

ANNUAL REPORT 2017

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Written and compiled by

Amy Sellmyer

Production team

Rachana Chettri (Editor)

Amy Sellmyer (Graphic designer)

Photos

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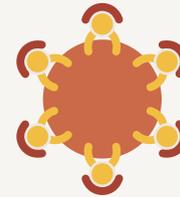
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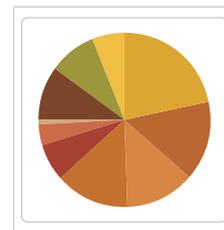
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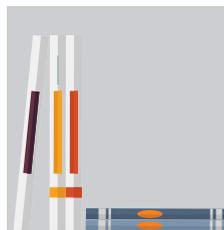
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Connecting the region for sustainable mountain development

The past year was an exciting time to be part of ICIMOD and its network of partners. It marked the final year in our third medium-term action plan, and we have many things to be proud of over the last five years. This report documents several stories showing the cumulative impact of ICIMOD's work over the last five years. They show how we combine efforts on multiple fronts – from working with communities, engaging policy makers and promoting collaboration across borders to generating new knowledge and building capacity – to create positive change in the Hindu Kush Himalaya (HKH). During this timeframe many important lessons have emerged to help us chart the way forward.

During 2017, we had extensive consultations with governments, partners and many stakeholders; and took into consideration our Quinquennial review to revise our Strategy and Results Framework, and new Medium Term Action Plan to better respond to the region's most pressing challenges.

Gender equality and social inclusion has always been a priority for ICIMOD, and now our commitment to this is included as a strategic result in our strategy and action plan. To transform this commitment into action to support gender transformative change in the region, we are developing gender action plans for each initiative and for the institution as a whole.

We have also introduced a new regional programme on Mountain Knowledge and Action Networks (MKAN) that brings the South Asian

Network for Development and Environmental Economics, a long-standing partner of ICIMOD, within the organization. It also houses the Himalayan University Consortium, which made huge strides during 2017, and the Hindu Kush Himalayan Monitoring and Assessment Programme (HIMAP). HIMAP will soon publish the first comprehensive assessment of the HKH. This flagship report is already enhancing our understanding of the region, filling critical data gaps and providing evidence for climate action at national, regional, and global levels. HIMAP has enabled the inclusion of HKH researchers in global assessments like those of the Intergovernmental Panel on Climate Change (IPCC) an important means to ensure that that mountains are part of global conversations on climate change.

ICIMOD plays a unique role in the region as a meeting place for ideas, dialogue, and collaborative action. As new challenges emerge and existing ones become more complex in the face of change, the need for regional cooperation to create sustainable development outcomes will continue to grow. Our regional niche and ability to bring countries in the region together to address shared challenges and work toward common goals will become an even more valuable asset in our mission to improve the lives and livelihoods of mountain men, women, and children of the Hindu Kush Himalaya.

Let me take this opportunity to thank you for your support of the vision, mission, and activities of ICIMOD and its partners.



ICIMOD plays a unique role in the region as a meeting place for ideas, dialogue, and collaborative action. As new challenges emerge, our ability to bring countries together to work toward common goals will become more valuable

David Molden
Director General, ICIMOD



MOUNTAIN INNOVATIONS AND COMMUNITY PRACTICES

Promoting and supporting
innovative approaches to address
change and build resilience





Women use seabuckthorn to control river erosion in the Indus basin

Fifty women from Passu valley in Pakistan have been tending to a community seabuckthorn plantation, along what used to be an eroded riverbank an hour from their village, since April 2017. The bushes will take another three years to fruit, but in less than one year, the barren patch of unsteady land has become a stable, green oasis. By successfully managing seabuckthorn as an anti-erosion, bioengineering measure, the women have played an instrumental role in strengthening the welfare of their communities. Learning from effective river-training efforts along the Yellow River in China, ICIMOD identified seabuckthorn as a locally available bioengineering measure able to withstand the rough terrain and deliver multiple benefits. ICIMOD and WWF provided the Passu Development Organization's Women Organization a small grant to plant and water the 5,000 saplings that now line the riverbank. The seabuckthorn bush now serves as a line of defense against the elements.



Cleaning up the Kailash kora through improved waste management

Solid waste pollution is a huge challenge in remote, high-altitude areas like Pulan County in the Tibet Autonomous Region of China. In the area surrounding the sacred Mount Kailash, a lack of awareness among local communities, an increasing number of visitors, and a lack of waste management infrastructure and institutions have exacerbated the problem.

Efforts made by ICIMOD and its partners to raise awareness have led the government and local communities to better manage waste. Waste management groups were established, and mechanisms were put in place to employ a waste management company to collect and dispose of waste. The results are significant at the end of the four-year intervention. The total annual waste collected reduced by over 90% between 2013 and 2016. This is a first, positive step in local efforts to protect the sanctity of this sacred site and protect the health of local communities.



