Université Cheikh Anta Diop de Dakar
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Makerere University   University of Nairobi

UCL

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

Africa Capacity Building Initiative
supported by

UKaid
from the British people

THE ROYAL SOCIETY

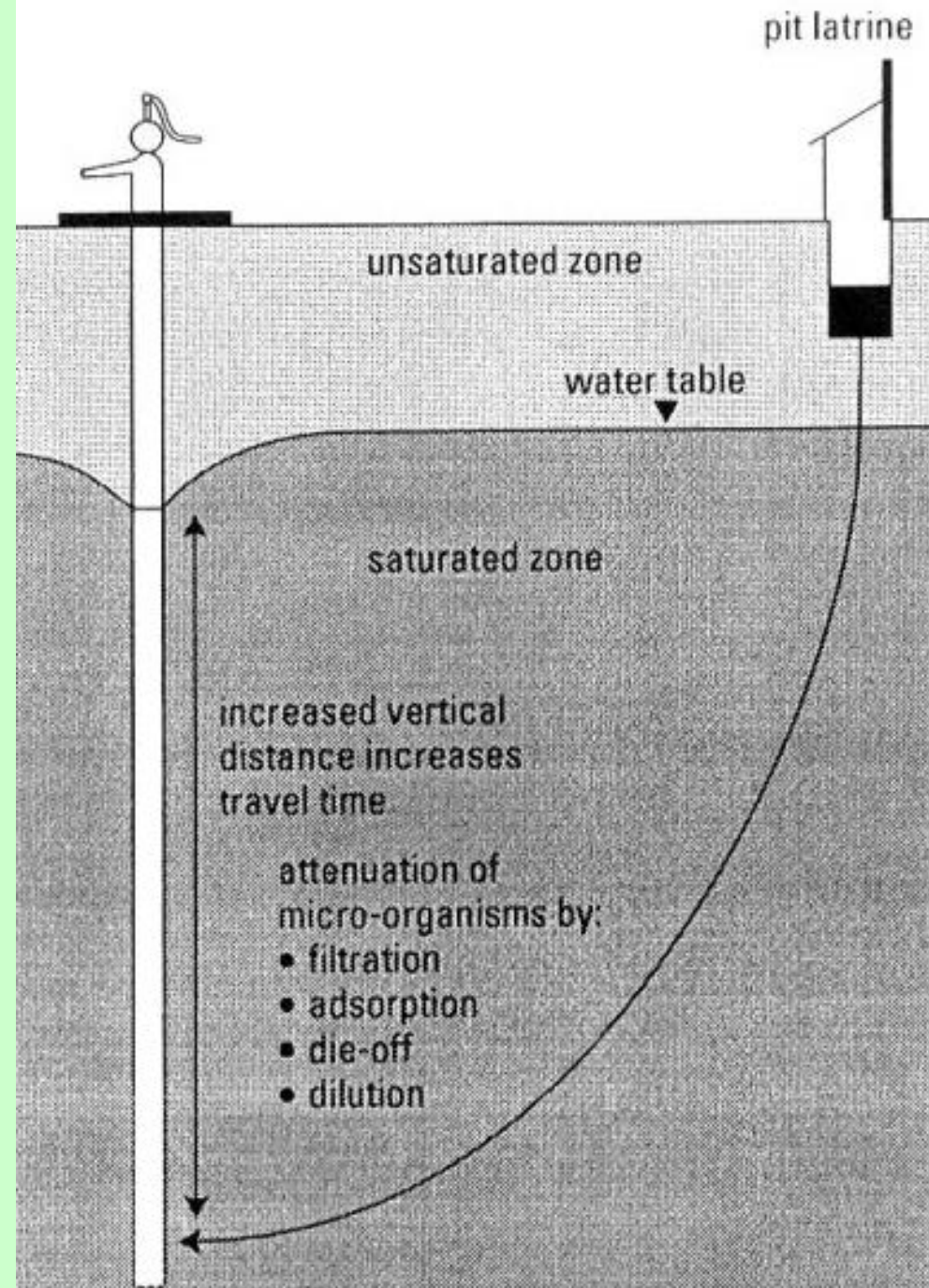*Kibera, Nairobi (Kenya)*

Kampala   *Dakar*

Thiaroye (Dakar), Sénégal

Bwaise (Kampala), Uganda
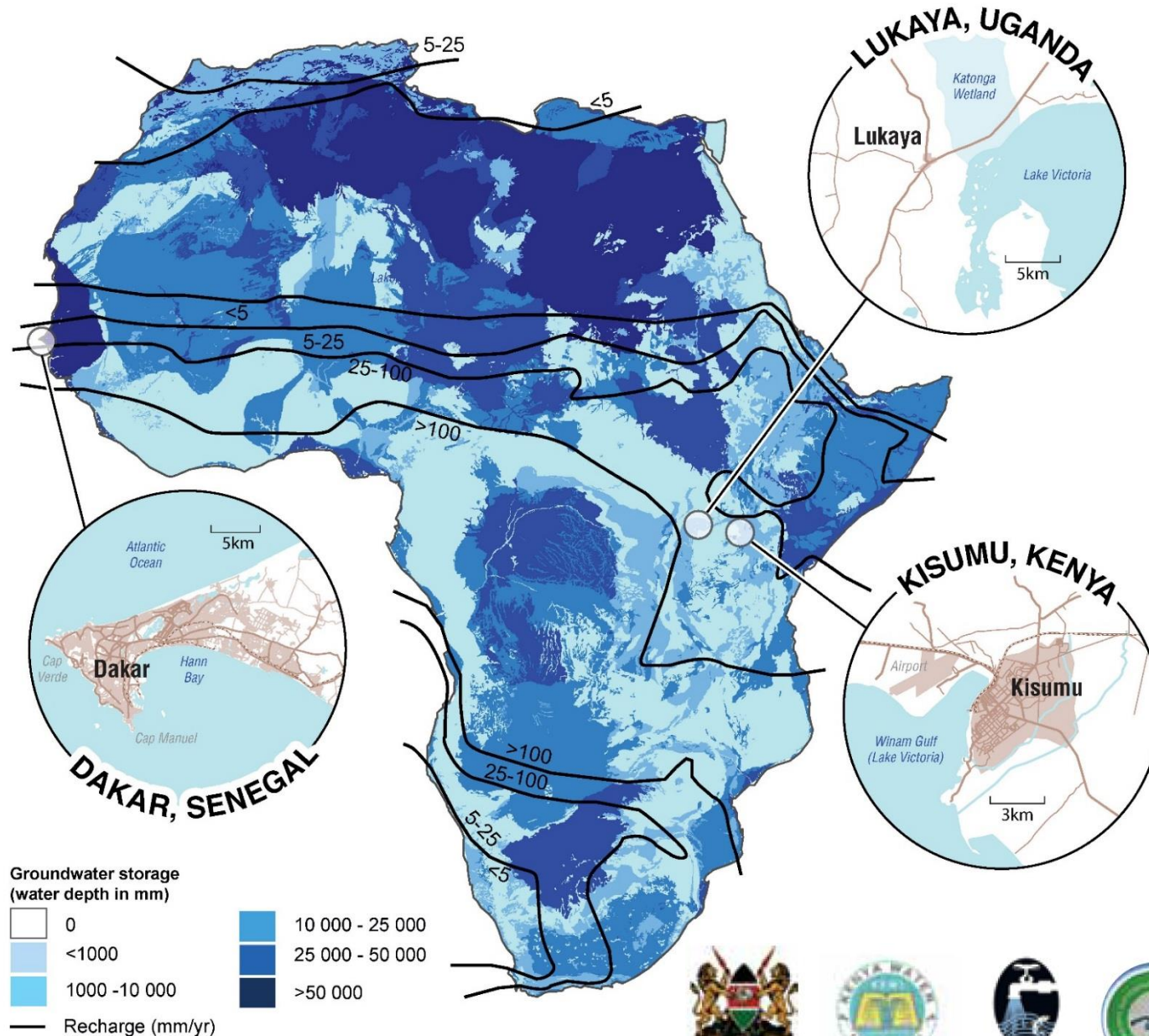
research challenge:

