



***AfriWatSan*: sustaining low-cost, urban water supply and sanitation systems in Africa**
www.afriwatsan.org



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LUX - MEA - LEX

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Africa Capacity Building Initiative
supported by



THE ROYAL SOCIETY



Kibera, Nairobi (Kenya)



Kampala



Dakar



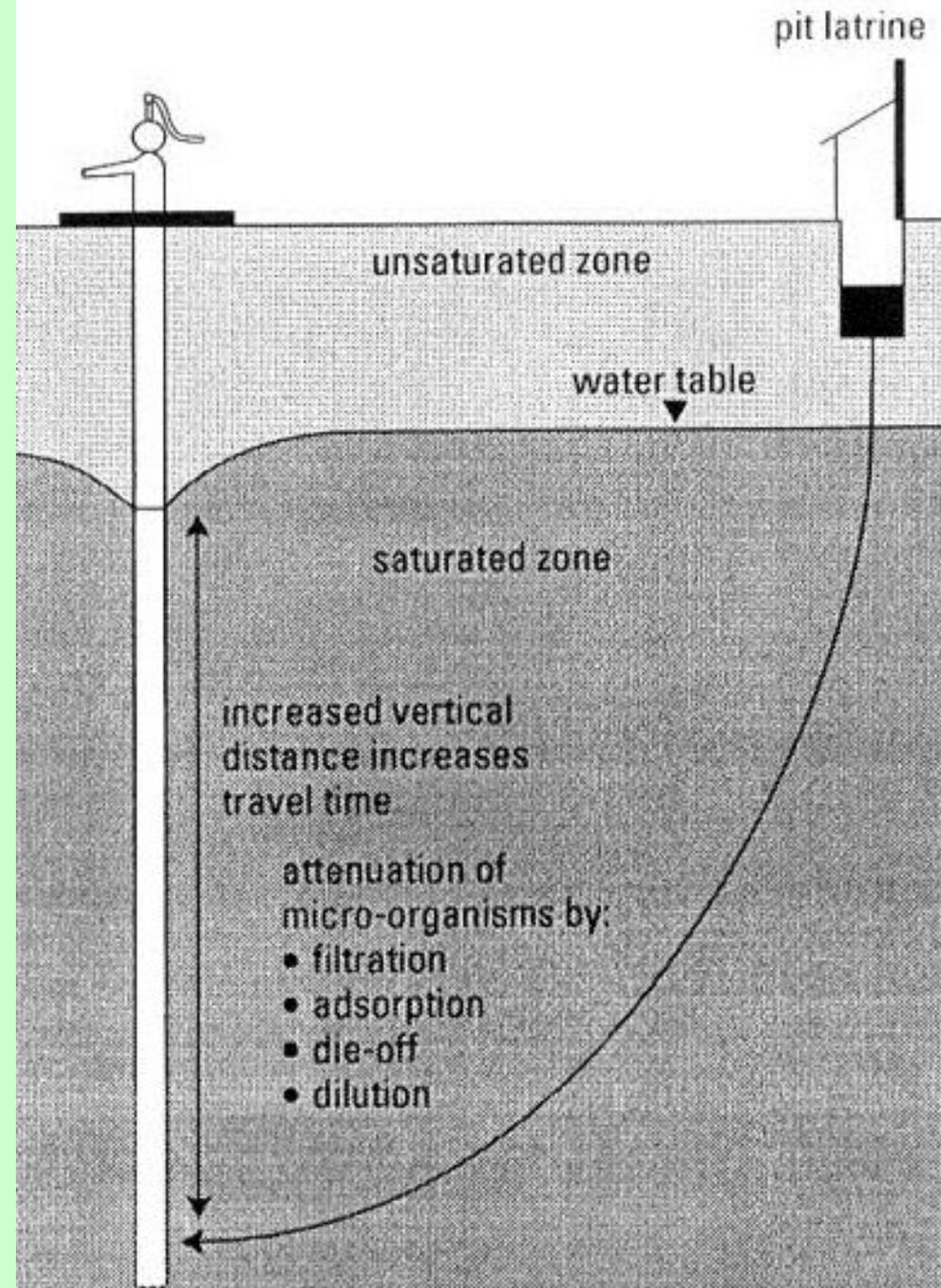
Thiaroye (Dakar), Sénégal



Lukaya, Uganda

research challenge:

