

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.

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.



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.



Leveraging partnerships

SERVIR-HKH engages with its partners in the design, development, and implementation of its solutions. Partnerships increase buy-in related to data sharing and management, and development and adoption standards of practices, while enhancing solution uptake and sustained scaling up of services.



Enhanced institutional capacities

Capacity-building activities help maximize the benefits of Earth observation and geospatial technology in the region. SERVIR-HKH provides technical support, conducts customized trainings, and shares opportunities according to the needs of its regional partners.

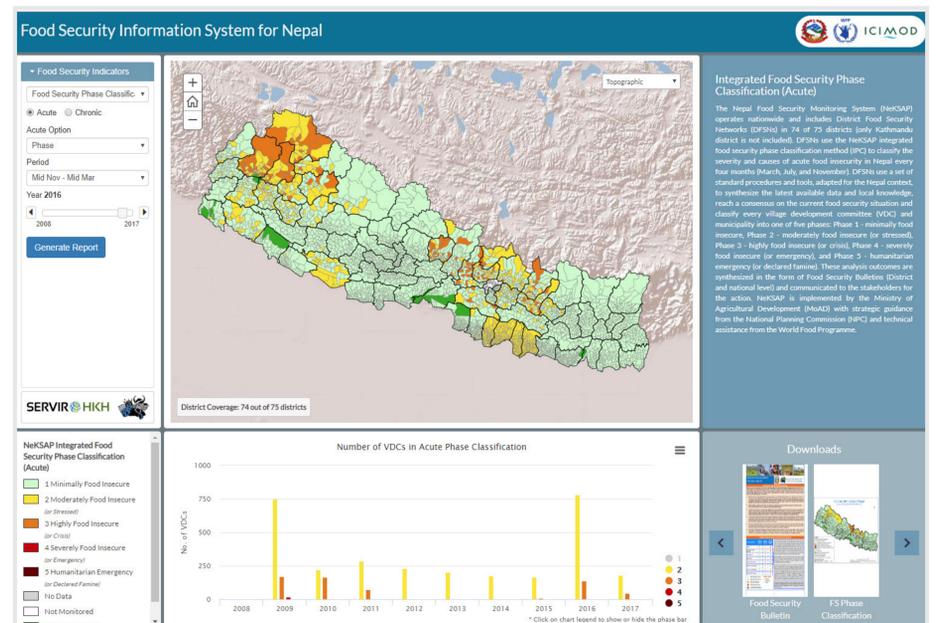
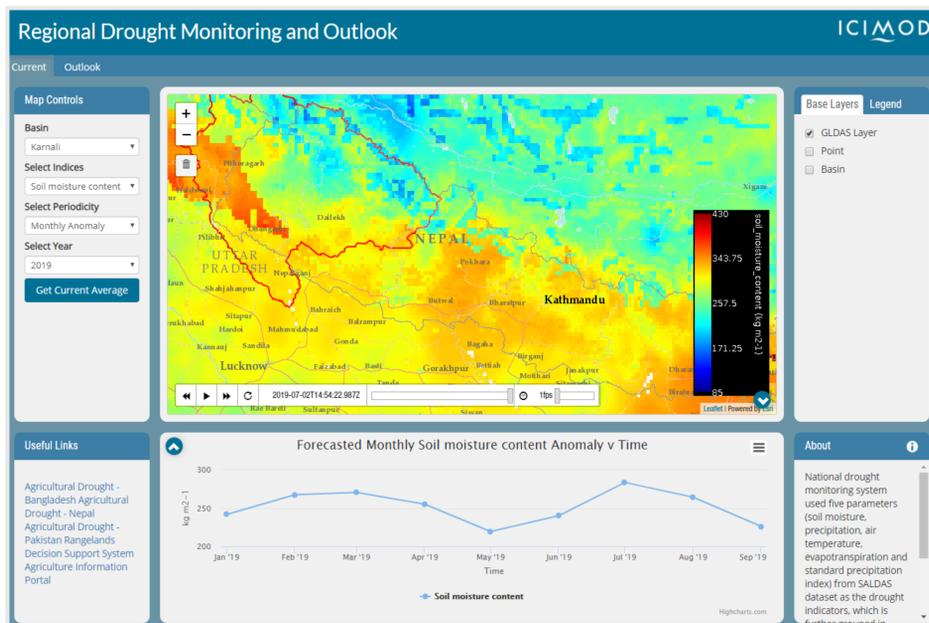


Integrating gender and youth

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



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.

