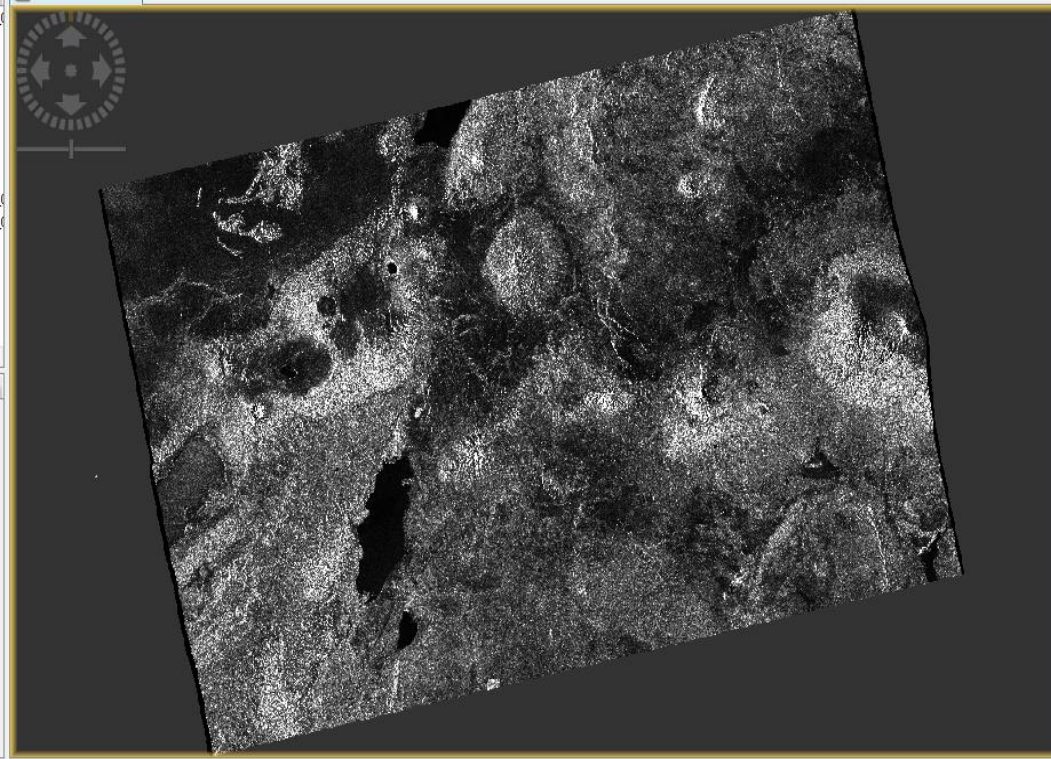
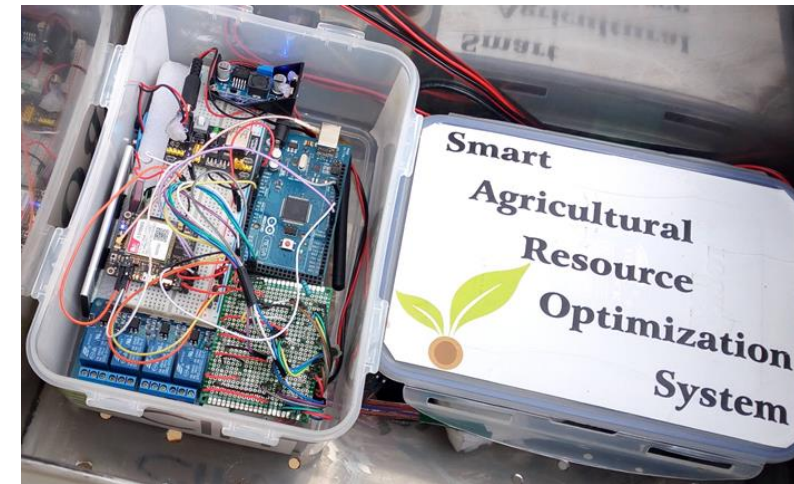