- hydrogeological conditions and characteristics of the human environment under which conjunctive use can be sustained remain poorly resolved
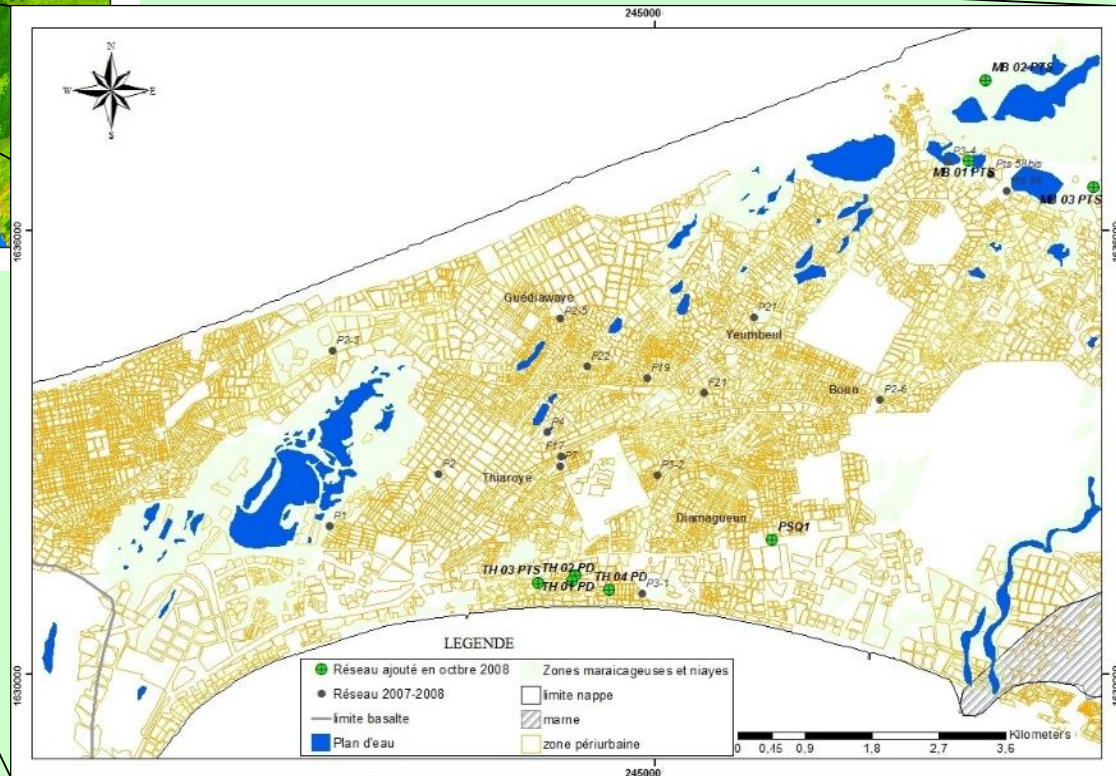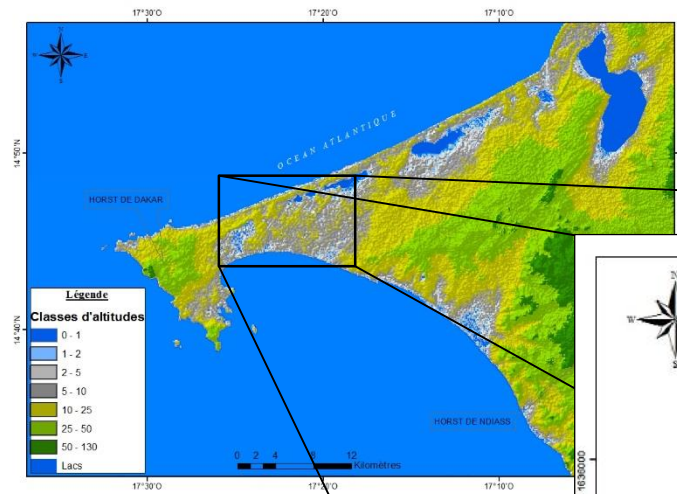
AfriWatSan objectives:

