

# The Way Forward

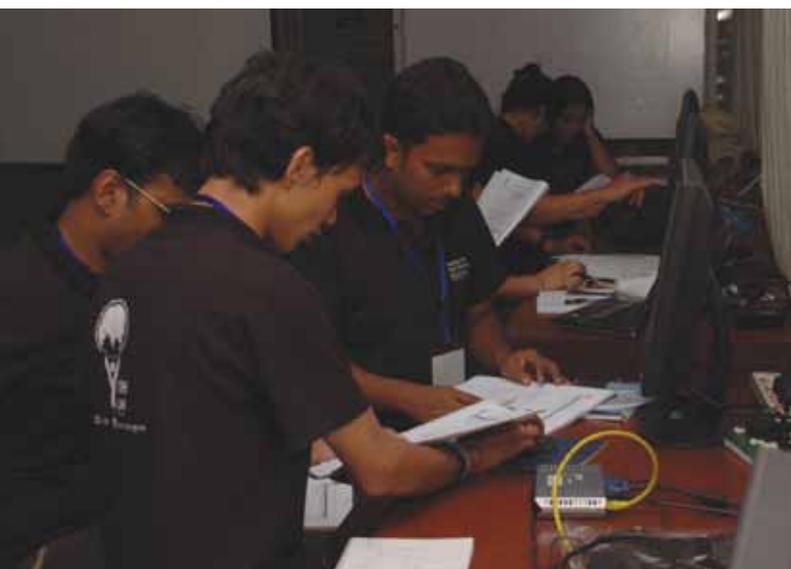
**Andreas Schild**, Director General, ICIMOD, [aschild@icimod.org](mailto:aschild@icimod.org)

Climate change presents a daunting challenge to all of us. It has increased the vulnerability of mountain systems, putting a strain on the resilience of mountain communities and their sustainable development. In the global climate change debate, the Hindu Kush-Himalayan (HKH) region has special significance as a regional 'weather maker'. The region also provides essential ecosystem goods and services, not only to mountain communities, but also to the large populations in transboundary river basins downstream. Mountain communities will need to adapt to the consequences of climate change and increase their resilience. However, our understanding of how to adapt is still at an early stage.

The size of the Hindu Kush-Himalayas, in terms of extension, altitude, and number of inhabitants affected by climate variability, is in stark contrast with the lack of reliable information and consistent data.

To face the new risks posed by climate change, but also to take advantage of new opportunities, we must enhance our understanding in a scientifically validated way to assess the impacts of climate change so that we can take informed action and plan adaptation measures. However, the data necessary to assess climate change are incomplete.

Training of youth in use of GIS and Earth observation technology



Consequently, the full extent of the linkages among climate change and other drivers of change is not well understood.

Earth observation, combined with geographic information systems (GIS) and related technologies, is proving to be increasingly vital to our understanding of climate change processes, trends, and impacts, and for predicting future scenarios. We need to be able to generate information and scenarios, both on an immediate and long-term basis. ICIMOD is uniquely positioned to capitalise on the emerging dynamics of Earth observation in the region, foster regional cooperation, and tap into increased interest from international space agencies. We need to leverage climate data and information services from remote sensing and in situ measurement to manage climate change to serve the societal needs of mountain communities – in other words, we need to link 'space to village'.

We are in an era of unprecedented technological development, with Earth observation, GIS, the Internet, and the convergence of a myriad of technologies including social media, crowd sourcing, cloud computing, and spatial visualisation. This is creating enormous opportunities to increase our understanding of the state of mountain systems. It is important to enhance regional and national capacity to use these new technologies; to develop a consensus on a common regional approach and methodology; and to put proper institutional mechanisms in place for standardised data sharing and exchange. This will enable us to develop a wide range of decision applications at the national and regional levels for integrated river basin management, landscape conservation and management, early warning for disaster risk reduction, estimating carbon from forest resources, monitoring black carbon from space, analysing agricultural productivity and food security, and much more. Lastly, through the sound framework of the Himalayan Spatial Data Infrastructure (SDI), we need to operationalise climate and environmental information services for improved access to, and use of, Earth observation data and other types of information. This should be done in a format that can be understood and used by policy makers and the public at large. ICIMOD is striving to provide meaningful solutions to help us understand the changes taking place and build resilient mountain communities in the HKH region.