Helping women channel remittances into flood preparedness

Women from flood-prone villages in south eastern Nepal are leading the charge to better prepare their families and communities to deal with the impacts of floods and other disasters. Over two years, 200 women from six villages in Udayapur, Nepal took part in an ICIMOD action research project designed to assess how building the capacity of women from migrant-sending households through training and extension services could better prepare their families to deal with floods and other hazards.

With support from the project, women were able to identify priority areas for flood preparedness and test possible solutions related to financial literacy, flood preparedness, and livelihood diversification. The project, which was also implemented in India and Pakistan, provided important lessons regarding the need for a combination of knowledge, planning, and economic savings as women prepare for their growing role as managers of risks and resources.

DEVELOPING COMMUNITY-LED TOURISM IN THE CHITTAGONG HILL TRACTS

Bandarban, home to the tallest peaks in Bangladesh, is surprisingly underutilized as a tourism destination. Most visitors spend only a short weekend in the district, exploring very little of the natural and cultural uniqueness of the area. Currently, tourism presents few benefits to local communities.



Since 2014, villages in Bandarban have been working with ICIMOD's Himalica initiative to test an integrated, community-led approach to tourism through which community members can participate in and benefit from tourism development.

In Moonlai para, ICIMOD and its partners in Bangladesh brought together guides, handicraft artisans, homestay operators, local producers, and the private sector to identify potential tourism products. The effort has helped link several parts of Bandarban — some areas are suitable for adventure activities, for example, while others lend themselves easily to culinary tours — to strengthen capacities and linkages between existing tourism products and services. Homestay and guide services are connected to handicraft artisans and coffee producers, enabling more local people to benefit from tourist arrivals and tourists to explore more of the region. These activities have given the people of Moonlai new employment opportunities. They have also incentivised local people to protect their natural and cultural heritage.



PREPARING COMMUNITIES FOR ECOTOURISM DEVELOPMENT IN BHUTAN

Tourism is essential to Bhutan's economy. It is a large contributor to GDP, second only to hydropower. The government's 12th Five Year Plan identifies ecotourism as a priority and it does so with good reason. There is immense potential for ecotourism in Bhutan — national parks make up 52% of the country. Conservation and community engagement go hand in hand with ecotourism, and the involvement of local communities will play a critical role in the success of the national government's new initiative.

To support partners in Bhutan as they test a community-based approach to tourism in the Haa valley, ICIMOD draws on expertise and experience within the Kangchenjunga Landscape shared between Bhutan, India, and Nepal. ICIMOD has trained over 100 people on tourism, including facilitating culinary training for 18 homestay operators from Haa and an exchange visit for more than 20 individuals to visit long-running homestays in Nepal. The new skills learned during these experiences will help ensure that the people of Haa are prepared to deliver the level of service demanded by the growing number of visitors to the valley.



REVIVAL OF LARGE CARDAMOM BRINGS NEW OPPORTUNITIES TO EASTERN NEPAL

Simple and affordable technologies, increased capacity, and links to the private sector are helping farmers in Taplejung manage risk

Eastern Nepal is ideal for cardamom production. Taplejung alone produces one-third of the nation's cardamom. The livelihoods of around 65% of households in the district depend on large cardamom production. However, over the last decade, prices have fluctuated and productivity has declined. Farmers are concerned about how to increase yields, quality, and returns.

Through its Support to Rural Livelihoods and Climate Change Adaption in the Himalaya (Himalica) initiative, ICIMOD works with farmers to increase cardamom productivity and manage risks related to the impacts of climate change and market uncertainty. The initiative has identified a group of lead farmers to introduce new farm management

practices. The lead farmers have planted climate-resilient cardamom varieties and are employing techniques to improve soil nutrition and water management in their fields. They have set up a grading system for cardamom pods and are using improved dryers to add value to the crop. With the lead farmers demonstrating these simple and affordable technologies to their peers, cardamom production is witnessing a revival in Taplejung.

ICIMOD helps farmers prepare for uncertainty in the future by building entrepreneurial capacity and institutions and implementing risk diversification measures. Linkages set up with the private sector and training for local farmers have led to the formation of

local enterprises that produce high-value cardamom products — spice mixes and pouches made of cardamom stalk fibre, among other things. Such efforts, combined with improved production methods and strengthened groups and cooperatives, have enabled farmers to better manage climatic and non-climatic risks.





