Global Landscapes Forum

TECHNICAL DETAIL

GEOSPATIAL INFORMATION FOR IMPROVED ENVIRONMENTAL DECISION-MAKING

CONNECTING SPACE TO VILLAGE

SERVIR AMAZONIA

USAID FROM THE AMERICAN PEOPLE

NASA

Alliance

Bioversity International

CIAT International Center for Tropical Agriculture Since 1967 Science to cultivate change

Spatial Informatics Group

imaflora

Conservación Amazónica ACCA

eco ciencia

WHITE PAPER

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GEOSPATIAL TECH INNOVATIONS ALLOW DECISION-MAKERS TO ACT FASTER IN PREVENTING ENVIRONMENTAL DISASTERS AND MITIGATING CLIMATE CHANGE

Earth Observations (EO) and geospatial decision-support systems play an increasingly critical role in reducing greenhouse gas emissions and the impacts of climate change, monitoring deforestation and its causes, and improving the management of protected areas and other conservation units. These systems can provide solutions to development problems in the Amazon as they bring together remote communities and marginalized groups with data and information providers in governments, the private sector and NGOs. Recent advances in remote-sensing technologies increase the coverage, timeliness and precision of the data and information that allow decision-makers to act faster in preventing disasters and illegal activities in the Amazon. Several remote sensing platforms are available, with short revisit times and high spatial resolution, to provide frequent, reliable data about the Amazon. The limitation of frequent cloud cover can now be overcome with the availability of cloud-penetrating RADAR images or high cadence optical images. The suite of information includes continuous historic data from Landsat platforms, higher resolution Planet images supported by NICFI, the high resolution and cadence of Sentinel-2, and RADAR data from Sentinel-1. In addition, cloud-based processing platforms eliminate the need for costly in-office computer infrastructure to process raw data and provide analysis.

THE FIVE KEY CHALLENGES

Serious challenges remain to effectively connect Space to village and scale up the use of Earth observation and satellite imagery to reach its full potential. The five key challenges are:

1. The effectiveness of geospatial data and information value chains, and the connectedness of all relevant actors.
2. The capacity of national and subnational organizations when it comes to understanding, contributing to and using the latest technologies.
3. The interoperability and sustainability of existing information platforms.
4. The access to internet for local, and often isolated communities that would allow them to contribute, receive and act upon valuable information.
5. Our understanding of social inclusion issues that could boost the participation of women and marginalized communities in the monitoring of their territories.

BOX 1. SERVIR-AMAZONIA: GEOSPATIAL INNOVATIONS THAT SUPPORT LOCAL SOLUTIONS

ABOUT SERVIR

A joint initiative of NASA, USAID and leading geospatial organizations in Asia, Africa and Latin America, SERVIR partners with countries in these regions to address critical challenges in climate change, food security, water and related disasters, land use, drought, fires and air quality. Using satellite data and geospatial technology, SERVIR co-develops innovative geospatial applications to support local solutions through a network of regional hubs, to improve resilience and sustainable resource management at local, national and regional scales.

ABOUT SERVIR-AMAZONIA

Operating as a regional hub, SERVIR-Amazonia promotes collaboration among governments, universities, non-governmental organizations, community groups and scientists. The ultimate goal is to improve local capacity to harness satellite data and geospatial information, to foster sustainable natural resource management throughout the Amazon Basin.

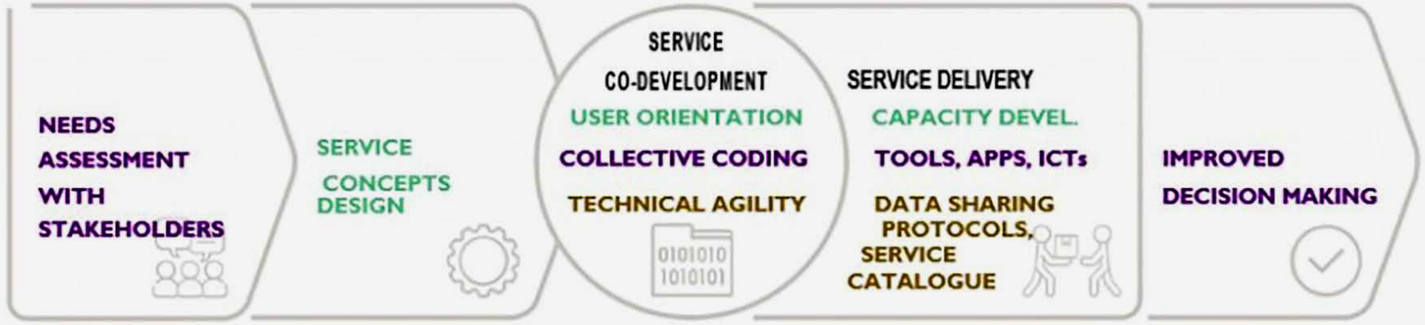

Illustration: The SERVIR-Amazonia service approach

SERVIR-Amazonia uses a service approach that brings diverse stakeholders together to identify local development problems and codesign sustainable decision-support services with implementing partners, in the form of geospatial tools, data sets or capacity building resources and activities. Currently SERVIR-Amazonia is implementing 11 services in 5 countries with 18 partners.

