



# Connecting space to village in the Hindu Kush Himalaya



## SERVIR

SERVIR connects space to village by helping developing countries use satellite data to address challenges in food security, water resources, weather and climate, land use, and natural disasters. A partnership of the National Aeronautics and Space Administration (NASA), the United States Agency for International Development (USAID), and leading technical organizations, SERVIR develops innovative solutions to improve livelihoods and foster self-reliance in Asia, Africa, and the Americas.



## SERVIR Hindu Kush Himalaya

The International Centre for Integrated Mountain Development (ICIMOD) implements the SERVIR Hindu Kush Himalaya (SERVIR-HKH) Initiative – one of five regional hubs of the SERVIR network – in its regional member countries, prioritizing activities in Afghanistan, Bangladesh, Myanmar, Nepal, and Pakistan.

The Initiative falls under ICIMOD's Mountain Environment Regional Information System (MENRIS) Regional Programme, which caters to the specific needs of regional member countries in addressing different aspects of environmental degradation and climate change impacts.

## Objectives

- Build and institutionalize the technical capacity of government decision makers and key civil society groups to integrate Earth observation information and geospatial analysis into their decision-making, planning, and communication processes
- Improve awareness of and access to geospatial data, products, and tools among users and decision makers
- Increase provision of high quality user-tailored data, tools and applications, and models to support informed decision making

## Thematic focus

SERVIR-HKH uses data from a collection of Earth observation satellites, ground-based data, and advanced geospatial information technology in innovative ways to help decision makers respond to environmental challenges in the Hindu Kush Himalaya (HKH). Applications and tools developed under the Initiative support evidence-based decision making in the region.

These applications and tools are available as dedicated services that can be classified under four thematic areas: agriculture and food security; land cover, land use change and ecosystems; water resources and hydro-climatic disasters; and weather and climate services.

All science applications developed under SERVIR-HKH are also made available online on its website ([servir.icimod.org](http://servir.icimod.org)) and on the Mountain Geoportal ([geoportal.icimod.org](http://geoportal.icimod.org)). The Mountain Geoportal is ICIMOD's designated space for all science applications and hosts innovative and interactive web applications that provide dynamic visualization of spatial data and other geospatial information services.

## Supporting evidence-based decision making

SERVIR-HKH improves access to Earth observation information towards enabling solutions. The Initiative has been working on strengthening the technical skills of decision makers to integrate Earth observation data and geospatial technologies into their decision-making processes.



**ENHANCING  
INSTITUTIONAL  
CAPACITIES**



**LEVERAGING  
PARTNERSHIP**



**INTEGRATING  
GENDER AND  
YOUTH**

## AGRICULTURE AND FOOD SECURITY



SERVIR-HKH is developing a Regional Drought Monitoring and Outlook System to support agriculture advisory processes in Afghanistan, Bangladesh, Nepal, and Pakistan. A Food Security Information System to support in-season food security assessments and related decision making has been developed for Nepal.

Services:

- Regional Drought Monitoring and Outlook System
- Agro-met advisory service for national/local level planning in Bangladesh, Nepal, and Pakistan
- Food Security Information System for Nepal
- In-season wheat crop sown area assessment for Afghanistan

## LAND COVER, LAND USE CHANGE AND ECOSYSTEMS



SERVIR-HKH is monitoring annual forest and land cover at national and regional levels. It is assessing climate change vulnerability and adaptation planning for forest ecosystems in Nepal.

Services:

- Regional Land Cover Monitoring System
- Climate Resilient Forest Management System in Nepal

## WATER RESOURCES AND HYDRO-CLIMATIC DISASTERS



SERVIR-HKH is working on enhancing flood early warning information for flood-prone rivers in Bangladesh and Nepal and strengthening ICIMOD's regional flood outlook.

Services:

- Enhancing flood early warning systems in the HKH

## WEATHER AND CLIMATE SERVICES



Working closely with the SERVIR Applied Science team, SERVIR-HKH is implementing weather research and long- and short-term forecasting models and deploying climate services for consumption across other service areas – agriculture and droughts.

Services:

- Monitoring extreme weather in the HKH

## Enhanced institutional capacities

Training and capacity building are integral parts of the SERVIR-HKH Initiative. The Initiative organizes trainings in the development and use of science applications for partner institutions and individuals to maximize the benefit of geospatial information and technology in the region.

The Initiative provides technical support, conducts customized trainings, and shares opportunities according to the needs of its regional partners.

SERVIR-HKH has extended multiple on-the-job training opportunities to its partners and has adopted a training-of-trainers approach to extend the benefits on the use of Earth observation and geospatial technologies to an even wider audience.

Capacity-building efforts organized under SERVIR-HKH focus primarily on one or more of the four thematic areas.