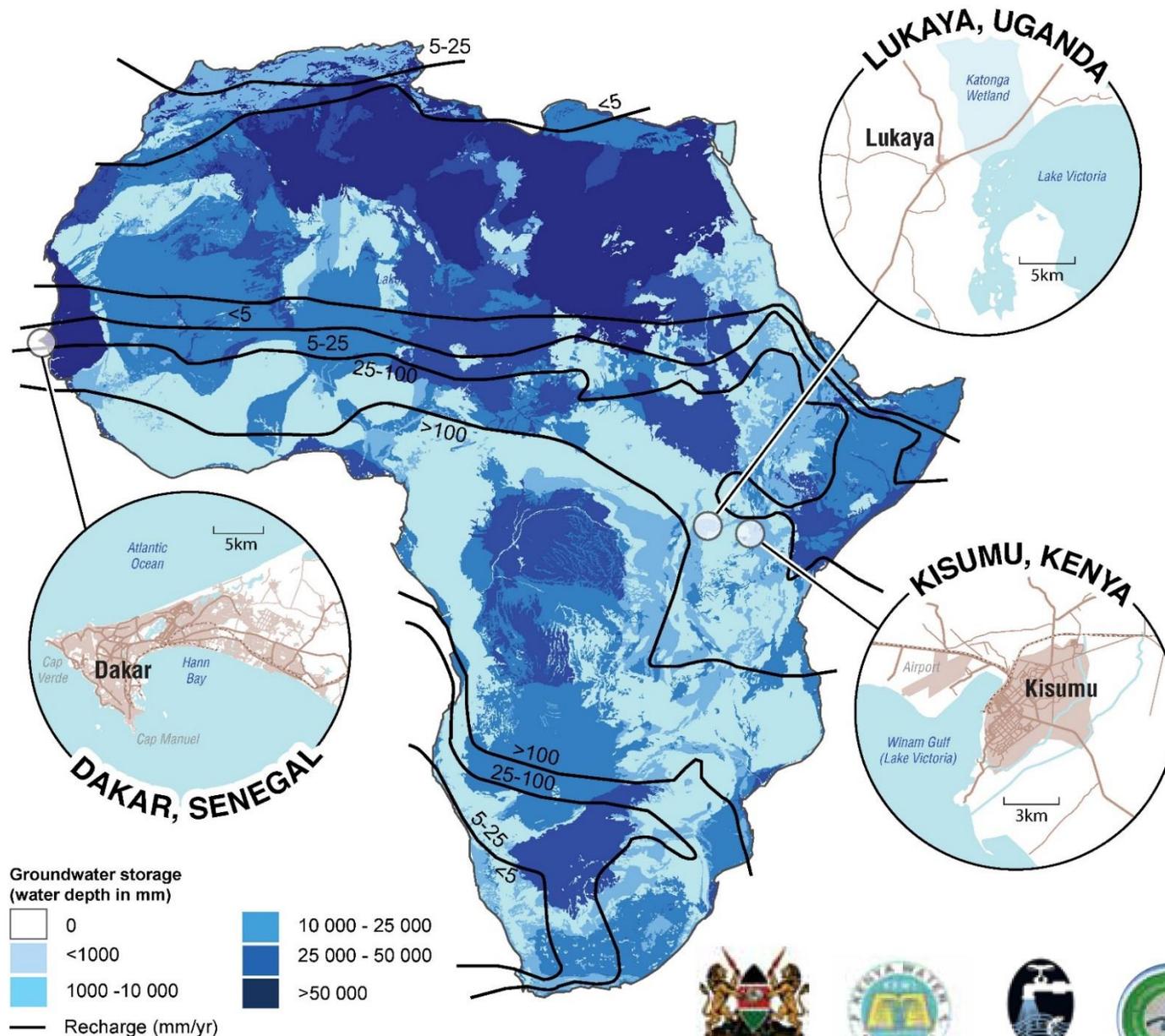
- sustaining low-cost strategies that conjunctively use the subsurface for on-site sanitation and safe water supplies, seeking to improve human health and well-being