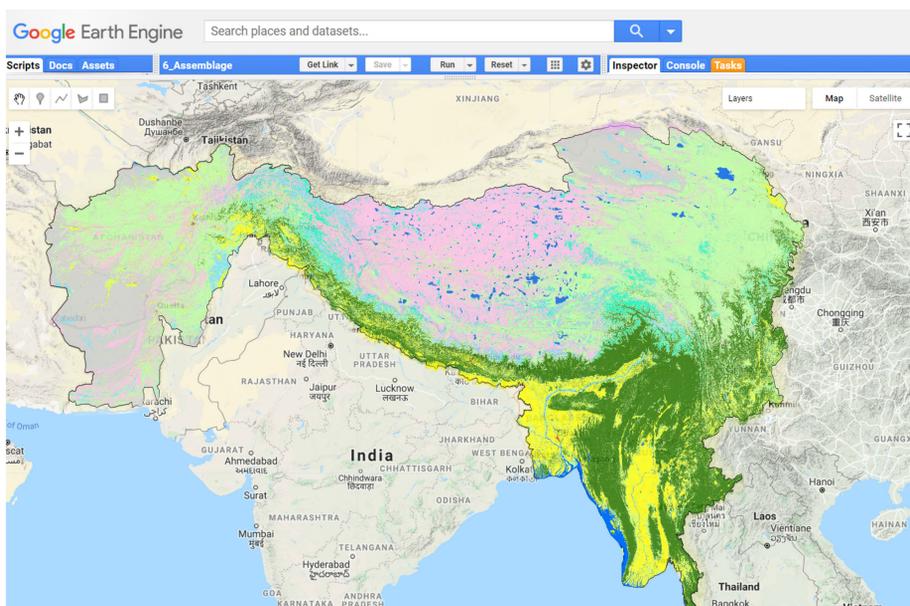


During the prolonged drought in spring 2016, SERVIR-HKH provided Earth observation satellite data and analyses to World Food Programme (WFP) Nepal to help identify the most drought-affected districts in western Nepal. These products helped WFP target food assistance worth USD 1 million to areas that were most in need.

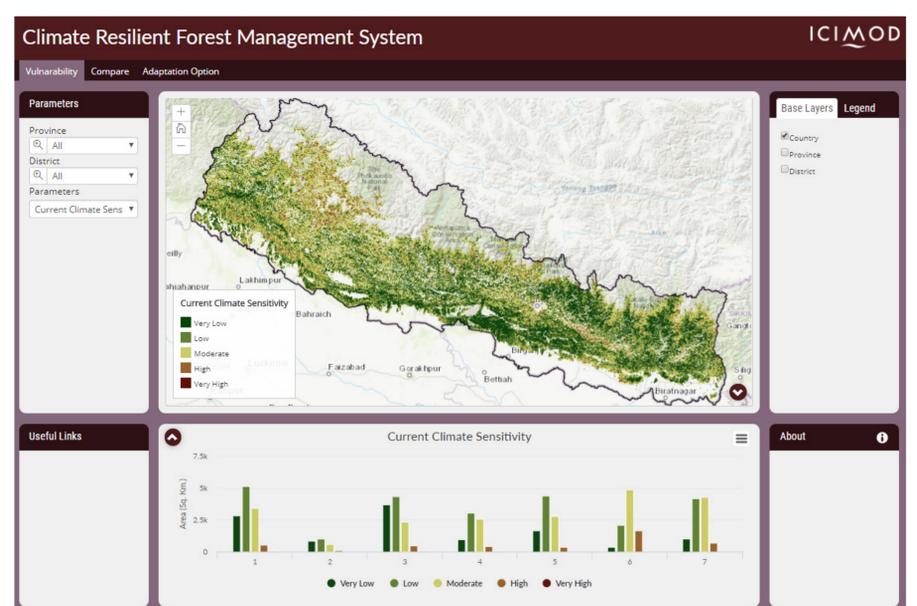
The Food Security Information System for Nepal, developed by ICIMOD in collaboration with WFP Nepal and Nepal's Ministry of Agriculture and Livestock Development, provides a one-stop access point to compile, analyse, and disseminate important information on food security.



