

SAFE4ALL AFRICA

Safeguarding African Foodsheds and Ecosystems for all Actors across Local, regional, and international Levels to manage migration



End Users
Tamale Metropolitan Assembly
Accra Metropolitan Assembly
Kumasi Metropolitan Assembly
Rural & Urban farmers

End Users
Nairobi County
Narok County
Kisumu County
Farmer extension workers
Rural & Urban farmers

End Users
Harare City
Marondera City

Services

- Agriculture
- Disaster management
- Ecosystem
- Capitals
- African city

Project Duration

2024 - 2027 (48 months)

Focus Areas

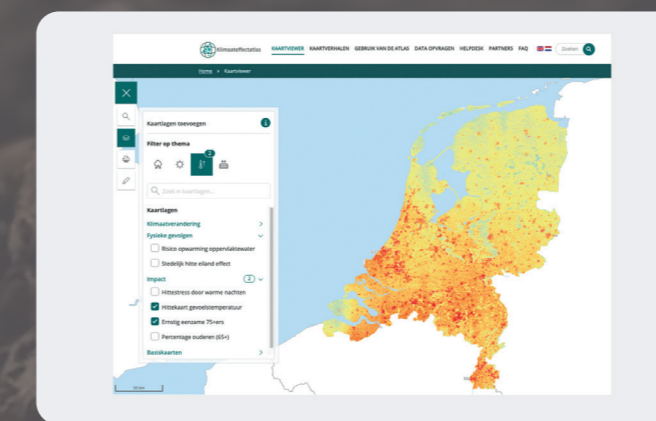
Climate resilience, food security, ecosystem health, policy integration

Key Tools

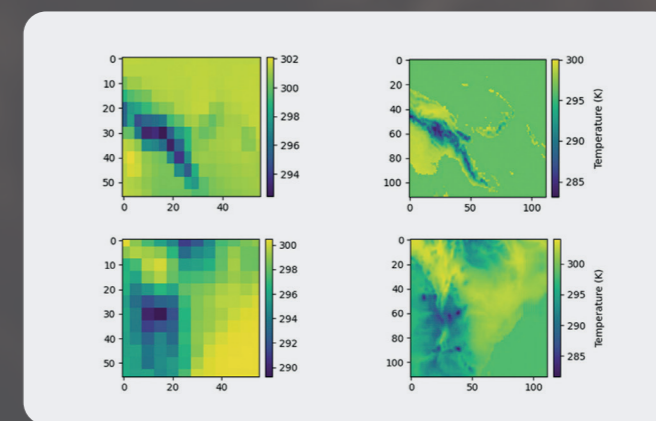
AI-based weather prediction, hydrological modeling, decision support systems

Innovation and Technology

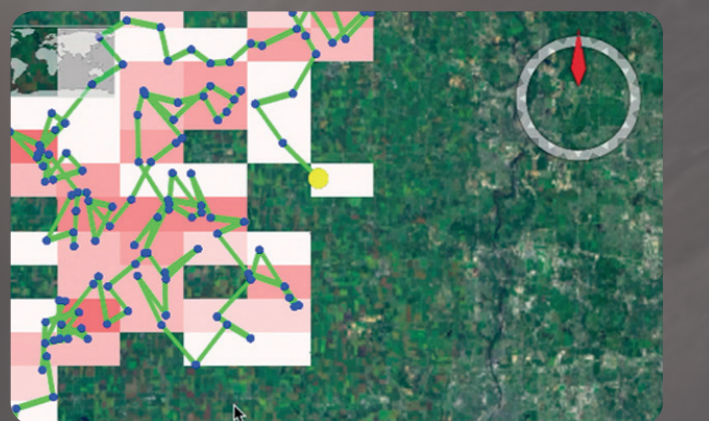
The SAFE4ALL Africa project leverages advanced technology to develop innovative climate services and tools that enhance the resilience of agriculture and ecosystems across the continent. These tools provide vital data and support to farmers, communities, and policymakers, enabling them to make informed decisions in the face of climate change.



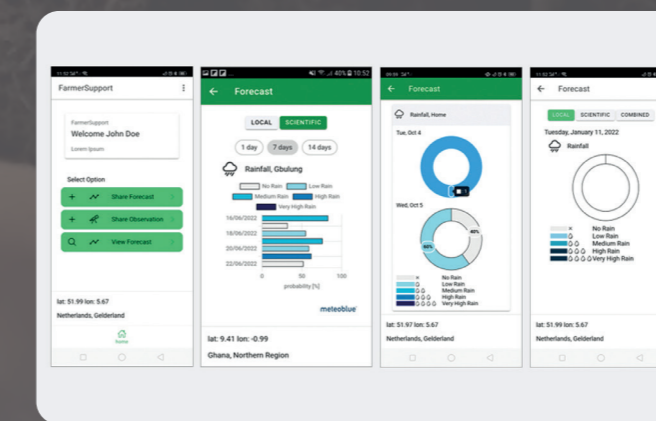
Climate Atlas and critical threshold explorer by Climate Adaptation Services
The Climate Atlas provides interactive maps and tools for exploring climate impacts and critical thresholds, supporting climate adaptation planning. It includes regional portals with stories, demonstrators, and learning resources.