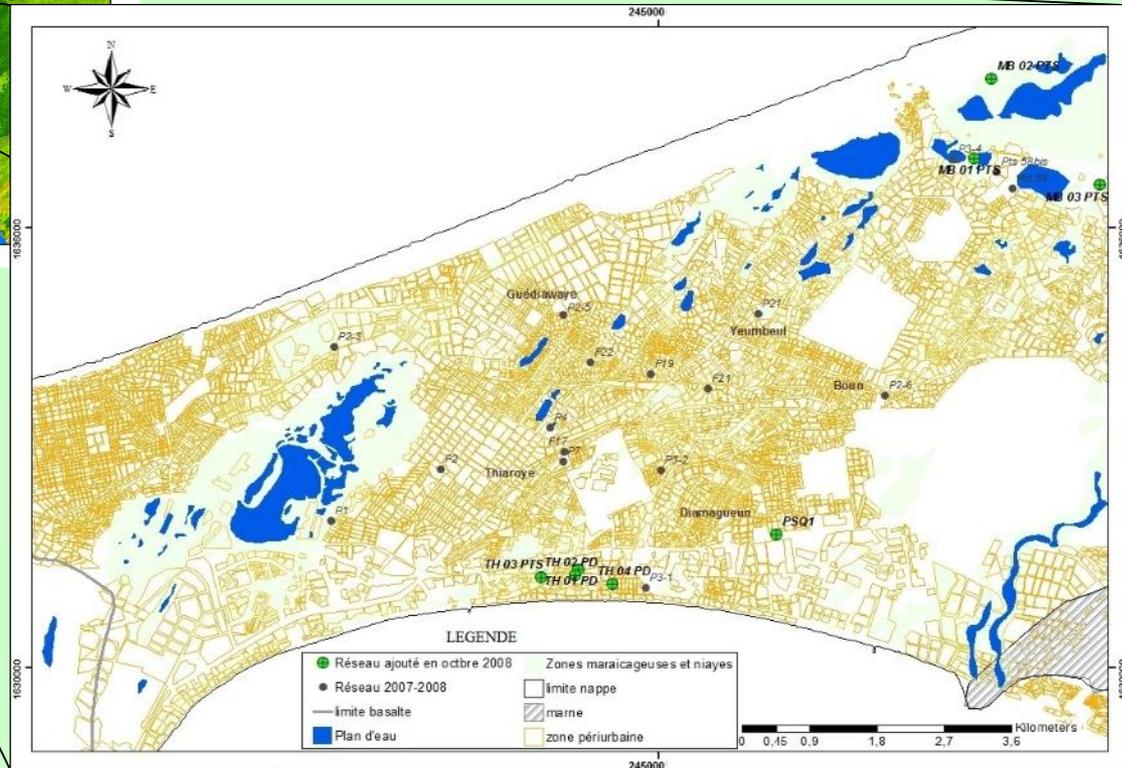
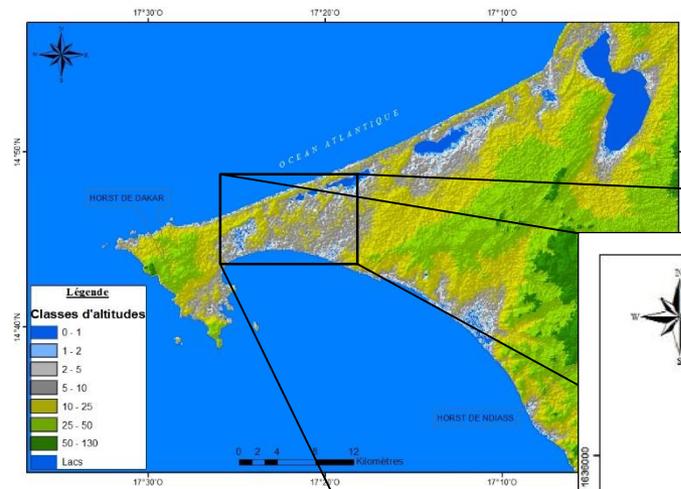
***AfriWatSan* objectives:**

