SERVIR: Using Earth Observations for Improved Decision-Making in Developing Countries

SERVIR: Connecting Space to Village

SERVIR connects space to village by helping developing countries use satellite data to address critical challenges in food security, water resources, weather and climate, land use, and natural disasters. A partnership of NASA, USAID, and leading technical organizations, SERVIR develops innovative solutions to improve livelihoods and foster self-reliance in Asia, Africa, and the Americas.

SERVIR Regions

Since its launch in 2005, SERVIR has grown into a global network of four active hubs that are improving awareness, increasing access to information, and supporting analysis to help people across Africa, Asia, and the Americas to better manage today's complex development and environment challenges.

- SERVIR-West Africa, hosted by the Agrometeorology, Hydrology and Meteorology Regional Center (AGRHYMET)

- SERVIR-Eastern and Southern Africa, hosted by the Regional Centre for Mapping of Resources for Development (RCMRD)

- SERVIR-Hindu Kush Himalaya, hosted by the International Centre for Integrated Mountain Development (ICIMOD)

- SERVIR-Mekong, hosted by the Asian Disaster Preparedness Center (ADPC)

Thematic Service Areas

Agriculture and Food Security—this thematic service area includes agriculture, rangeland management and pastoralism, and fisheries and aquaculture, particularly through the lens of adaptation to increasing environmental extremes. Key topics include linking agricultural productivity assessments, crop yield models, and use of climate scenarios for assessing the impacts.

Land Cover and Ecosystems—the land cover, land use change and ecosystems thematic service area focuses on sustainable landscapes through natural capital accounting and ecosystem services. Ecosystem services are critically dependent on natural capital such as forests, the quality of soils, organic and nutrient contents, topography, rainfall, and land cover.

Water and Water-related Disasters—this thematic service area includes water quantity, sediment transport, water quality, and water-related disasters. It involves improved estimation and predictability of water resources for integrated water management. Key topics include estimations of water allocations, the food-water-energy nexus, and disaster investigations including floods, droughts, and rainfall-induced landslides.

Weather and Climate—the weather and climate thematic service area spans a continuum of time scales, ranging from short-term prediction of weather, through seasonal forecasts, to interannual climate scenarios. Integration of these data sets in applications brings the latest science to support the needs of SERVIR hubs and their end users.

Developing a Regional Crop Monitor for Early Warning (GEOGLAM) Working in collaboration with UMD, SERVIR is using ground observations and satellite data to improve agricultural assessments for food security interventions in East Africa.

Regional Land Cover Monitoring System (RLCMS) State-of-the-art tool using remote sensing science, open data and the power of cloud computing (Google Earth Engine) to achieve high-quality map products across the Lower Mekong. Being adapted for use in Hindu Kush Himalaya.
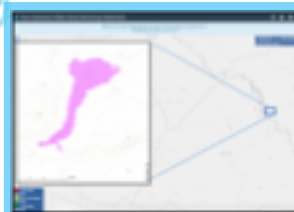
Monitoring Small Water Bodies in West Africa for Pastoralists Pastoralists in parched West African rangelands are always in search of ponds with water for their livestock. SERVIR has developed a tool that scans the latest satellite data and updates a map of available water in those ponds.

Improving Forecasts of Deadly Thunderstorms in Southeast Asia SERVIR has created a severe weather forecasting system for Southeast Asia and has trained forecasters in Nepal and Bangladesh in its use. Currently being used by the government of Bangladesh to produce high-accuracy forecasts.
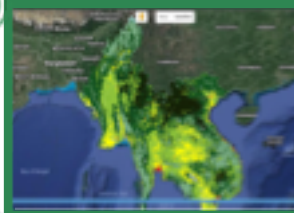
Service Planning for Impact

SERVIR's approach to designing geospatial information services is embodied in the SERVIR Service Planning Toolkit. The toolkit helps researchers engage with stakeholders to design user-focused services that are integrated into decision processes, leading to positive development outcomes. The Toolkit contains four components linked to the lifecycle of SERVIR services:

- Consultation and Needs Assessment Tool
- Stakeholder Mapping Tool
- Service Design Tool
- Monitoring, Evaluation and Learning Tool

With activities in more than 45 countries and counting, SERVIR has already developed over 80 custom tools, collaborated with 350 institutions, and trained more than 4,700 individuals, improving the capacity to develop local solutions.