1. to map and characterise urban aquifers, water-supply well catchments, and on-site sanitation systems;

2. to assess the vulnerability of urban aquifers and water-supply wells to microbiological and chemical faecal pollution;

3. to quantitatively assess the impact of different low-cost, water supply and on-site sanitation strategies on urban groundwater and human health;

4. to develop with stakeholders implementable, evidence based strategies for sustaining low-cost water supply and sanitation systems in African cities.

# Figure 1: Network of urban groundwater observatories in Africa

LUKAYA, UGANDA

Katonga Wetland

Lukaya

Lake Victoria

5km

5-25

<5

<5

5-25

25-100

>100

KISUMU, KENYA

Airport

Kisumu

Winam Gulf
(Lake Victoria)

3km

Atlantic Ocean

5km

Cap Verde

Dakar

Hann Bay

Cap Manuel

DAKAR, SENEGAL

>100

25-100

5-25

<5

Groundwater storage
(water depth in mm)

0	10 000 - 25 000
<1000	25 000 - 50 000
1000 -10 000	>50 000

—— Recharge (mm/yr)

Ministry of Water
and Irrigation
Kenya

KIWASCO
Refresh Life

MINISTRY OF WATER
AND ENVIRONMENT

Thiaroye aquifer, Dakar

- leakage from septic tanks is a source of urban recharge with nitrate concentrations > 500 mg·L^{-1}

- ~47% of urban water supply derives from local and imported groundwater

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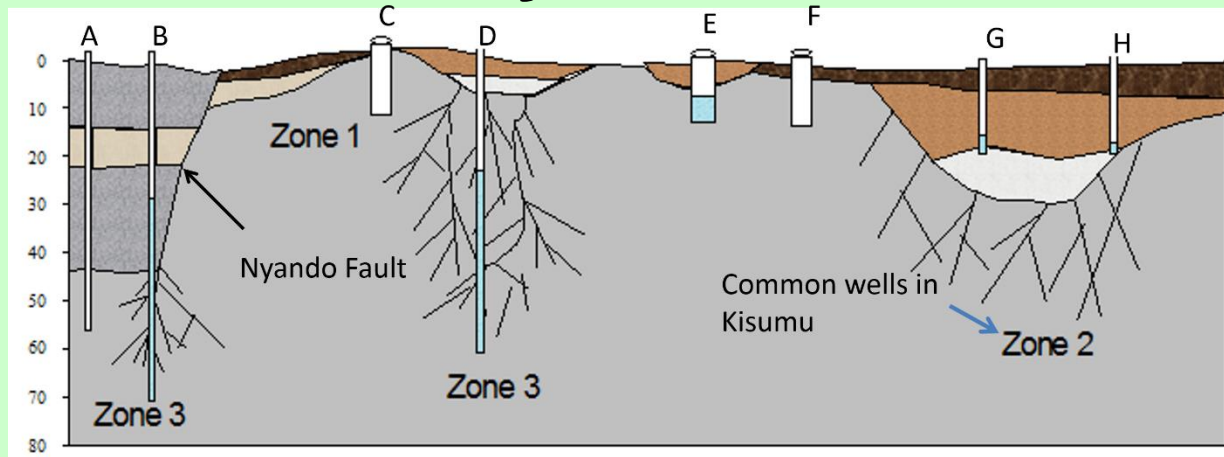
A	Dry Borehole
B	Productive BH in fault Zone
C and F	Dry Wells
D	Productive BH in fracture
E	Seasonal Well
G and H	Productive BH in weathered zone

