

AfriWatSan Outputs:

- Linked regional centres of excellence in research and training related to low-cost water supply and sanitation systems sustained by research and teaching income;
- New cadre of post-doctoral scientists sustained by an international network of allied scientists;
- Network of urban groundwater observatories in Sub-Saharan Africa;
- Integrated body of scientific evidence to sustain low-cost water supply and sanitation systems;
- Online distance-learning materials on low-cost urban water supply and sanitation systems integrating disciplines of hydrogeology, microbiology, water management and public health.



Poorly maintained drain channel in Kampala, Uganda



Contaminated urban drainage, Dakar

AfriWatSan Team:

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- Dr. Robinah Kulabako, Civil & Environmental Eng.
- Dr. John Ssempebwa, School of Public Health

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- Professor Richard Taylor, Geography
- Dr. Willy Burgess, Earth Sciences
- Professor Anthony Costello, Institute for Global Health



AfriWatSan Partners:

- Ministry of Water and Irrigation, Kenya
- Kenya Water Institute
- Kisumu Water and Sewerage Company, Kenya
- Société Nationale des Eaux du Sénégal (SONES)
- Ministry of Water and Environment, Uganda



AfriWatSan



Sustaining low-cost, urban water supply and sanitation systems in Africa

AfriWatSan is developing the scientific evidence to inform policies and practices that sustain low-cost, on-site water supplies and sanitation systems in urban Africa and to strengthen the capacity of individuals and institutions to conduct this vital research.

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Background

Towns and cities in Sub-Saharan Africa are growing at a faster rate than any other region in the world. Efforts to improve access to safe water in rapidly urbanising areas commonly target groundwater on account of its resilience to climate variability and generally safe quality that avoids the high costs of treatment associated with water drawn from rivers and lakes. In addition, efforts to expand access to sanitation primarily focus on low-cost, on-site technologies such as pit latrines and septic tanks that rely upon the subsurface to contain faecal wastes.



Groundwater pumping station in Dakar, Senegal

The ability of the subsurface to supply safe water and adequately contain faecal waste has not been rigorously assessed. There remains an absence of scientific evidence, policies and practices to sustain the quality and quantity of groundwater used for urban water supplies in urban Africa, and to reconcile this with the continued use of the subsurface for low-cost sanitation.



Domestic septic tank in Dakar, Senegal

Capacity-strengthening research

AfriWatSan is a 5-year capacity-strengthening (2015-2020) and cross-disciplinary research collaboration tackling the fundamental challenge of sustaining and expanding access to low-cost water supply and sanitation systems that conjunctively use the subsurface as both a safe source of water and a repository of faecal wastes. It is one of the first multi-scale (town – city – mega-city) analyses of urban groundwater and sanitation and their links to human health in Sub-Saharan Africa.



Protected spring in Kampala, Uganda

AfriWatSan addresses identified skills gaps and explicitly links research outcomes to policy outcomes through the engagement of stakeholders that include government ministries, basin management organisations and private-sector water suppliers.

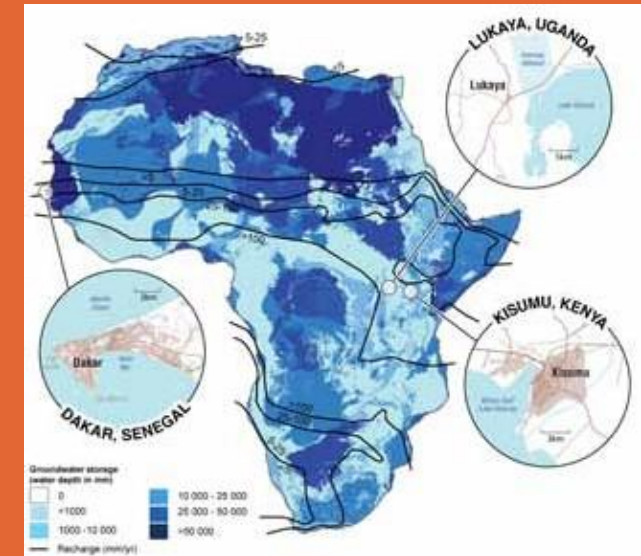


Cross-disciplinary research team in Kisumu, Kenya

Network of Urban Laboratories

AfriWatSan establishes a Network of Urban Groundwater Observatories comprising a town (Lukaya, Uganda), a city (Kisumu, Kenya), and a mega-city (Dakar, Sénégal), each underlain by a shallow aquifer. Our common scientific objectives are:

- to map and characterise urban aquifers, water-supply well catchments, and on-site sanitation systems;
- to assess the vulnerability of urban aquifers and water-supply wells to microbiological and chemical faecal pollution;
- to quantitatively assess the impact of different low-cost, on-site sanitation strategies on urban groundwater; and
- to develop with stakeholders implementable, evidence-based strategies for sustaining low-cost water supply and sanitation systems in African cities.



Urban Groundwater Laboratory locations in Africa



Elevated pit latrine in Kampala, Uganda