Connecting Communities Across Boundaries to Reduce Flood Risk

For years, Ranjit Kumar Jha and Raj Kumar Mohato lived parallel lives across the India-Nepal border. Every monsoon, heavy rains threatened to transform the Ratu River that runs past their villages into a coursing flood, forcing them and other men from their villages to keep watch by the river through the night. Now they are connected to real-time flood information and each other - despite the border separating them - by a community-based flood early warning system (CBFEWS). This connection made a difference during the 2017 monsoon season. In August, when the CBFEWS alerted Raj, caretaker of the system in upstream Sarpallo, Nepal, of rising river levels, he immediately warned Ranjit downstream in Bhattamore, India. This warning gave Ranjit, his community, and local emergency response agencies eight hours of lead-time to save lives and property. No lives were lost.

Flash floods are an unavoidable aspect of life in the HKH, hindering development, disrupting lives, and interrupting basic services. Some of the communities most vulnerable to flood risk are those located in remote tributaries of the region's major rivers. However, getting flood information to these communities has been a challenge.



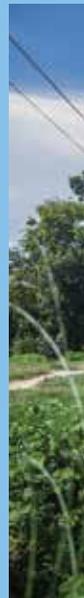
The introduction of CBFEWS has put flood information in communities' hands, enabling them to better detect and respond to flood emergencies.

Since it was first tested in 2010 in Assam, India, under ICIMOD's Himalayan Climate Change Adaptation Programme (HICAP), the Centre has worked with partners to make the system more effective - improving the technology, increasing community engagement, and conducting activities to improve community and government disaster response mechanisms.

Flash floods are an unavoidable aspect of life in the HKH, hindering development, disrupting lives, and interrupting basic services

Through different initiatives, ICIMOD and its partners have now installed more than 10 CBFEWS in eight tributaries of the Brahmaputra, Indus, and Koshi rivers in Afghanistan, India, Nepal, and Pakistan. The impacts of the CBFEWS system on the ground have been immense. In one flood that hit Sarpallo - where the system was installed under the Koshi Basin Programme - 10 houses were destroyed, but no lives were lost. Raj Kumar Mahato and his community were able to save 3,500 heads of livestock valued at over one million dollars.

The system has gained the trust of communities, and demonstrated a cost-effective approach to reduce risks and costs associated with floods. The system has created connections between communities that will enable them to better prepare and respond to floods in the future.





Creating sustainable partnerships to expand and innovate community-based flood early warning systems

The demonstrated success of CBFEWS has drawn the attention of government agencies and development partners. Partners in India, Nepal, and Pakistan have initiated efforts to scale out the system to other flood-prone areas and to integrate this approach into local and national policies.

ICIMOD is scaling out CBFEWS through its partnership with Sustainable Eco Engineering (SEE), a private company based in Nepal. SEE manufactures CBFEWS equipment, customizing the system to different rivers. Private sector engagement has driven innovation in instrument functionality. Three generations of CBFEWS have been piloted so far, and each upgrade has been more durable, user-friendly, and scalable than the one preceding it. As a reliable provider of CBFEWS services, SEE is helping increase the uptake of the system through partnerships with development agencies. On a larger scale, ICIMOD and SEE are in discussion with Practical Action Consulting, Lutheran World Relief, Oxfam, and UNICEF to scale out cross-border CBFEWS in different river tributaries in Nepal and India.



The introduction of CBFEWS has put flood information in communities' hands, enabling them to better detect and respond to flood emergencies



ENGAGING POLICY MAKERS

Enhancing the science-policy
interface for evidence-based
decision making





Mapping the future of organic agriculture in Bhutan

Bhutan is looking to organic agriculture to compete in a crowded South Asian market. In line with the country's development philosophy and emphasis on gross national happiness, ICIMOD is supporting the Himalayan kingdom as it takes steps to transform its agricultural sector — moving from agricultural systems that rely on the use of chemicals to one that emphasizes local, natural production and promotes the conservation of the environment and traditional culture.

With technical and financial support from ICIMOD's Himalica project, the Ministry of Agriculture and Forests has developed a roadmap for organic agriculture in Bhutan. The guiding document, which was developed through a series of consultations and extensive fieldwork, will contribute to the country's efforts to achieve development results while caring for its land and people.



Reframing migration to support adaptation in Nepal

A policy shift is underfoot in Nepal to ensure enabling conditions are created to leverage migration for enhancing resilience to climate change and vulnerability. There is growing acknowledgement of the influence of climate stress and shocks on the decision to migrate and that migration could be part of the solution if supported as a strategy for adaptation. Until now, lack of understanding, enabling conditions, and commitment has led to a fragmented approach that does not fully take advantage of migration as an important strategy for migrants and their families to adapt, manage risks, and build resilience. The Government of Nepal, with support from ICIMOD and the International Organization for Migration, is developing a strategy to bring 10 government agencies through a consultative process to do just that. This strategy will help the government and development partners integrate migration into policy and planning processes that will support adaptation and resilience within migrant-sending families and communities.



