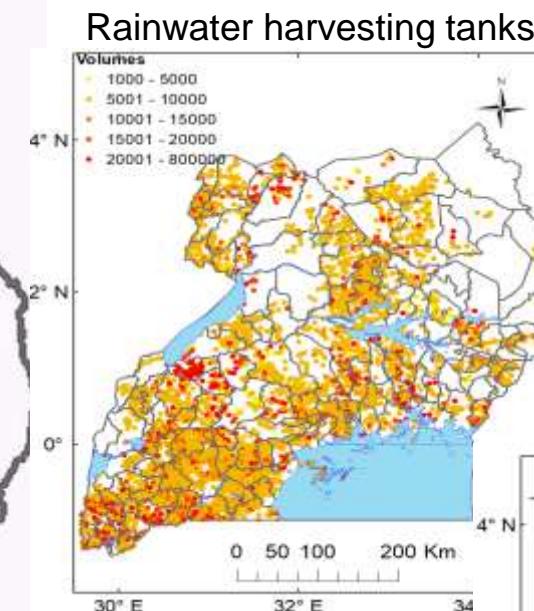
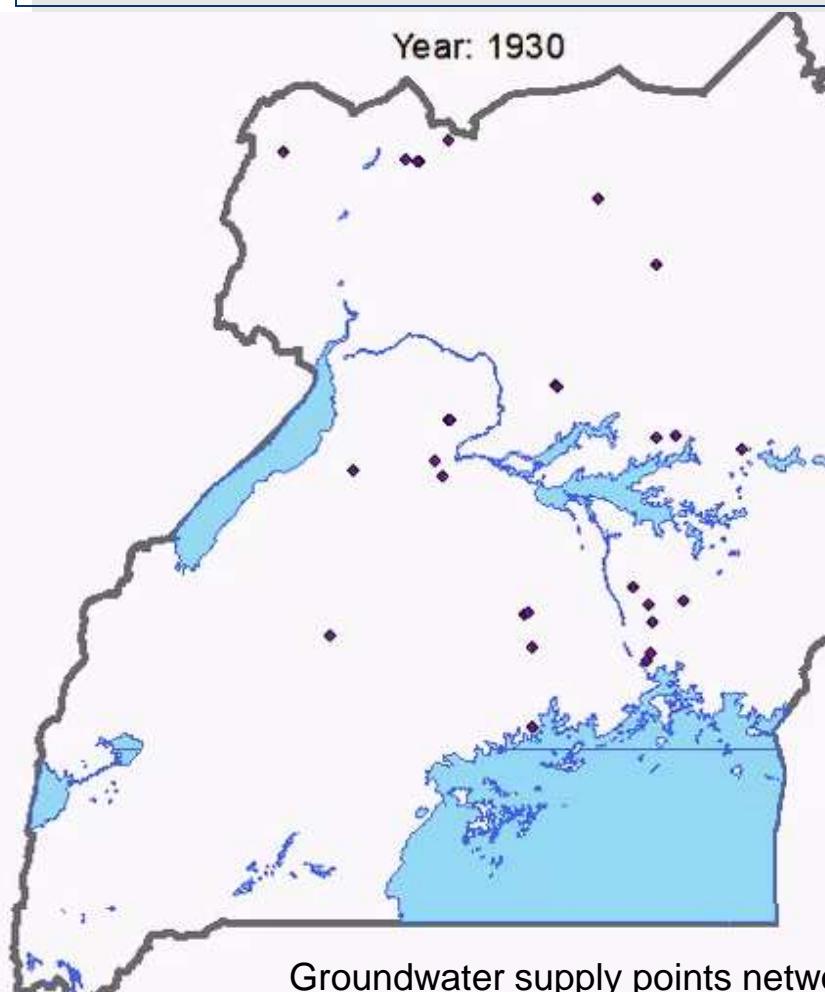


# A Multi-sensor hydrologic modeling framework to assess the impacts of small-scale water storage practices to water resources over Uganda

Jamiat Nanteza/ Makerere University, Uganda



There are over 70,000 groundwater supply points, 20,000 rainwater harvesting tanks and 300 dams

# A Multi-sensor hydrologic modeling framework to assess the impacts of small-scale water storage practices to water resources over Uganda