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
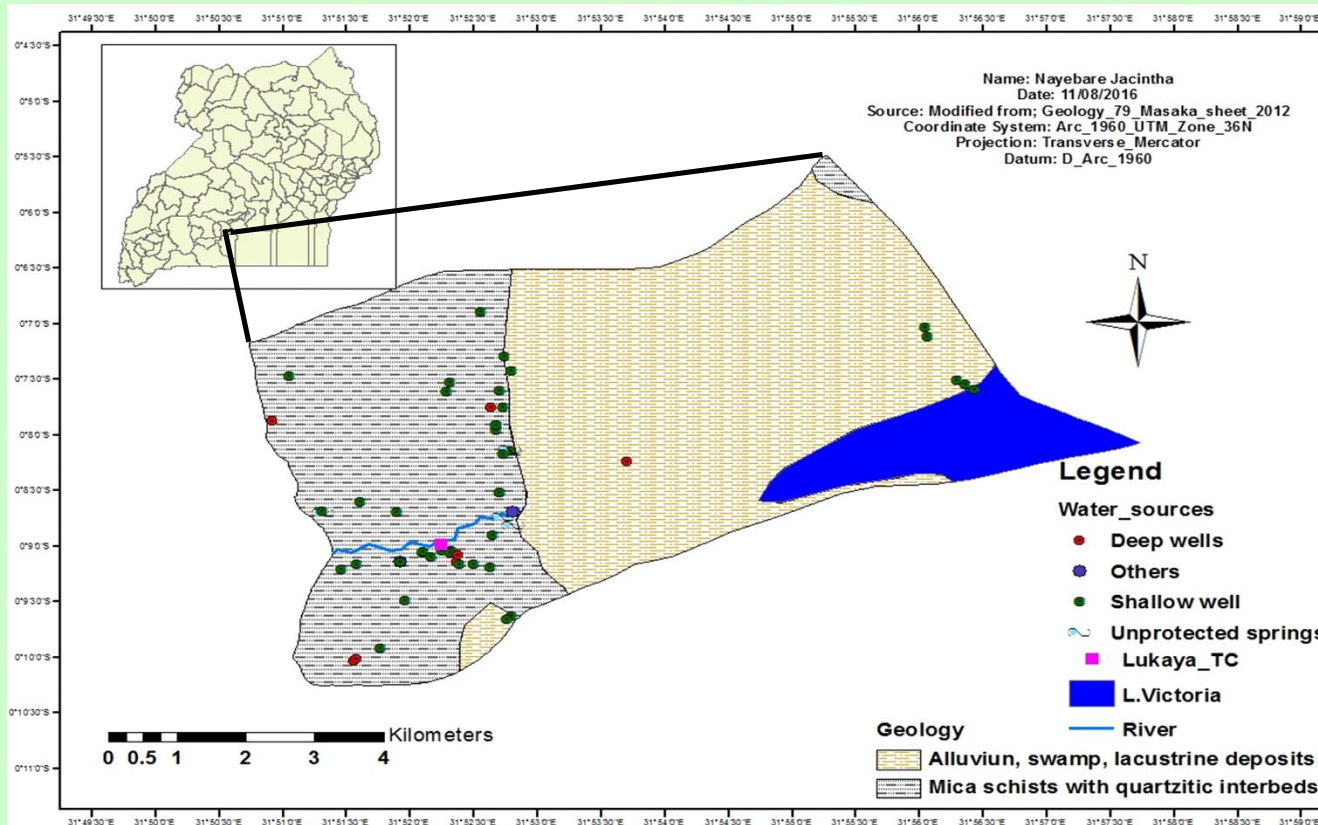
- groundwater-fed, piped water supply for a fee

- continued reliance on free use of shallow wells vulnerable to contamination by co-located 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 ways forward:

1. construct and instrument urban observatories to record a consistent set of parameters;

2. implement programme of capacity strengthening of researchers, technicians, and related infrastructure;

3. facilitate knowledge and experience sharing with allied research activities both past (UNEP) and present (UPGro T-GroUP) – linking urban groundwater observatories in Africa

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

The Project

The Team

Study Areas

📢 LATEST NEWS

📄 LATEST RESOURCES