

Connecting Space to Village in the Hindu Kush Himalaya

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.

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

ICIMOD

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SERVIR Hindu Kush Himalaya

SERVIR Hindu Kush Himalaya (SERVIR-HKH) is implemented by the International Centre for Integrated Mountain Development (ICIMOD) in its regional member countries, prioritizing activities in Afghanistan, Bangladesh, Myanmar, Nepal, and Pakistan.

SERVIR-HKH is an initiative 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. SERVIR-HKH strengthens ICIMOD to better work with national institutions in the HKH.

Thematic Focus

SERVIR-HKH uses data from a collection of Earth observing 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. Applications and tools developed under the SERVIR-HKH initiative provide evidence for 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; Water Resources and Hydro-climatic Disasters; Land Cover, Land Use Change, and Ecosystems; and Weather and Climate Services.

All science applications developed under SERVIR-HKH are also made available online on Mountain Geoportal (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.





Food Security and Agriculture

SERVIR-HKH is developing an agriculture advisory system and a food security vulnerability information system for Nepal, and drought monitoring and early warning systems for Afghanistan, Bangladesh, and Pakistan.

The following services are under development:

- Regional Drought Monitoring and Early Warning System
- Agro-met advisory service for national/local level planning in Nepal, Bangladesh, 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, and ecosystem service using the ARtificial Intelligence for Ecosystem Services (ARIES) platform in Bangladesh and Nepal.

The following services are under development:

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



Water Resources and Hydro-climatic Disasters

SERVIR-HKH is working on enhancing flood early warning systems operational in western Nepal and Bangladesh, and strengthening ICIMOD's regional flood outlook.

The following service is under development:

- Enhancing flood early warning systems in the Hindu Kush Himalaya



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.

The following service is under development:

- Monitoring extreme weather in the HKH

Supporting evidence-based decision making

SERVIR 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.

Space Apps Kathmandu 2017



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 end users to maximize the benefit of geospatial information and technology in the region.

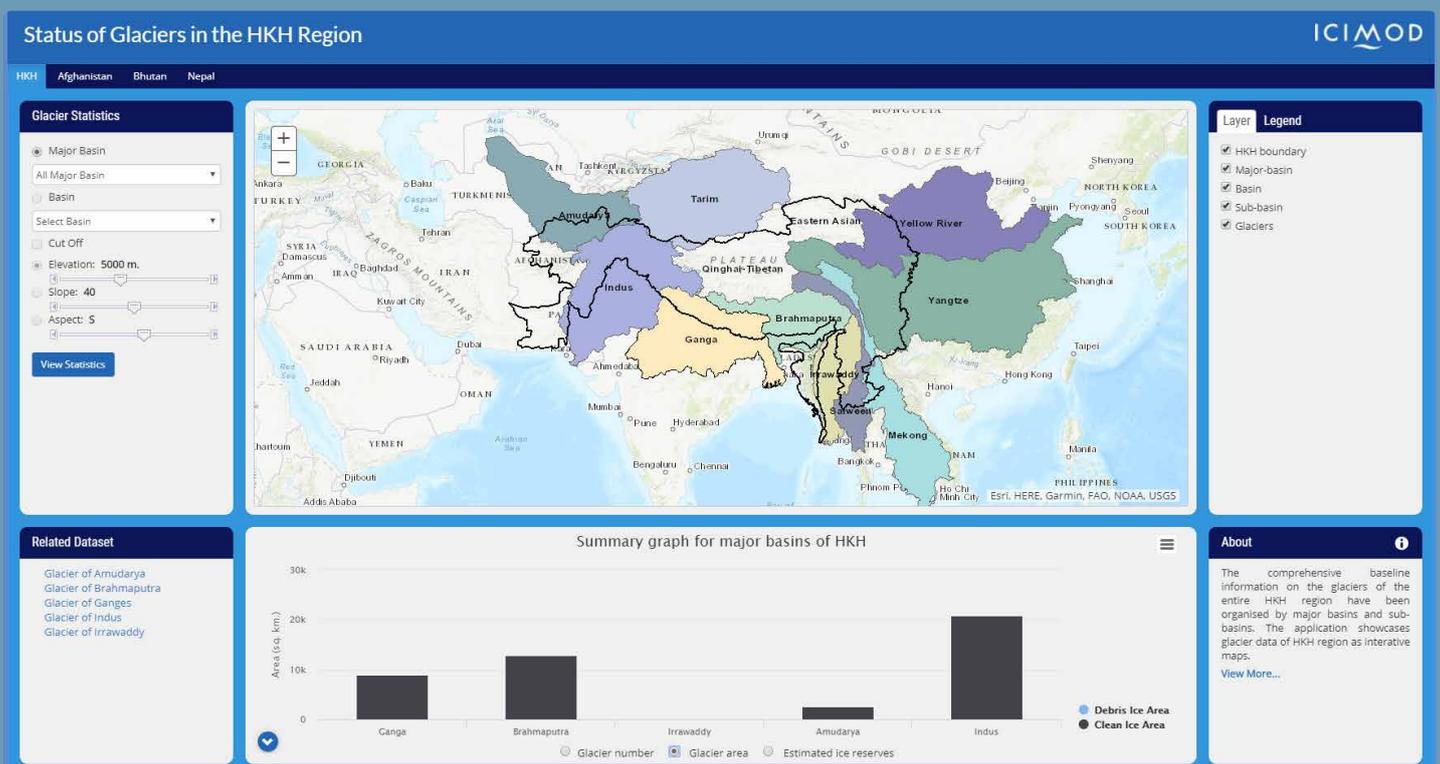
The initiative provides technical support and conducts customized trainings, and shares opportunities according to the needs of its regional partners.