Jamiat Nanteza/ Makerere University, Uganda

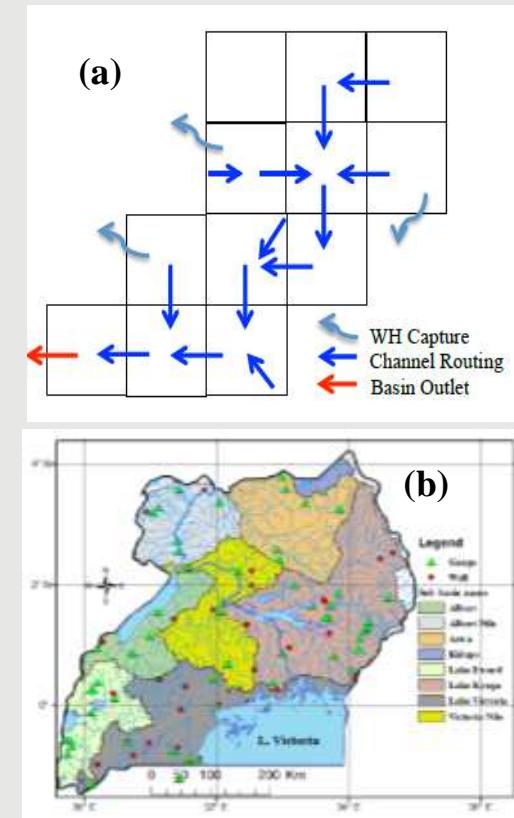
## Research Approach:

The study takes on two major steps

1. Utilize remote sensing data, ground-based observations to:
  - 1) quantify and characterize water harvesting across the country; and 2) to characterize recharge, stream flow and groundwater behavior
2. Utilize a land surface model to 1) quantify runoff, streamflow, recharge and groundwater storage alterations that result from water harvesting operations; and 2) to characterize locations suitable for water harvesting

## Datasets being collected/estimated

- Hydroclimatic data – Precipitation, streamflow, groundwater levels and groundwater recharge
- Quantities harvested – water supply points, groundwater abstracted, rainwater and runoff harvested



A schematic of the grid-based water harvesting process (a) and Hydrologic sub-basins, Uganda (b)

# A Multi-sensor hydrologic modeling framework to assess the impacts of small-scale water storage practices to water resources over Uganda

