Unlocking the Potential of Groundwater for the Poor

CATALYST PROJECT
A social and natural science approach to enabling sustainable use of groundwater for the benefit of the poor

STUDY NAME	**A hidden crisis? Strengthening the evidence base on the sustainability of rural groundwater services**
RESEARCH ORGANISATIONS	British Geological Survey (BGS), WaterAid (WA), Overseas Development Institute (ODI), Makerere University (MU), Ministry of Water and Environment Uganda (MWE), TEDDO, WEDA and Richard Carter and Associates Ltd (RCA).
RESEARCH TEAM	BGS: **John Chilton** (PI), Alan MacDonald, Helen Bonsor, Paul Wilson. WA: Vincent Casey, Rebecca Alowo, Geoffrey Kidega Willy. ODI: Naomi Oates, Roger Calow. MU: Bennie Mangeni, Martin Tumutungire. MWE: Eng Aaron Kabirizi, Callist Tindimugaya. TEDDO: Francis Ediau, Andrew Alemu, Daniel Emadu, David Etama. WEDA: Moses Opua. RCA: Richard Carter, Sophie McPhillips.
RESEARCH AIM / HYPOTHESIS	*The underlying causes of the widespread failure of groundwater-based water sources to deliver sustainable services are complex and multifaceted, but with the correct expertise and methodologies, the reasons for source and service failure can be understood, diagnosed, and ultimately predicted and mitigated.*
STUDY DESCRIPTION	Extending access to improved groundwater sources for the estimated 344 million Africans currently without access to safe water is fundamental to many of the development efforts to improve health, reduce poverty and increase the resilience of households to climate change. Considerable progress has been made in increasing water coverage under the Millennium Development Goals (MDGs), with estimates indicating 322 million people have gained access to safe water over the period 1990 to 2010. However, there is growing concern that coverage statistics based on assumed levels of functionality and service may conceal real problems of service sustainability. The published evidence, albeit fragmented and methodologically unclear, suggests that perhaps 30% or more of groundwater-based water sources 'fail' within a few years of construction. Sector professionals have known about such problems for years, but the emphasis on new investment and infrastructure, rather than long term results, has diverted attention away from what actually happens to facilities once built. Despite the suggested scale of the problem, there is also very little evidence

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on why sources fail. In the absence of systematic evidence on the extent and causes of failure, donors and country governments risk repeating mistakes and achieving poor value for money. The cumulative loss of investment in large numbers of failed sources could be enormous - tens of millions of dollars - and public health and livelihood benefits are lost if people revert to unimproved water sources on a temporary or permanent basis.

The causes of failure of groundwater-dependent rural water supplies are complex, and likely to result from a number of inter-related contributory factors, ranging from changes in demand for water, reduction in rainfall, inappropriate engineering and weak governance and institutions. These factors will have significantly different importance and contribution to source failure in different physical and socio-economic settings. Unravelling the causes of supply failure requires an understanding of (1) groundwater conditions and trends, (2) water point siting, design, construction and maintenance, (3) financing, management and backstopping arrangements, and (4) demand pressures, including seasonal variations and peaks.

This research programme sets out to address the key knowledge and evidence gap surrounding rural groundwater supply failure in Africa by developing a robust methodology for diagnosing why systems fail which can be used to inform decisions around the construction of new water supply points and the upkeep and rehabilitation of existing ones. The project will apply the methodology to a pilot study in Uganda to develop the first systematic evidence base on causes of groundwater supply and source failure.

This will be the first rigorous assessment of the causes of failure, and the outputs of the research will significantly increase the capacity of donors and national governments, and NGOs, to ensure investment in water services really achieves lasting access to safe drinking water.

WHERE?

Uganda

WHERE TO FIND OUT MORE:

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