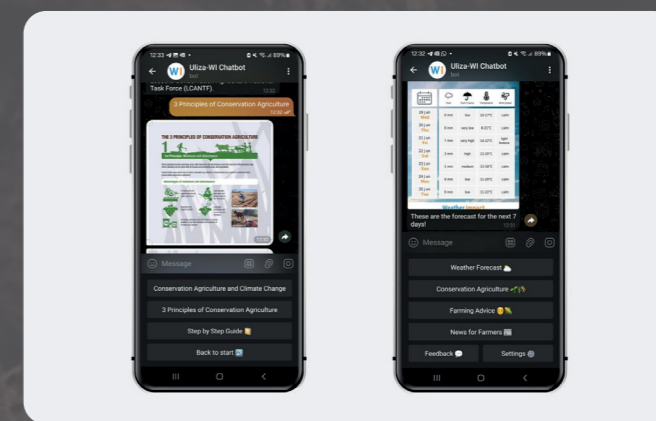
Hyperlocal Weather Intelligence Engine by Neuralio
This tool employs Generative Adversarial Networks (GANs) for statistical downscaling of climate predictions, providing high-resolution sub-seasonal forecasts. It uses climate data and digital elevation models to enhance accuracy.



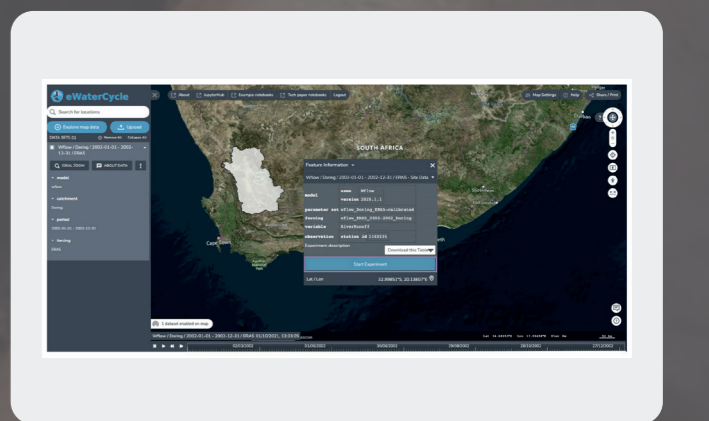
Multi-agent Reinforcement Learning Framework by Neuralio
A virtual simulation tool that models interactions among various entities (agents), predicting environmental outcomes based on climate information, earth observation, and socioeconomic data. It supports strategic planning through a Reinforcement Learning module resulting in a clustering of suitable criteria that maximizes crop yield.



DROP App by Wageningen University and Research
The DROP App offers location-specific climate services, integrating scientific weather forecasts with local knowledge. It provides tailored hydro-climate information for better agricultural decision-making.



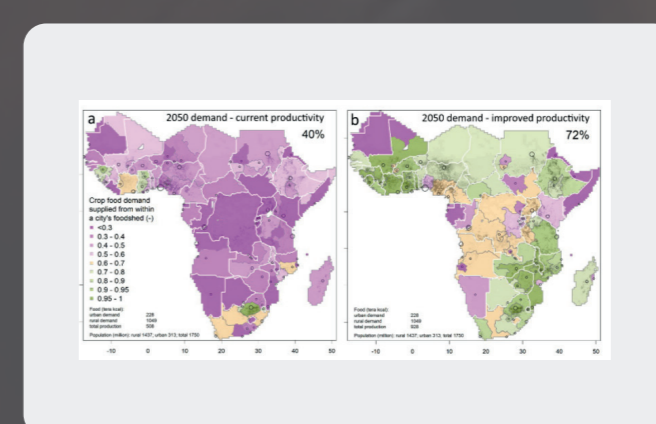
Agro-weather and -Season Decision Support Chatbot by Weather Impact
The Uliza-WI Chatbot delivers real-time weather and farming advice, accessible 24/7. It supports farmers with climate and agronomic resources, helping them make informed decisions to enhance crop yield.