Watershed scale soil moisture monitoring



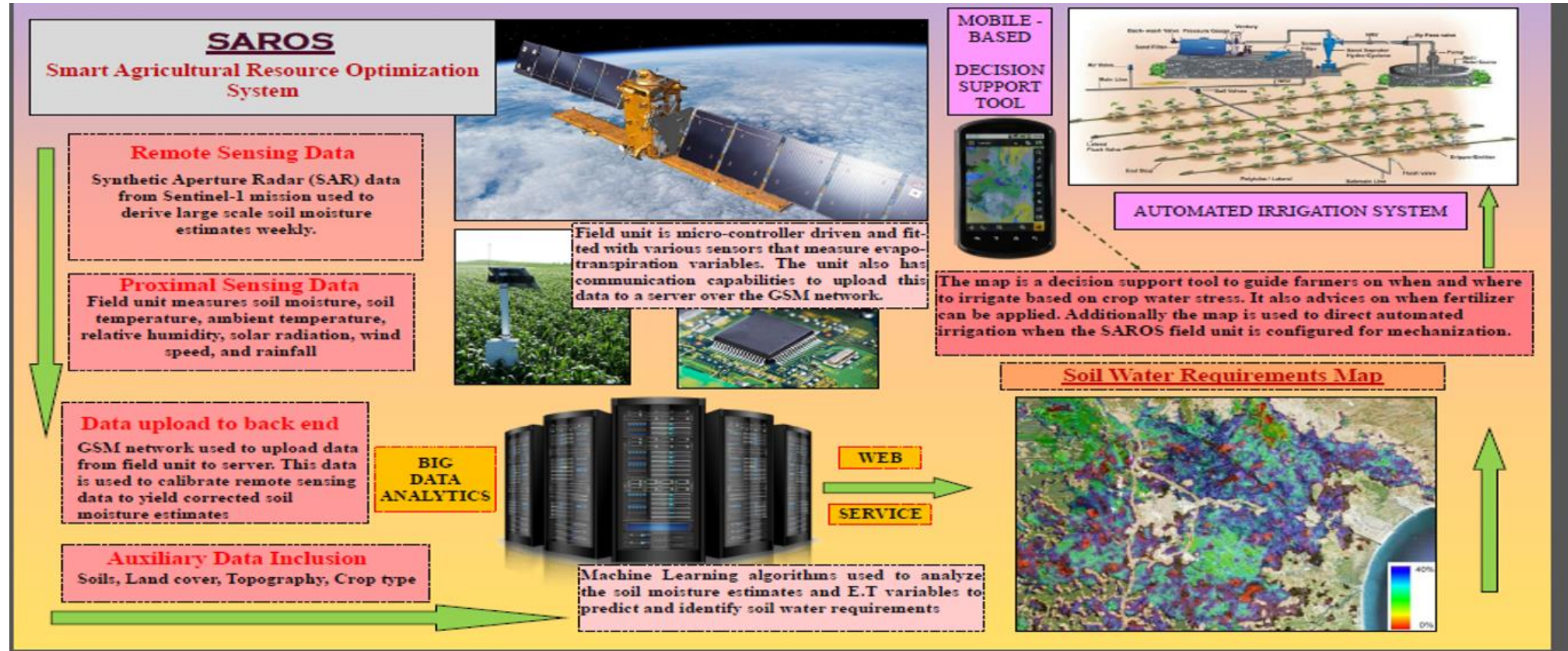
SENTINEL – 1 Synthetic
Aperture Radar (SAR) Data



