



SERVIR WEST AFRICA

CONNECTING SPACE TO VILLAGE

Building a regional Earth Observation marketplace



AIMS

African Institute for
Mathematical Sciences
NEXT EINSTEIN INITIATIVE

COLUMBIA UNIVERSITY
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CONNECTING SPACE TO VILLAGE

West Africa stands at a crossroads. Steep population growth, climate impacts, and urbanization accelerate pressure on natural resources through rapid deforestation, extension of agricultural land, land degradation, pollution, alteration of water flows and biodiversity loss.

In this challenge lies an opportunity. West Africa is on the brink of a transformative change, driven by youth, urbanization, and information technology. This socio-economic revolution harbors massive pent-up demand for sustainable digital solutions to realize Africa's potential. This opens the way for quality food, feed, fuel, and more; for domestic consumption and export on world markets. SERVIR can nurture the emergence of innovative Earth Observation services in the region, ready to support sustainable development and to scale globally.

The first phase of SERVIR West Africa was implemented by a consortium of six regional organizations. In spite of delays linked to the COVID-19 pandemic, the program made significant progress towards its objectives across the four targeted thematic areas, with 12 services now in various phases of development and implementation.

SERVIR West Africa aims to support the regional hub to (i) build capacity of analysts and decision makers in government, civil society groups, and the media to integrate geospatial data and technologies; (ii) raise awareness of, and increase access to, geospatial data and information; and (iii) create user-tailored geospatial services to disseminate information to the people who

need it to address priority development issues. These objectives align with the SERVIR Global Strategic Plan to empower regional and national actors to use Earth observation (EO) and Earth science for development gains.

SERVIR West Africa 2 Implementation

SERVIR is a joint initiative of NASA and USAID. SERVIR works in partnership with leading organizations in various regions of the world to support them in providing decision makers with products and services (decision support tools, applications, models, training) to strengthen resilience and much more. To this end, SERVIR provides Earth observation data, drawn from satellite images, geographic information system (GIS) and predictive models, hence the slogan "connecting space to village". SERVIR is an international network:

- SERVIR-West Africa (SERVIR-WA), hosted by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).
- SERVIR-East and Southern Africa, hosted by the Regional Centre for Mapping of Resources for Development (RCMRD).
- SERVIR-Himalaya, hosted by the International Centre for Integrated Mountain Development (ICIMOD).
- SERVIR-Mekong, hosted by the Asian Disaster Preparedness Centre (ADPC).
- SERVIR-Amazonia, hosted by the International Center for Tropical Agriculture (CIAT).

The SERVIR-WA activity is implemented by a consortium of seven regional institutions in Burkina Faso, Ghana, Mali, Niger, Nigeria and Senegal. It is structured around five themes:

- Food security and agriculture,
- Water resources and natural disasters;
- Weather and climate;
- Land use land cover change and ecosystems
- Financial Instruments

Improving Resilience through Science Partnerships

The **SERVIR West Africa 2** theory of change states that IF SERVIR WA:

- Ensures that services continue to be demand-driven and collaboratively developed using open source, open access and open science principles; AND
- Nurtures with robust technical backstopping the emergence of a dynamic EO collaborative scene, that is characterized by increased cooperation between public and private actors, and between established and aspiring entities; AND
- Builds the capacity of these budding partnerships towards the responsible exploitation, in context, of EO and other big data with artificial intelligence to concurrently serve non-profit and for-profit interests at local, national, and regional levels; AND
- Leverages these partnerships with an enabling environment and with service incubating mechanisms, including a financial services area to strengthen, using EO, the capacity of investors to quantify and control risk, enhance access to inputs and markets, and improve production potential, WHILE simultaneously
- Promoting gender and social inclusion and a culture of science for society, THEN

SERVIR West Africa 2 will achieve the overall desired change to improve resilience, food and nutrition security, disaster risk reduction, and sustainable resource management at local, national, and regional scales through early action and increased use of EO information, Earth science, and technologies. In doing so, **SERVIR West Africa 2** will positively affect lives and livelihoods in West Africa.

Goal: increase the ability of local, national, and regional institutions to apply geospatial technologies and analysis to improve decision making and management of resources to improve the resilience of countries in the region, mitigate the impacts of climate change, and ensure appropriate land use to reduce greenhouse gas emissions

Live of Program: 2022-2027

Total USAID Funding: \$15 million

Geographic Focus: Burkina Faso, Ghana, Mali, Niger, Nigeria and Senegal

Towards a Regional Earth Observation Marketplace in West Africa

SERVIR West Africa 2 will ensure that by the end of Phase 2 there will be the architecture, the services and an enabling environment that result in:

- Promising services reaching full operational capability and lessons have been learnt from those that have not performed to expectations;
- Regional consortium partners being equipped for the design, development, procurement, production, validation, maintenance, and operation of geospatial services based on EO data; and
- A regional EO marketplace having emerged, allowing for collaborative geospatial ventures and fair competition to improve the quality of services and the satisfaction of users across the public to private sector continuum.

These results will contribute towards the emergence of a self-sustaining regional EO services ecosystem (EO marketplace), achieving industrial-grade capacity for EO applications and public-private partnerships-led economies of scale across economic sectors.

Connecting space to village

SERVICES

- Crop monitoring and condition assessment
- Desert locust risk mapping (P-Locust)
- Flash flood vulnerability mapping
- Groundwater monitoring
- Monitoring ephemeral water bodies (Wendou)
- Artisanal mining (Galamsey) monitoring
- Charcoal production monitoring
- Harmonization of regional LULCC systems
- Commune-level development planning
- Farmer-managed natural regeneration
- Sub-seasonal to seasonal forecasting
- Sustainable Development Goals mapping
- And more... to be delivered through SERVIR West Africa's new Service Industrialization Pipeline.

Implementing Partners: ICRISAT as lead in partnership with AFRIGIST, Ile-Ife, Nigeria; AGRHYMET, Niamey, Niger; CERGIS, Accra, Ghana; CSE, Dakar, Senegal; ISESTEL, Ouagadougou, Burkina Faso; AIMS, M'bour, Senegal and Cape Coast, Ghana; University of Florida, Gainesville, USA; and Columbia University, New York, USA, CIESIN and its IRI.

This publication is made possible by the generous support of the American people through the United States Agency for International Development (USAID) and the National Aeronautics and Space Administration (NASA). The contents are the sole responsibility of SERVIR WA and do not necessarily reflect the views of USAID, NASA or the United States Government.

