

# **Advancing the right to water and the ‘right to know’ through telemetry innovation in South Africa**

Andrew Swan & Nathan Cooper



- The right to water and the 'right to know'
- The current reality of water access
- The potential of SALT (sustainable alternative low-cost telemetry) technology to help realize these rights more fully



# Why South Africa?

- Comprehensive Constitution – relevant rights
- Developing World problems
- Broader application



# The Right to Water

## Constitution of the Republic of South Africa

### Section 27(1)(b) :

(1) Everyone has the right to have access to –[...]

(b) *sufficient food and water*

(2) The state must take reasonable legislative and other measures, within its *available resources*, to achieve the *progressive realization* of each of these rights.





# Access To Information

## ‘the right to know’

**Section 32: Access to information.**-(1) Everyone has the right of access to-

- (a) any information held by the State; and
- (b) any information that is held by another person and that is required for the exercise or protection of any rights.



# The Reality



More than 10% of South African Households do not have access to piped water.

The situation is not universal: Less than three-quarters (74.8%) of households in the Eastern Cape have access to piped water.

A third of users dissatisfied with water quality.

27.3% of households in KwaZulu-Natal felt that their water was unsafe to drink.

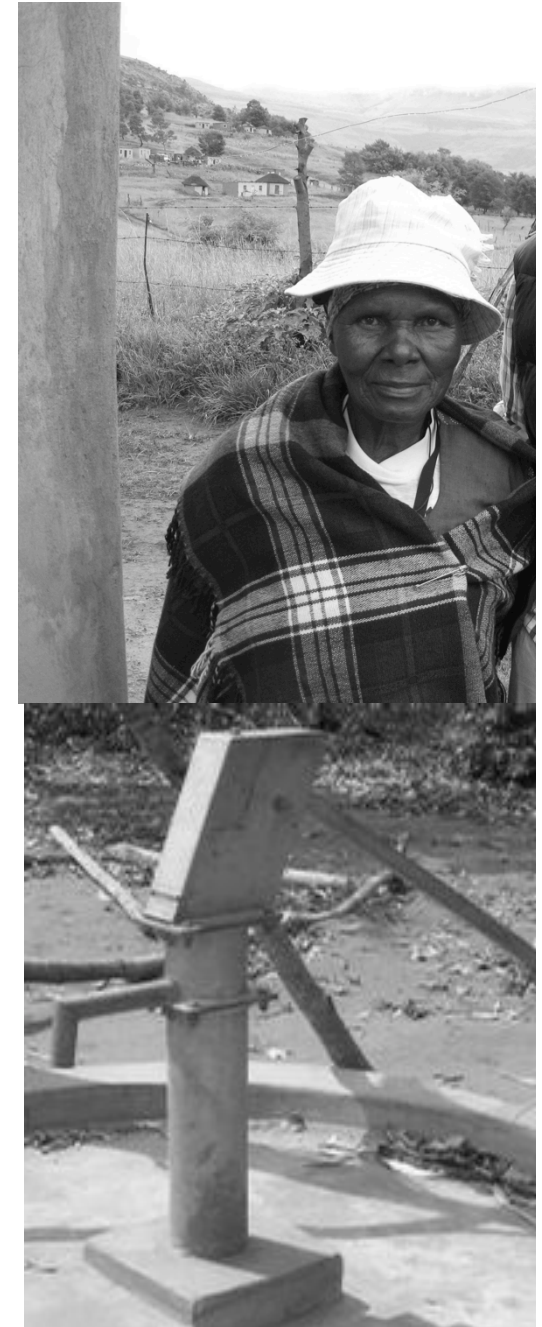
*General Household Survey, 2012*

# The Reality

*“When it rains we collect the water from the roof. It’s better than carrying it from the river [200 metres away]. The rain water can be rusty, from the roof, but we put extra Flash [bleach] in it. So it’s ok. It doesn’t taste nice when I make tea...*

*If it hasn’t rained, I get one of the children to go to the river for us. We still have to put Flash in the water, because the cows shit in it. If not, I get the runs”*

‘Gremmah’ Mbongwa, Okhombe settlement  
near Bergville Kwa-Zulu Natal.