In-situ proximal
sensing units
{time series data}

Calibration and Validation
of RS estimates

SAROS Workflow



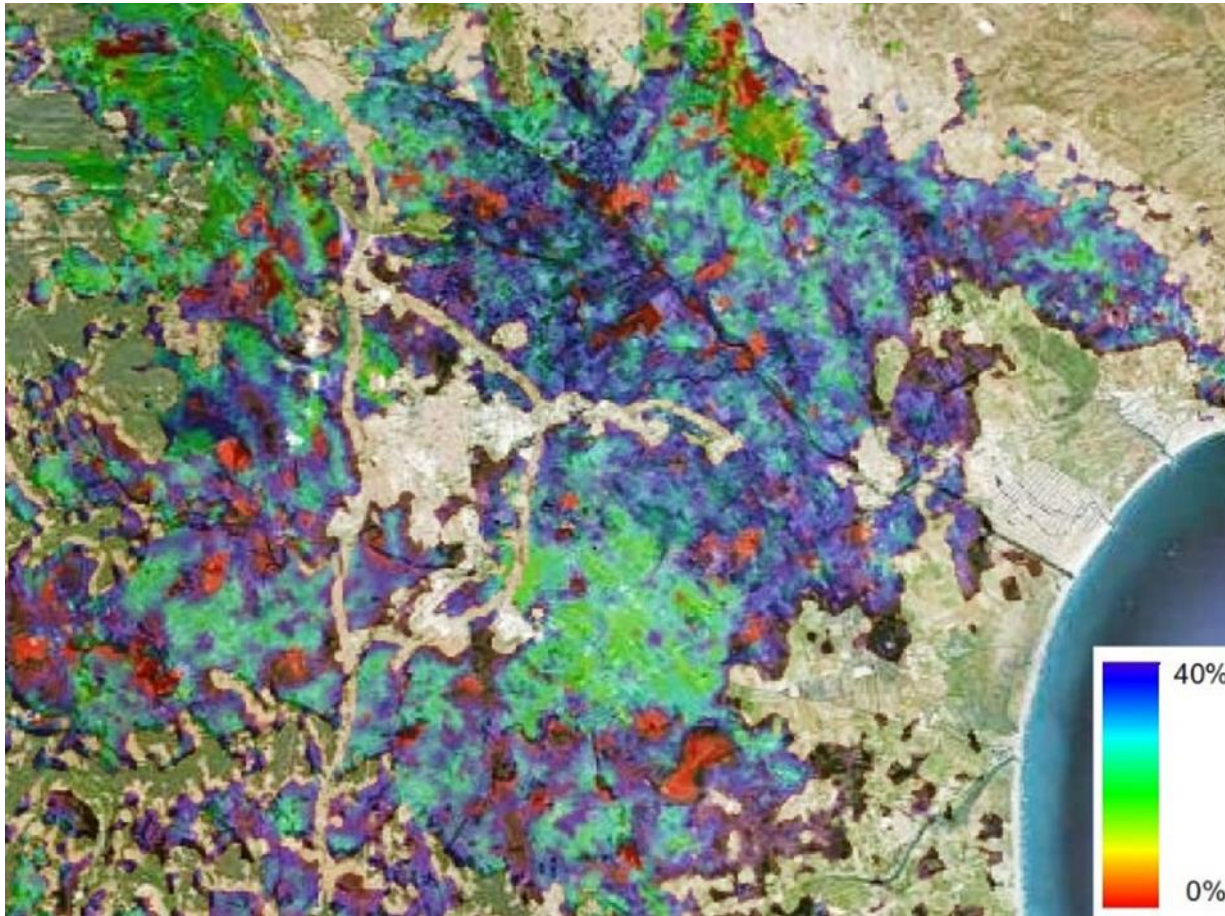
Methodology

- Spatio–temporal regression block kriging (STRBK)
- Improved prediction, bias detection

Wang, J., Ge, Y., Heuvelink, G., & Zhou, C. (2015). Upscaling in situ soil moisture observations to pixel averages with spatio-temporal geostatistics. Remote Sensing, 7(9), 11372-11388.

❖ Calibration, Auxiliary Variables, Machine Learning

Decision support at multiple scales



Soil moisture estimates across a basin

The SAROS decision support is hierarchical.

It can help the smallholder farmer and also senior policy makers.

It is also useful for private sector stakeholders.