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 – Agriculture and Food Security; Water Resources and Hydro-climatic Disasters; Land Cover, Land Use Change, and Ecosystems; and Weather and Climate Services.

The glacier dynamics application provides an overview on glacier change at the national and regional levels

geoapps.icimod.org/glacier/





Regional stakeholder workshop with the SERVIR Applied Science team at ICIMOD, Kathmandu in 2017

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 service areas. 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 SERVIR Global Network



SERVIR consists of four regional hubs: SERVIR Eastern & Southern Africa, SERVIR Hindu Kush Himalaya (SERVIR-HKH), SERVIR Mekong, and SERVIR West Africa. The hubs work closely with each other and affiliated USAID missions, project partners, and NASA.

SERVIR-HKH in Afghanistan

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

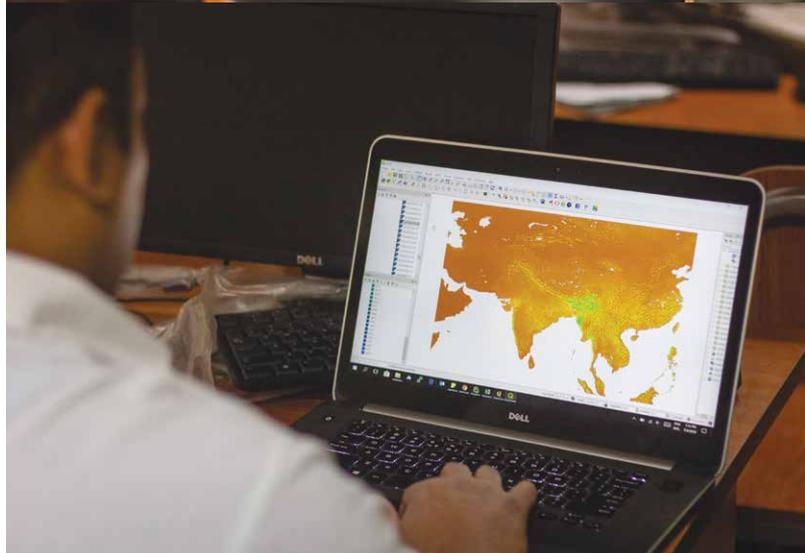
Additionally, the project seeks to:

- Build capacity on earth observation and geospatial information management and analysis for applications in the field of water resources management
- Enhance access to data through development of integrated portals for sharing data on hydro-met, irrigation, and water resources
- Develop decision support tools for analysis, visualization, and dissemination of information to targeted stakeholders

SERVIR has adopted a multipronged component approach as part of its technical assistance.

Capacity building: 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 to conduct trainings on GIS/RS.

Enhanced access to data: Facilitation of a national data sharing policy in close collaboration with USAID Afghanistan; development of an integrated irrigation portal for assimilation of data management and visualization processes related to irrigation in



Participants at a training workshop on the National Land Cover Monitoring System for Afghanistan at Kabul University in 2018

Afghanistan; mapping and monitoring of glaciers to understand the impact on water resources.

Development of decision support tools: Development of a wheat mapping application to aid food security planning; drought monitoring system for improved seasonal forecasts and early warning; development of a framework for collection and dissemination of information utilizing mobile devices.



For further information

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Photos: Jitendra Bajracharya, Utsav Maden, NASA

Illustration: Curves N Colors

ICIMOD gratefully acknowledges the support of its core donors: the Governments of Afghanistan, Australia, Austria, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Norway, Pakistan, Switzerland, and the United Kingdom.

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Prepared by ICIMOD Publications Unit, October 2018