*We get water from a standpipe, here. I used to get it to my house, but they [Durban Municipality] sawed it off”*  
*“I don’t know who supplies [the water]. I don’t care, as long as we’ve got enough... The boys came to connect it again, but it’s not worth it. So I just queue up... Sometimes no water comes through. But most of the time you get enough. But it takes a long time and I have to make two journeys if I want two buckets [20 litres each] and there are others waiting”*

‘Nombuso’ Burlington Township, Durban



# Telemetry for water pumps in Africa

## Basic Rationale

- It is considered that:
  - **Rapid growth** in cell phone network coverage and
  - the **emergence of simple low cost** telemetry devices

has created a range of new opportunities for remote monitoring in many developing regions.

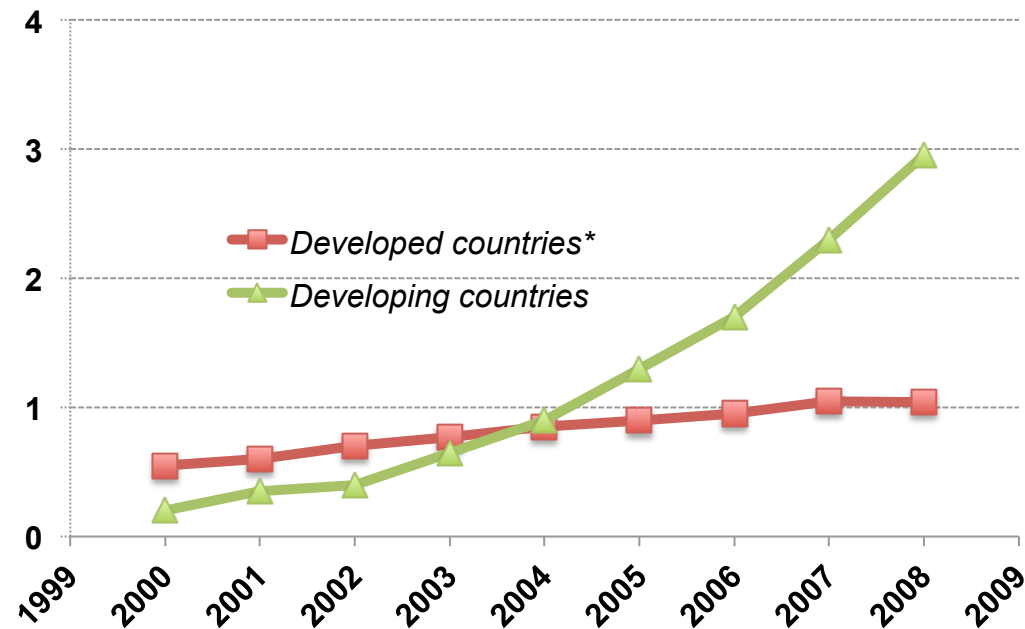


Fig. 1. Mobile phone subscriptions (billions) 2000-08 in both Developed and Developing countries (adapted from Oxfam, 2009)

# FLOW 'performance monitoring' tool

- **Water for People** introduced the **FLOW ('Field Level Operations Watch')** tool to improve their post-construction monitoring of water and sanitation projects





http://watermapmonitordev.appspot.com/

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All Projects Water For People Projects Non-Water For People Projects

water for people

BETA

flow

field level operations watch

Overview Country

Millions of dollars are wasted every year on tens of thousands of water systems around the world that break, become abandoned and prove to be unsustainable. And every day, women and children in developing countries are cruelly reminded of the short-lived hope of clean water when they pass by broken hand pumps or capped wells in their villages, forcing them to again rely on unsafe water sources.