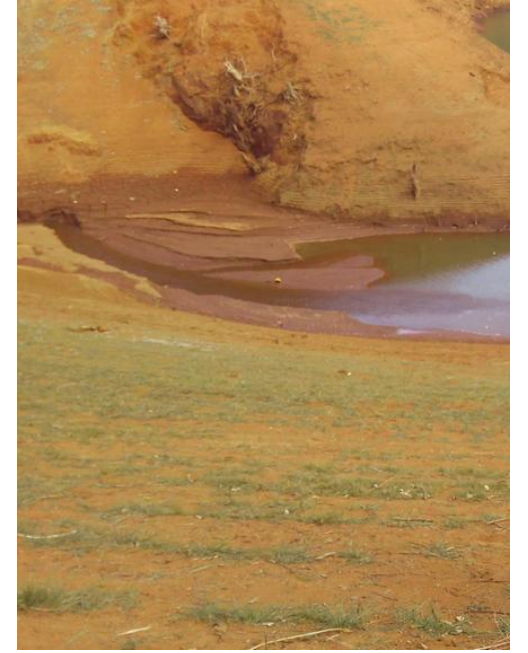
Target outcomes



Increased Input
Efficiency



Higher Land
Productivity



Reduced
Environmental
Impact

Sustainability



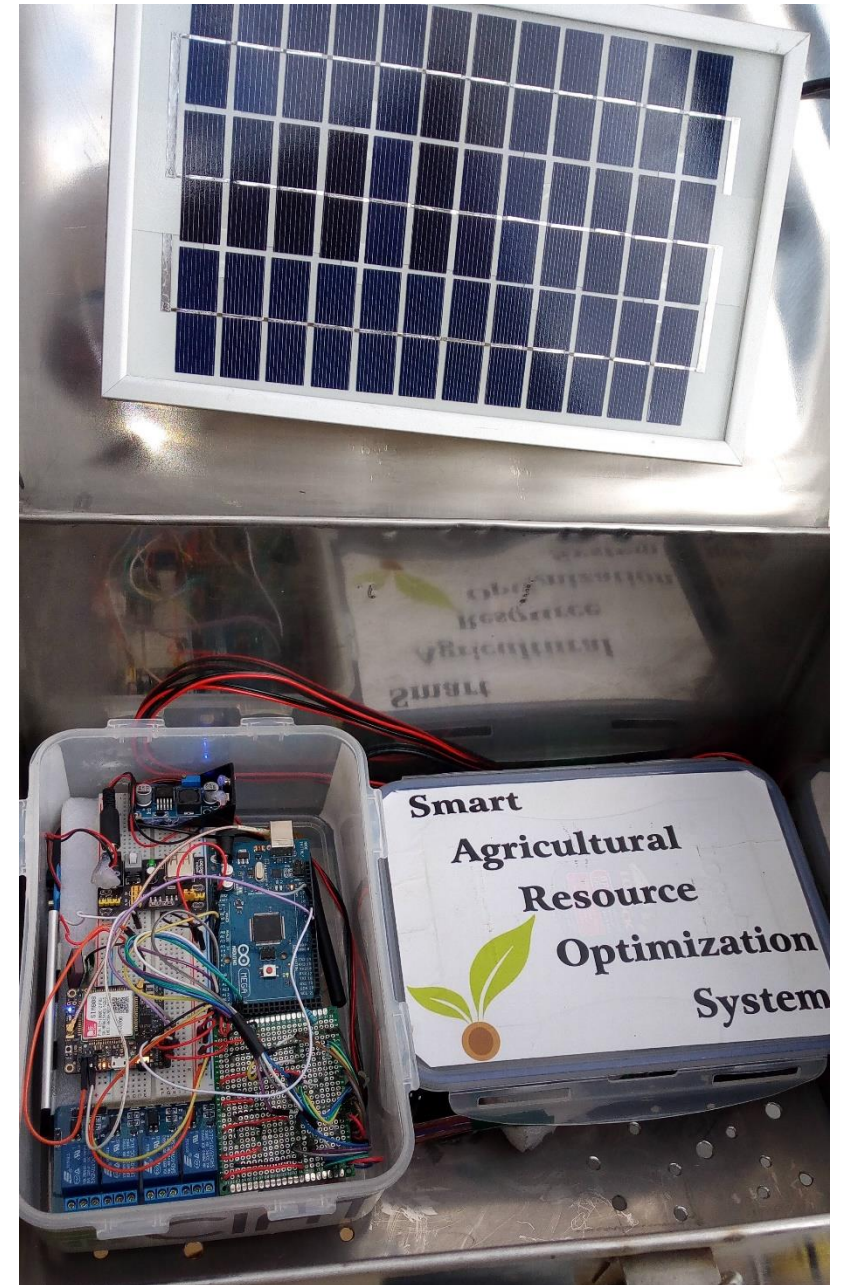
Nairobi water supply dried up in 2017:

Impacted-

- City residents
- Industries
- Businesses
- Agriculture

SAROS Features:

- Solar Powered
- Open Hardware
- Open Software
- Open Methodology
- Local Assembly
- Low Cost



Presented by:

Kennedy Nganga

June 2017



Credits:

CIAT - <https://ciat.cgiar.org/>

Africa RISING - <https://africa-rising.net/>