- 1. assess the vulnerability of urban aquifers and water-supply wells to microbiological and chemical faecal pollution;**
- 2. assess the impact of on-site sanitation strategies on urban groundwater and human health;**
- 3. assess the impacts of on-site water supply and sanitation strategies on human health; and**
- 4. develop implementable, evidence-based strategies with stakeholder sustaining low-cost water supply and sanitation systems in African cities.**

Figure 1: Network of urban groundwater observatories in Africa

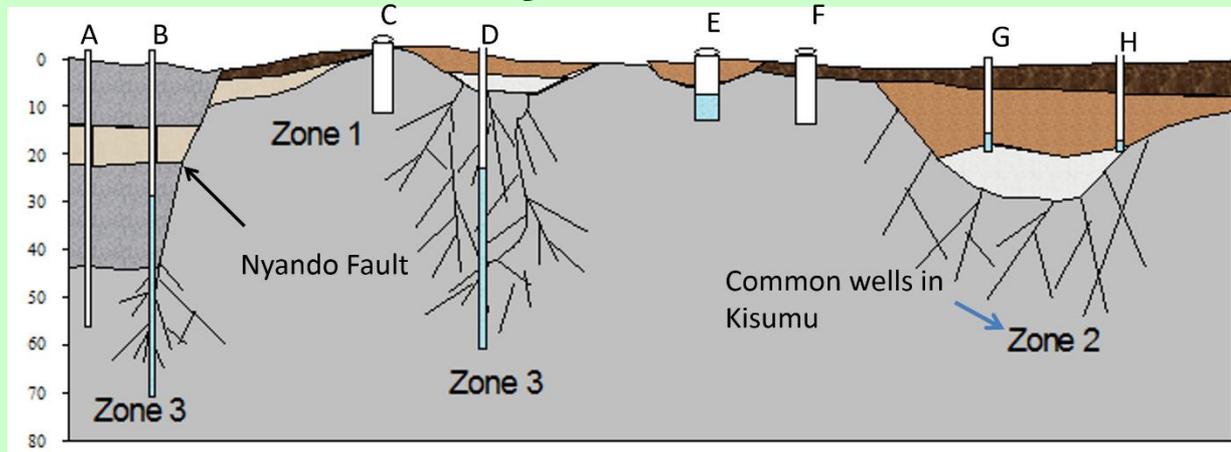


Thiaroye aquifer, Dakar



- leakage from septic tanks is a source of urban recharge with nitrate concentrations $> 500 \text{ mg}\cdot\text{L}^{-1}$
- ~47% of urban water supply derives from imported and local groundwater