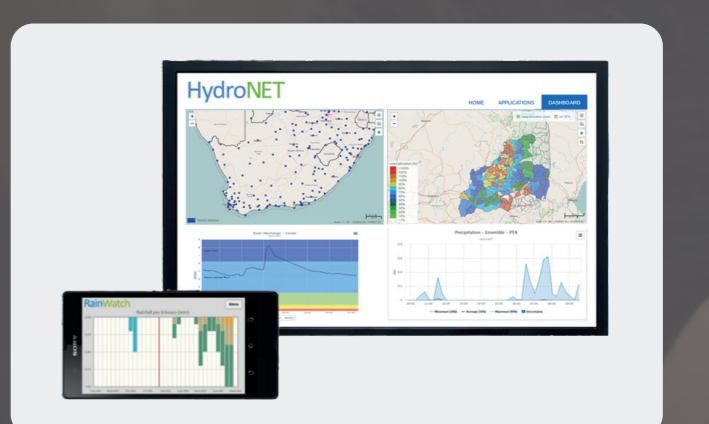
e-WaterCycle - Platform for open and FAIR hydrological modeling by Delft University of Technology
The e-WaterCycle platform offers open and FAIR (Findable, Accessible, Interoperable, Reusable) hydrological modeling, integrating various data sources and models for accurate hydrological predictions.



High Impact Thunderstorm Nowcast by MicroStep-MIS
The tool provides precise thunderstorm nowcasts with a lead time of 30 minutes to 1 hour by using EUMETSAT satellite data and AI algorithms. It enables issuing of severe weather warnings, to safeguard people and property from harm.



Hydro-climatic impacts on crops and hydrology (LPJmL) by Wageningen University and Research
This tool models the impacts of hydro-climatic variables on crops and hydrology using the LPJmL framework, helping to predict agricultural outcomes and water resource management.



TWIGA Platform by TAHMO
The TWIGA platform integrates ground-based observations with satellite data to enhance weather and climate services, supporting better decision-making in agriculture and water management.

Countries Involved



Ghana

Greater Accra region (5.5 mil.)
Tamale metropolitan area (1 mil.)
Kumasi metropolitan area (3.7 mil.)

- Climate change
- Rapid urbanization
- Rural-urban migration

Why there?

Quite stable, transboundary with influx of migrants from within the country and from Central Africa and Burkina Faso

Rural-urban farmers, extension workers, citizens

SAFE4ALL Services delivery and innovation

- Co-create needs-based climate services to foster climate smart agriculture and informed decision-making
- Assess the interaction between climate change and urban agriculture to understand the potential of urban agriculture to contribute to urban resilience
- Tailor and implement the climate atlas for Ghana
- Climate atlas integration with the foodshed concept
- Utilize climate information to develop adaptation & mitigation measures for the case studies



Zimbabwe

Harare (2.5 mil.)
Marondera District (300.000)

- Climate change and rapid urbanization
- Rural-urban migration

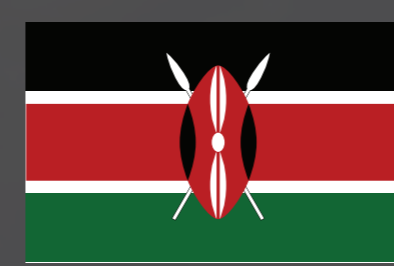
Why there?

High CC vulnerability & low adaptive capacity and resilience, beginning to build the climate infrastructure, potential to significantly improve food security and socio-economic output

Rural-urban farmers, extension workers, citizens

SAFE4ALL Services delivery and innovation

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- Assess the interaction between climate change and urban agriculture to understand the potential of urban agriculture to contribute to urban resilience
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- Climate atlas integration with the foodshed concept
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Kenya

Nairobi City county (6 mil.)
Narok county (1.3 mil.)
Kisumu county (1.2 mil.)

- Climate hazards
- Human migration
- Human-wildlife conflicts: wildlife migration

Why there?

Leader in climate services in East Africa, building on previous work, potential for quicker services bundling & integration, lessons to transfer to the rest co-creation case studies

Rural-urban farmers, extension workers, park wardens, tourists, citizens

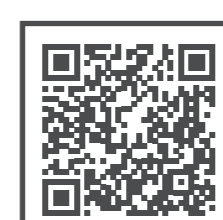
SAFE4ALL Services delivery and innovation

- Co-create needs-based climate services to foster climate smart agriculture and informed decision-making
- Expand the climate atlas for Kenya (Nairobi & Narok county)
- Climate atlas integration with the foodshed concept
- Test adaptation measures including water saving technologies for crop production, response to climate information/scenarios
- Assess the interaction between CC and urban agriculture to understand its potential to contribute to urban resilience
- Study wildlife migration patterns to reduce human-wildlife conflicts and to promote eco-tourism in Narok; improve the livelihoods for local communities living in/around wildlife parks

Partners



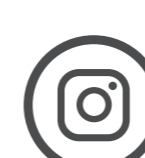
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