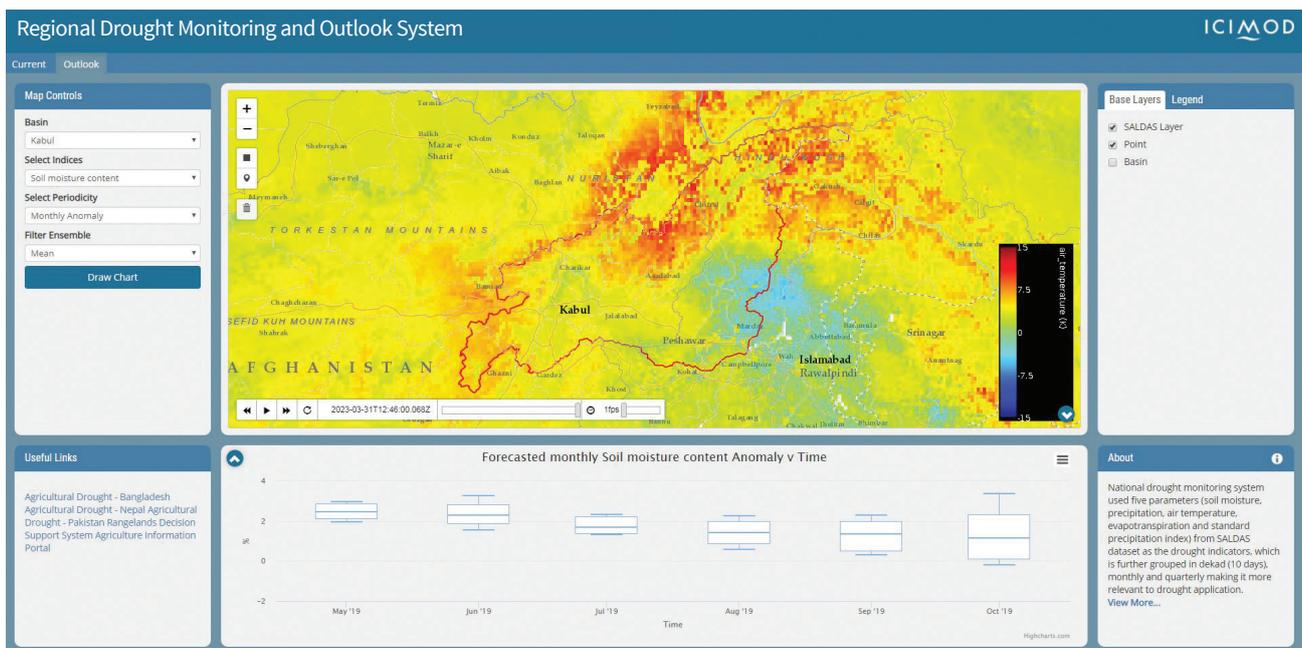
## Integrating gender and youth

SERVIR-HKH supports the integration of gender concerns in its design and implementation as well its monitoring and evaluation processes across its services. Through university-level exchanges, internships, and hackathons, the Initiative engages young people in geospatial science applications.

## Leveraging partnerships

SERVIR-HKH considers user engagement as a vital element in the design and implementation of its products and services and has adopted ICIMOD's partnership-based approach. Activities to achieve this result focus on engaging stakeholders to increase buy-in related to data sharing and management, developing and adopting standards of practices, and strengthening or developing appropriate platforms for sustained upscaling and product uptake enhancement. A user engagement strategy for the Initiative underpins effective stakeholder engagement in different phases of service planning and design to ensure that the products are co-created, co-designed, and co-implemented.

The Initiative also leverages strategic private sector partnerships with leading technology companies that provide access to cutting-edge technologies and lead to more effective and sustainable solutions.



The Regional Drought Monitoring and Outlook System provides multiple indices – evapotranspiration, precipitation rate, standardized precipitation index, soil moisture, and temperature – for droughts and seasonal weather outlooks at the national and regional levels. (<https://servir.icimod.org/science-applications/regional-drought-monitoring-and-outlook-system-south-asia>)

# SERVIR Global Network



SERVIR consists of five regional hubs: SERVIR Eastern and Southern Africa, SERVIR Hindu Kush Himalaya (SERVIR-HKH), SERVIR Mekong, SERVIR West Africa, and SERVIR Amazonia.

The hubs work closely with each other and affiliated USAID missions, project partners, and NASA.

## SERVIR-HKH in Afghanistan

In Afghanistan, SERVIR-HKH provides technical assistance to the Government of Afghanistan by improving the use of technology in water resources, agriculture water use, and irrigation management and decision making. SERVIR-HKH has adopted a multipronged component approach – capacity building, enhanced access to data, and development of decision-support tools – as part of its technical assistance.

The Initiative is undertaking the following activities in Afghanistan:

- Customized trainings on GIS/RS applications, geospatial application development, and hydrological modelling and provisions for on-the-job trainings and participation in regional and global events for relevant stakeholders
- Joint collaboration with Kabul University and Nangarhar University to conduct trainings on GIS/RS
- Development of an integrated Agriculture Information Portal for assimilation of data management and visualization processes related to agriculture in Afghanistan
- Mapping and monitoring of glaciers and glacial lakes to understand the impact on water resources
- Development of a wheat mapping application to aid food security planning
- Drought monitoring system for improved seasonal forecasts and early warning
- Development of a national land cover monitoring system



### For further information

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