Monitoring and evaluation is essential to fully understanding the progress of work, and implementing proactive changes that reduce development time and improve success. That is why we developed FLOW, Field Level Operations Watch.

Using Android cell phones, combined with GPS and Google Earth software, FLOW gives community members, partners, volunteers, and others the ability to record data from tens of thousands of water points around the world: location, service status, images, and other information. This data is then displayed online to signal whether a project is up and running, broken, or on the verge of disrepair and

Select Country Map Satellite

Legend

Iconography

Levels of Service

- High-Level of Service
- Medium-Level of Service
- Basic Service
- No Service

Blantyre

Map data ©2011 Google, Tracks4Africa

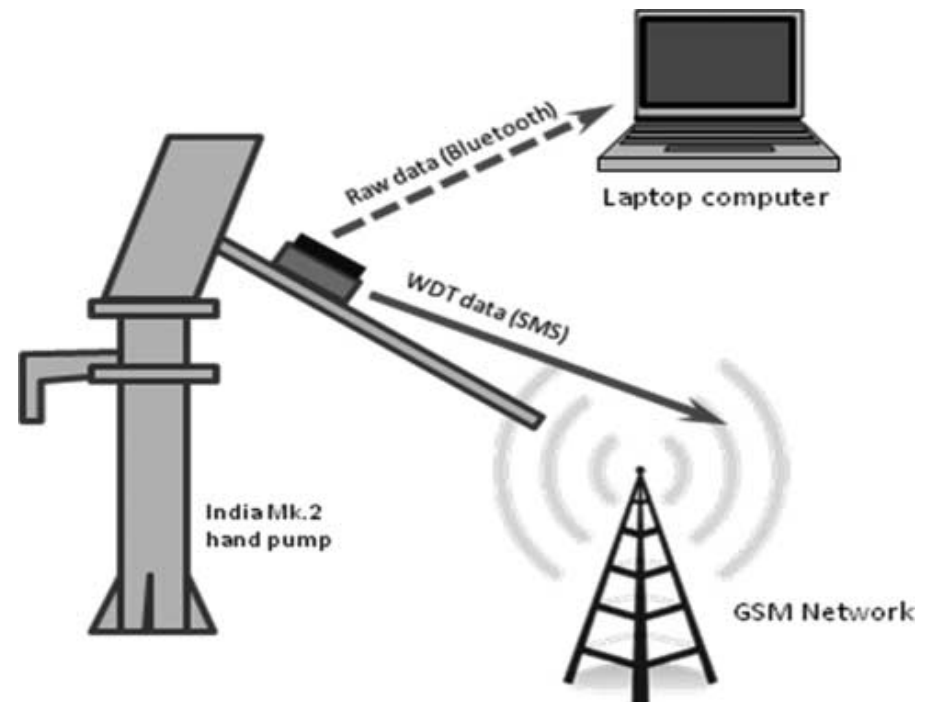
Results website: <http://watermapmonitordev.appspot.com/>

# SALT Technology

## sustainable alternative low-cost telemetry

Must be cheap, robust, simple, secure & not reliant on mains electricity

- Monitors performance of pump automatically
- Sends data on performance via SMS... *to who?*





# ***Who could access the information?***

- Local Municipality
- **Key stakeholders** (NGOs, local community, wider society, media, UN!)
- Access to this information has the potential to democratise the right to water by increasing awareness, accountability and action – **the ‘right to know’ helping to realize the right to water**



# Present position

## Lab testing

- Initial lab work is complete
- Parts are costed
- field-testing trials to evaluate prototype device have begun in Malawi



# Next steps

- Aiming to launch pilot scheme with public participation in South Africa in 2014
- Looking for collaborative research partners and funding



# Research collaborators so far

- Collaborative grant applications...  
IRSES  
(International Researcher  
Staff Exchange Scheme)



We would welcome input and collaboration from other interested parties

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