Kisumu, Kenya



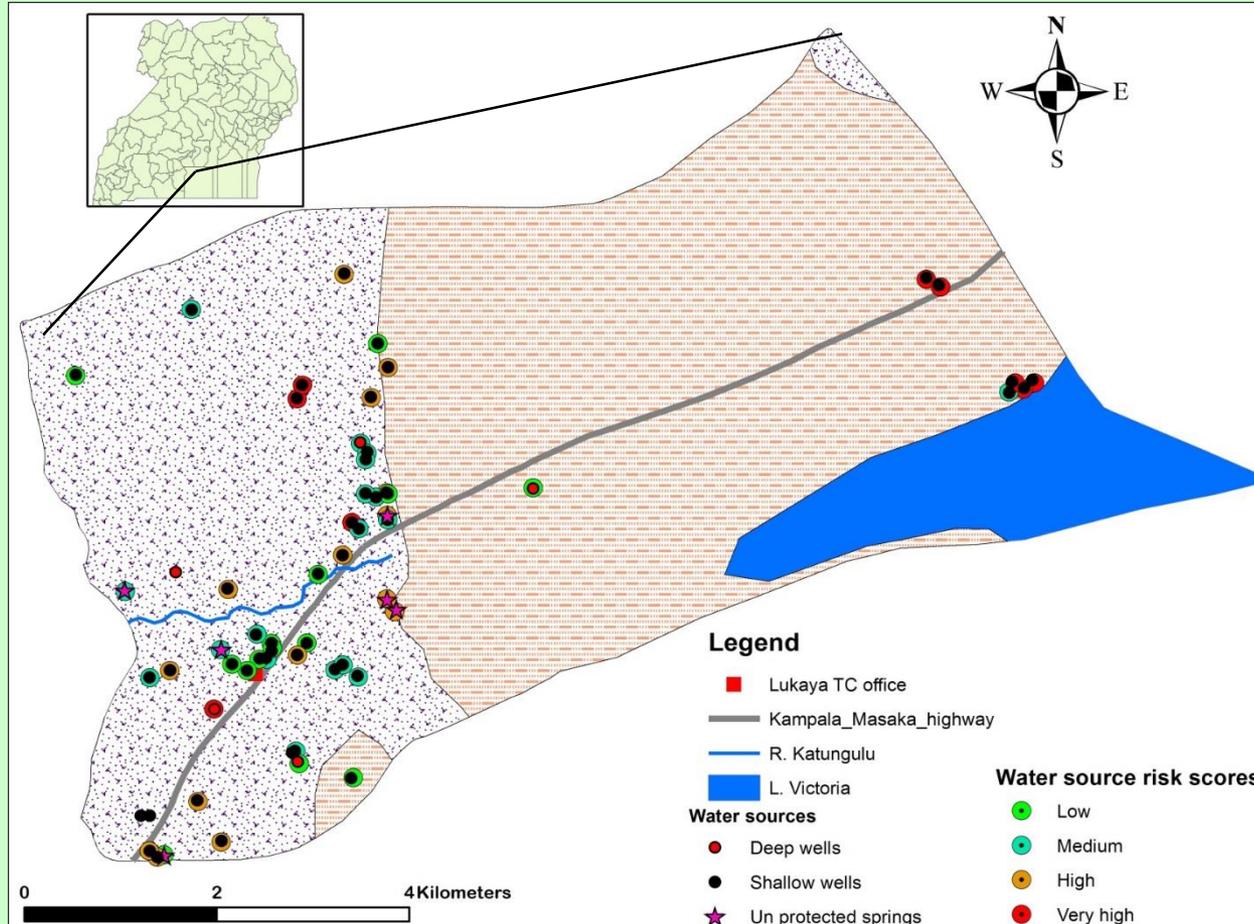
A	Dry Borehole
B	Productive BH in fault Zone
C and F	Dry Wells
D	Productive BH in fracture
E	Seasonal Well
G and H	Productive BH in weathered zone

LEGEND

	Clay
	Hardpan Laterite
	Residual Soil
	Moderately weathered rock
	Silt
	Fresh rock

- substantial dependence upon on-site sanitation due to limited sewerage network
- strong geological controls on aquifer occurrence constrain self-supply wells in lower-income areas

Lukaya, Uganda



- groundwater-fed, piped water supply for a fee
- continued reliance on free use of shallow wells vulnerable to contamination by nearby pit latrines

- water supply and sanitation conditions in each conurbation support ***AfriWatSan*** premise
- capacity strengthening of individuals and institutions central to this cross-disciplinary research





- **AfriWatSan** is a partnership of allied researchers and practitioners

***AfriWatSan* highlights (to date):**

- 1. in each urban observatory, inception workshops have engaged key stakeholders and been followed by active field research programmes**
- 2. capacity-strengthening in *microbiological analyses, analysis of groundwater-level data, use of water-level dataloggers, WHO sanitary-risk surveys*, and communication of research findings through peer review across the consortium**
- 3. research presentations at international conferences (e.g. 43rd IAH Congress in Montpellier, France) and key international meetings: G-WADI, *African Water Week 2016***
- 4. completion of a critical review of the scientific literature on health outcomes from urban water supply and sanitation interventions**
- 5. research exchange visits within consortium have started with more planned including technicians workshop at UCL**

***AfriWatSan* ways forward:**

- 1. construct and instrument a network of linked urban observatories monitoring a consistent set of parameters and evaluating WASH strategies;**
- 2. continue implementation of a responsive programme of capacity-strengthening for students, researchers and technicians, supported by new infrastructure;**
- 3. strengthen evaluation the health impacts of low-cost (on-site) strategies for water supply and sanitation provision;**
- 4. facilitate knowledge and experience sharing and link urban WASH observatories across Africa.**

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

AfriWatSan is developing the scientific evidence to inform policies and practices sustaining 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.

AFRIWATSAN PROJECT

