 September 2016*

In addition to supplying water infrastructure operational management systems and engineering services, **WAMTechnology** specialises in **community vulnerability and water infrastructure risk assessments – which are fundamental to targeted, cost efficient service delivery interventions**. WAMTech has conducted recent projects whereby communities across six African countries were assessed for vulnerabilities related to the supply of drinking water and public health risks related to sanitation challenges. Risk assessments are conducted in terms of a range of identified hazards including the impact on components of the infrastructure critical for water supply and public health and safety.

**High precipitation - Private property** select

LIKELIHOOD	SEVERITY OF IMPACT				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
ALMOST CERTAIN	5	10	15	20	25
LIKELY	4	8	12	16	20
MODERATE	3	6	9	12	15
UNLIKELY	2	4	6	8	10
RARE	1	2	3	4	5
NO IMPACT	0				

**- Negative Influences**

Formal houses floor level same as adjacent ground level. Roofs and walls not waterproof. Water in houses.

Attachments (3)

- No elevated floor level.
- Roof not waterproof.
- Walls not waterproof.

**+ Positive Influences**

Likelihood actually < moderate when considering an annual rainfall of only 13 mm.

Attachments (0)

Among others, hazards associated with relevant water infrastructure age, capacity and condition; as well as operations and maintenance; floods or droughts; theft and vandalism; and socio-economic factors are assessed in order to determine a rating on a cumulative events matrix – indicating the likelihood and severity of a community's vulnerability to experience negative events ranging from 'insignificant/minor' to 'major/catastrophic' in terms of potable water supply and public health and safety.

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WAMTech are specialists in implementing technology systems for improved governance, focussing on Water and Public Health Information Systems

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