The Program is implemented by the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT), along with a network of local and international partners serving the Amazon region, mainly the Spatial Informatics Group (SIG), Conservación Amazónica (ACCA), the Institute for Forest and Agriculture Management and Certification (IMAFLORA) and Fundación EcoCiencia.

THE WAY FORWARD

The SERVIR-Amazonia consortium broadly aims to: (1) establish a strong partner network, prioritize user needs and engage stakeholders; (2) build networks and capacity to design and develop services and share data; and (3) support improved decision-making across the Amazon. Effecting change is not simply about the building a new tool; it is also about changing culture. SERVIR-Amazonia is working to change the way people and institutions approach information for development purposes, by emphasizing open data principles, transparency and a service ethic.

To effectively connect Space to Village, so that Earth Observation and satellite imagery are used to their fullest potential, both the strengthening of existing initiatives as well as new concrete measures are required, mainly:

- Including geospatial technology analysis so that regional initiatives and agreements, like the Pacto de Leticia and Acuerdo de Escazú, can be effectively implemented.
- Working with Indigenous Peoples Organizations on an action plan to empower them with geospatial technologies and enable their full participation in the protection of their territories.

Box 2. Examples of geospatial services and what they do

Name of service	Deforestation monitoring and reporting in Ecuador	Monitoring of gold mining in the Peruvian Amazon - RAMI	TERRA ON TRACK
What the service does	Ecuador´s greenhouse gas inventory now has greater precision and accuracy in its emissions estimates and its documentation of conservation practices, which will move the country closer to receiving payments for results.	The near real-time information on deforestation and mining activity in the southern Peruvian Amazon, allows authorities to quickly identify possible new illegal mining fronts and to better understand how legal mining impacts the forest.	The application provides a tool for community-based initiatives in the Brazilian Amazon to improve the monitoring and protection of their forests.
Partners who co-developed the service	• Ministerio del Ambiente, Agua y Transición Ecológica (MAATE) • Spatial Informatics Group (SIG) • Food and Agriculture Organization (FAO)	• Ministerio del Medio Ambiente del Perú (MINAM) • Programa Nacional de Conservación del Bosques y Cambio Climático (PNCBMCC) • Asociación para la Conservación de la Cuenca Amazónica (ACCA) • Spatial Informatics Group (SIG)	• Instituto de Manejo e Certificação Florestal e Agrícola (Imaflora) • Spatial Informatics Group (SIG)

- Promoting public sector investments to improve internet connectivity in remote areas.
- Engaging further in public-private sector partnerships to increase the capacity of national and subnational organizations in geospatial technologies.

Policymakers should consider the evidence that geospatial science and technology can provide and channel resources to regional, national and subnational agencies so that they can increase the effectiveness, efficiency and equity of environmental decision-support systems.

REFERENCES AND BACKGROUND DOCUMENTS

- SERVIR-Amazonia: https://servir.ciat.cgiar.org/
- NASA SERVIR Global: https://www.servirglobal.net/
- Service Planning Toolkit: https://www.servirglobal.net/LinkClick.aspx?fileticket=sMAp0mVxjms%3d&portalid=0

GLOBAL LANDSCAPES FORUM

The Global Landscapes Forum (GLF) is the world's largest knowledge-led platform on integrated land use, dedicated to achieving the Sustainable Development Goals and Paris Climate Agreement. The Forum takes a holistic approach to create sustainable landscapes that are productive, prosperous, equitable and resilient and considers five cohesive themes of food and livelihood, landscape restoration, rights, finance and measuring progress. It is led by the Center for International Forestry Research (CIFOR), in collaboration with its co-founders UN Environment Programme and the World Bank and Charter Members.

Charter Members: CIAT, CIFOR, CIRAD, Climate Focus, Conservation International, Crop Trust, EcoAgriculture Partners, EFI, Evergreen Agriculture, FSC, GEF, GIZ, ICIMOD, IFOAM - Organics International, ILRI, INBAR, IPMG, IUFRO, Rainforest Alliance, Rare, RRI, SAN, UN Environment Programme, Wageningen Centre for Development Innovation, part of Wageningen Research, WFO, World Agroforestry, World Bank Group, WRI, WWF International, Youth in Landscapes Initiative

TIPPING POINT

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Funding partners

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