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.



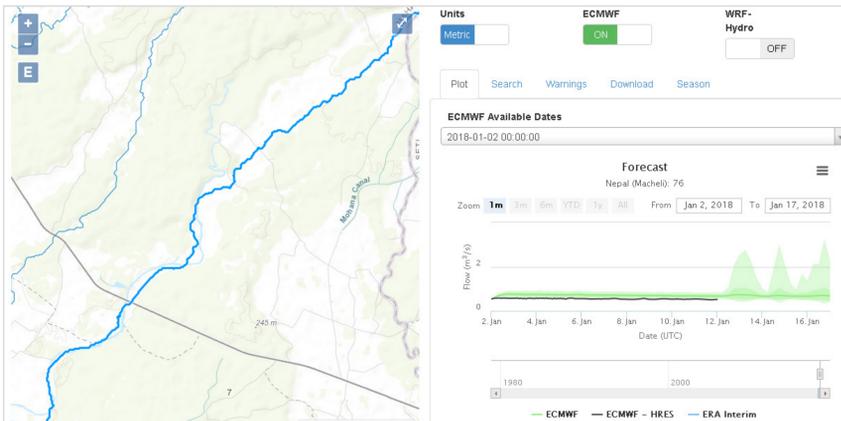
The Regional Land Cover Monitoring System generates consistent and high-quality land cover data using a harmonized classification scheme. It can be customized to address country-specific needs for monitoring and change analysis of land cover at the regional and national levels.



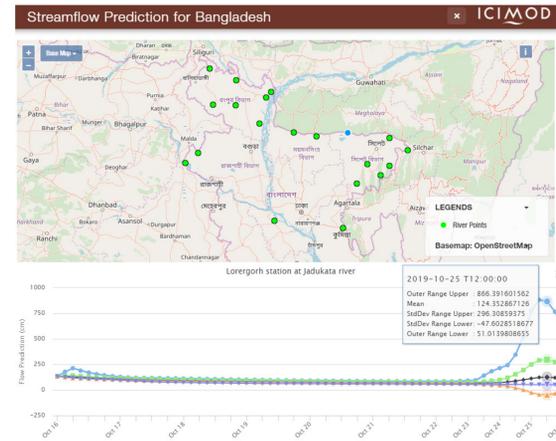
The Climate Resilient Forest Management System (CRFMS) is being developed to provide information on impacts of climate change and anthropogenic pressure on forest ecosystems, which will help forest managers in planning and managing the forests according to the extent of degradation and availability of resources.



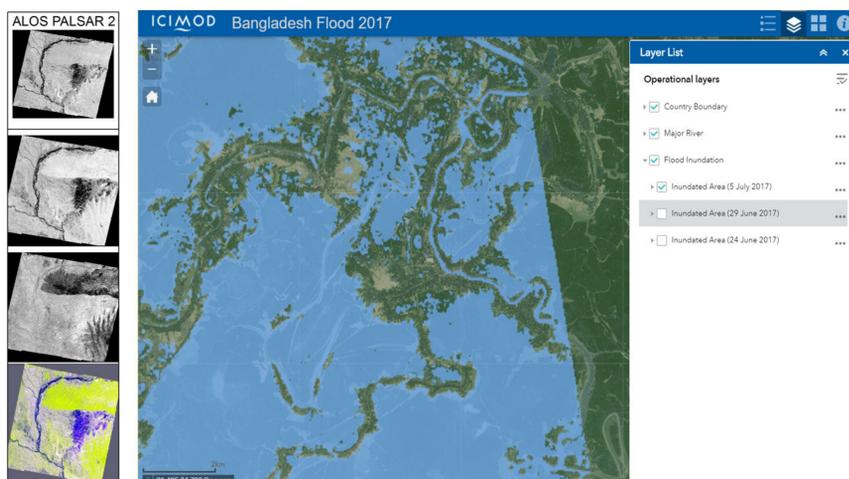
SERVIR-HKH is working on enhancing flood early warning information for flood-prone rivers in Bangladesh and Nepal and strengthening ICIMOD's regional flood outlook.



