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	**IN-GROUND: Inexpensive monitoring of Groundwater pollution in Urban African Districts**
RESEARCH ORGANISATIONS	University of Newcastle (UNEW), Ardhi University (AU)
RESEARCH TEAM	UNEW: **Sharon Velasquez Orta (PI)**, David Werner, Claire Furlong AU: Shaaban Mgana, Nyamboge Chacha
RESEARCH AIM / HYPOTHESIS	*To develop an affordable prototype bio-sensor that can detect groundwater pollution and to test in Tanzania by collecting data on groundwater quality in an urban area with poor on-site sanitation systems. To interpret the groundwater quality data assembled with the biosensors and traditional methods by modelling contaminant spreading from pit latrines to groundwater, and by pin-pointing likely pollution sources in the survey area.*
STUDY DESCRIPTION	This study will allow collaboration between researchers in Tanzania and the UK to develop and test an inexpensive biosensor for the on-site, real time, monitoring of urban groundwater quality. The biosensor will be able to detect water pollution emanating from different sources such as pit latrines. The project will focus on monitoring urban areas, as latrine coverage and the related groundwater pollution affects, proportionally, more people than in rural areas. It is estimated that 70% of urban settlements in Tanzania are unplanned. The problems of urban unplanned areas include lack of centralised sewerage and the inaccessibility of emptying services for onsite technologies. This leads to increased groundwater pollution in areas where shallow wells are used. According to the World Health Organization, 70% of diseases in Tanzania are water pollution related costing close to US$ 600 million annually. As such, we estimate that proper monitoring of water pollution can trigger increased and appropriate sanitation and water treatment which could lead to Tanzania meeting their Millennium Development Goals. It is expected that the use of a bio-sensing system will also help collect data on the current state of groundwater as well as increase the awareness of the local population in groundwater contamination.
WHERE TO FIND OUT MORE:	Contact Dr Sharon Velasquez-Orta: sharon.velasquez-orta@ncl.ac.uk

WHERE?

Tanzania

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