Jamiat Nanteza/ Makerere University, Uganda

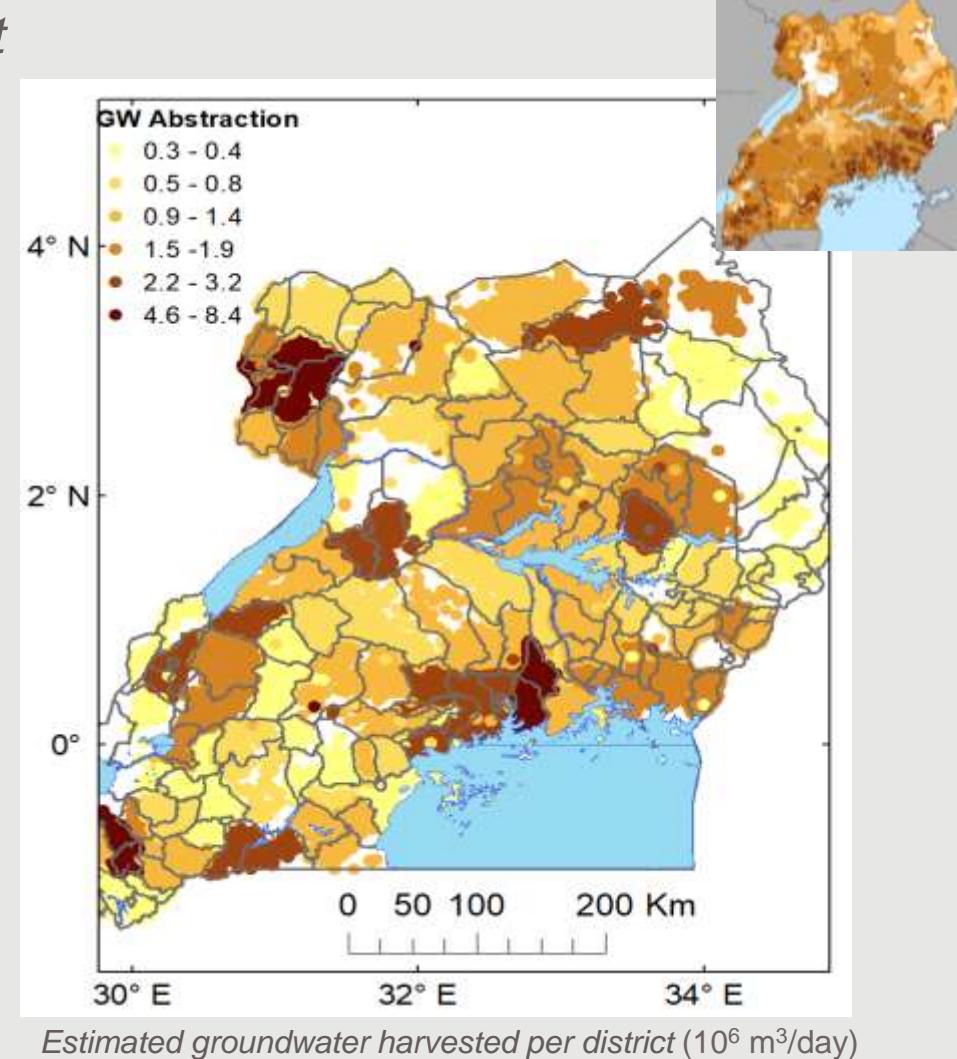
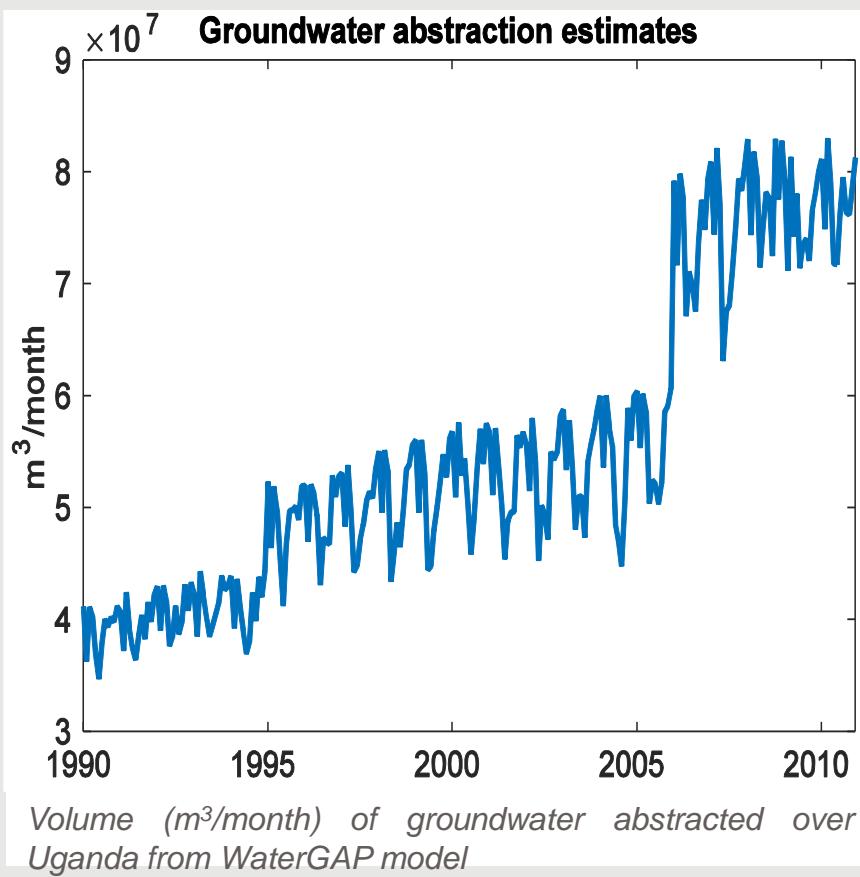
Key results of your research/project so far:

- Water harvesting from the groundwater source is greater in highly populated areas
- Water harvested across Uganda has increased through time
- Groundwater harvesting affects streamflow and groundwater levels

# A Multi-sensor hydrologic modeling framework to assess the impacts of small-scale water storage practices to water resources over Uganda

Jamiat Nanteza/ Makerere University, Uganda

*Major results of your research/project*



# A Multi-sensor hydrologic modeling framework to assess the impacts of small-scale water storage practices to water resources over Uganda

Jamiat Nanteza/ Makerere University, Uganda

## Top next steps for your project:

- Estimate water harvesting amounts from tanks, protected springs, Dams in space and time across the country
- Run the model with water harvesting amounts that vary in space and time, calibration and validation

## How data and results from your project will impact stakeholder decisions and the development problem:

- Results will guide on new developments aimed at increasing water access across Uganda

## Challenges you have faced in collecting meaningful data:

- No readily available data on water use and irrigation amounts
- Estimating amounts of water harvested from rain tanks and dams is challenging
- Lack of geo-coordinates for some of the data points availed to us