The stream flow prediction tool uses downscaled global flood discharge forecasts with routing models to forecast flood water levels in flood-prone river stretches in Bangladesh and Nepal with 10–15 days of lead time.



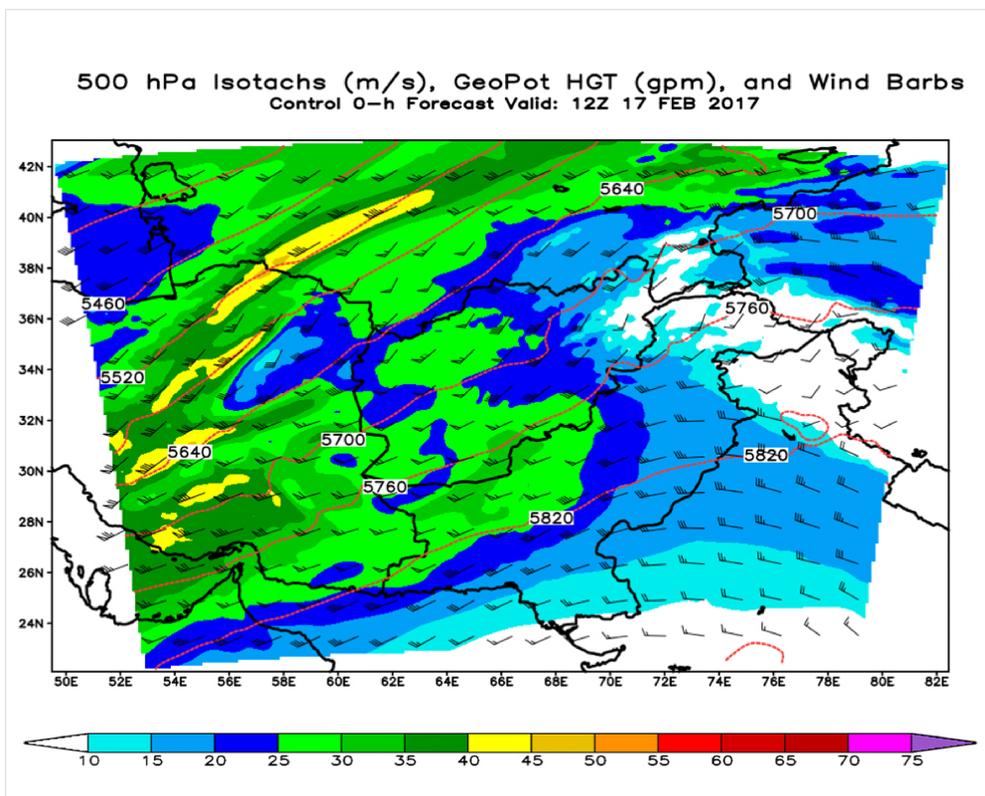
ICIMOD worked with the Flood Forecasting and Warning Center (FFWC) in Bangladesh to develop a custom application to generate stream flow forecasts at 17 boundary locations along the India–Bangladesh border.



The flood inundation application provides a synoptic view of the floods in northern Bangladesh and India and southern Nepal to aid damage assessment and relief efforts. The application is updated annually as part of the rapid response-mapping activities in response to the annual floods in the region.



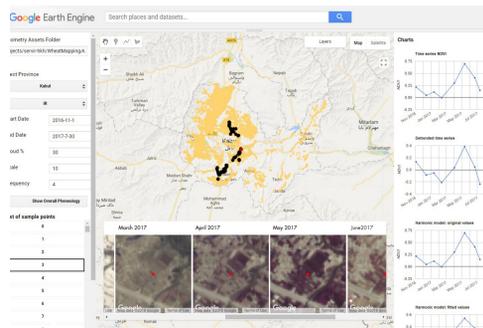
Working closely with partner institutions, SERVIR-HKH is implementing the High Impact Weather Assessment Toolkit (HIWAT) to monitor extreme weather-based events in the Hindu Kush Himalaya (HKH).



Extreme weather events annually claim many human lives and cause economic losses in the HKH. The ability to monitor these events is lacking in the region because of remoteness and limited technical capacity. SERVIR-HKH is developing a customized numerical weather prediction tool to facilitate the limited assessment of high-impact convective weather events over the HKH.



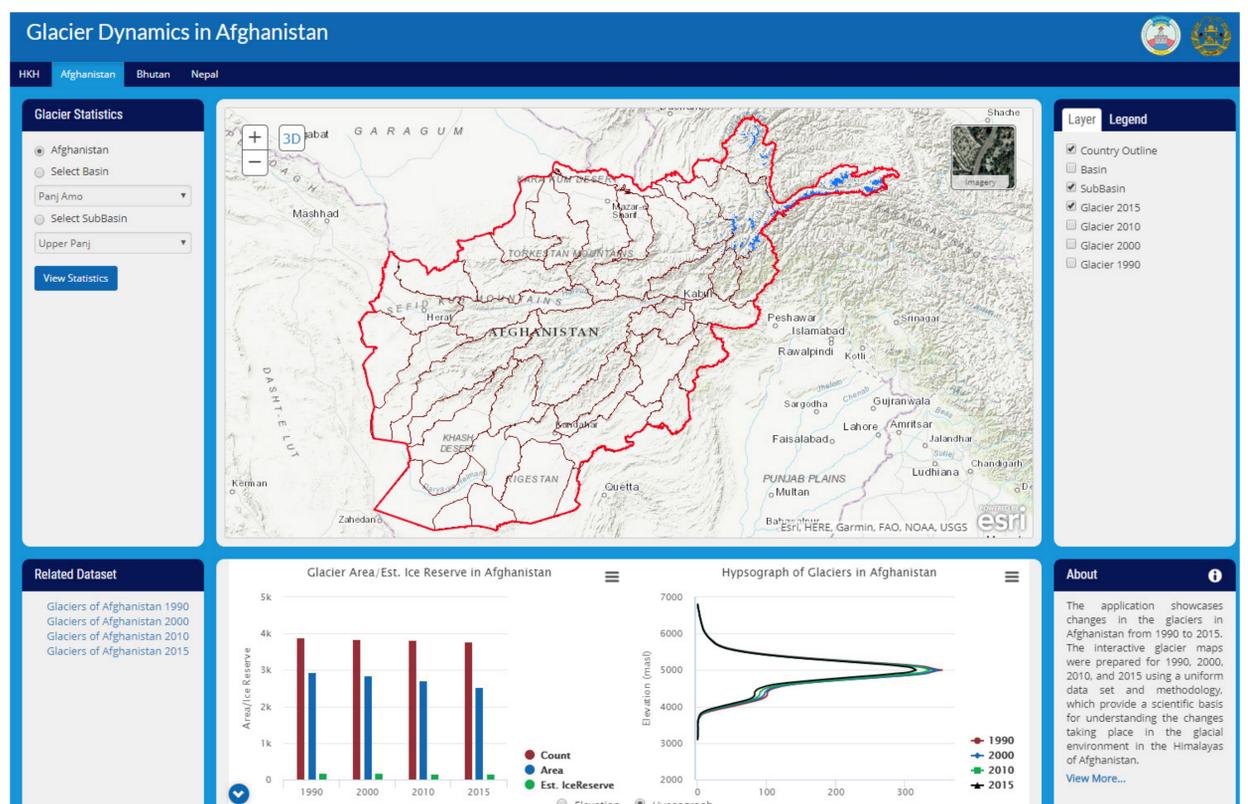
In Afghanistan, SERVIR-HKH provides technical assistance to the Government of Afghanistan by improving the use of technology in water resources, agriculture water use, and irrigation management and decision making. SERVIR-HKH has adopted a multipronged component approach – capacity building, enhanced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



SERVIR-HKH is using remote-sensing techniques for estimation of wheat-growing areas in Afghanistan using a phenology-based approach with multi-temporal satellite imagery and the Google Earth Engine platform.



The Agriculture Information Portal for Afghanistan provides a gateway to geo-information data and application tools and facilitates the sharing of spatial and non-spatial data related to agriculture.



The glacier dynamics application for Afghanistan provides an interactive visualization of decadal change of glaciers in Afghanistan since 1990 and their status in 2015. The glacier database is the culmination of a study carried out by researchers at ICIMOD and Afghanistan's Ministry of Energy and Water using satellite imagery.