Action plan to tackle air pollution in the Kathmandu Valley

As urban centres across the HKH expand, managing air pollution becomes increasingly challenging. Over the past five years, ICIMOD's Atmosphere initiative has worked to build a body of scientific expertise and knowledge on the region's atmosphere to support air pollution management. In response to worsening air pollution in the Kathmandu Valley, Nepal's National Planning Commission requested ICIMOD to join a task force — of multiple ministries, the private sector, and experts with different disciplinary backgrounds — to develop a short-term action plan for improving air quality. After a series of consultations, the team shared the final report with the Prime Minister of Nepal in autumn 2017. The report identifies 200 short- and long- term recommendations under 12 broad headings — including open fires, road dust, vehicle emissions, reducing emissions from bricks and industry, and public awareness. As these actions are implemented, there is hope that Kathmandu's air will improve significantly in the future.



ICIMOD SUPPORTS DESTINATION MANAGEMENT PLAN FOR BANDARBAN

Multiple stakeholders were engaged in a process to develop a roadmap for collaborative tourism development in the hills of Bangladesh



Bandarban is one of the most attractive tourist destinations in the Chittagong Hill Tracts (CHT) of Bangladesh. Domestic tourist numbers have increased significantly in recent years and will continue to increase as household incomes rise in the country.

As a domestic tourism destination, Bandarban caters to visitors seeking adventure or glimpses of the unique cultures of the people of Chittagong. However, while tourism brings new opportunities for local communities, its unplanned growth can have negative impacts on the cultural and natural resources that draw visitors to the landscape.

ICIMOD's Himalica initiative facilitated a multi-stakeholder engagement process to design a structured approach to sustainable tourism development in the CHT. As part of this, ICIMOD worked with the ministries



of Chittagong Hill Tracts Affairs and Civil Aviation and Tourism and hill district councils to develop a roadmap for strategic and collaborative tourism development.

The process of developing the Bandarban Destination Management Plan was informed by ICIMOD's experience working with two ministries and a range of stakeholders in Myanmar to develop a similar plan for Inle Lake, a popular tourist destination. The local government is committed to applying the same approach in two more districts, and the Ministry of Chittagong Hill Tracts Affairs has taken the lead in developing a CHT-level tourism policy document.



CONNECTING SCIENCE TO DECISION MAKING THROUGH SCIENCE–POLICY DIALOGUES



Thinking across sectors is essential to meeting the challenges of sustainable mountain development. ICIMOD is supporting this through science–policy dialogues on a range of issues in the HKH.

ICIMOD and the Government of Nepal hosted a meeting of scientists and policy makers from the HKH and South Asia 19 years after the Male Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia. The purpose of the meeting was to discuss the current state of knowledge on the region’s air pollution and to explore how this knowledge can be taken up in policy and decision making. The science–policy dialogue led to further meetings to take this important agenda forward.

For the Hindu Kush Himalayan Monitoring and Assessment Programme (HIMAP), such

dialogues are critical to figuring out how scientific findings on the region’s ecological and social status can best inform policy-level thinking that can influence decision making in the HKH. As the first HIMAP assessment underwent review and finalization over the course of 2017, ICIMOD hosted several dialogues with policy makers in the region, as well as with counterparts of the Arctic Monitoring and Assessment Programme in Norway.

During HIMAP’s first regional science–policy dialogue in December, decision makers and leading HIMAP authors debated, discussed findings, and went over the policy messages that are coming out of the first comprehensive assessment of the HKH.

This series of science–policy dialogues will continue once the assessment is published

Science–policy dialogues are critical to figuring out how scientific findings can best inform policy-level thinking

in 2018 and HIMAP becomes the centre of an effort to build a strong community and consensus about key issues in the region. The aim is that these discussions will eventually form the basis for an institutional science–policy forum to strengthen efforts to bring HIMAP and ICIMOD’s work and mountain voices to a global audience.



SUPPORTING THE DEVELOPMENT OF NATIONAL ADAPTATION PLANS



The impacts of climate change are already clearly visible, particularly in the hills and mountains of the HKH. As governments in the HKH search for ways to help people reduce risks they face from climate change, adaptation has become a critical component of planning at all levels. For this, the National Adaptation Plan (NAP) process developed by the UN Framework Convention on Climate Change (UNFCCC) has emerged as an important tool. When developed, this plan sets out what governments, businesses, and civil society will do to become more climate ready.

Nepal has already demonstrated its commitment to addressing climate change, and the NAP process presented an opportunity to outline clear steps to integrate climate change adaptation into relevant policies, programmes, and activities across sectors.

As it embarked on the process of developing the NAP, ICIMOD, through its Himalica and

HI-AWARE initiatives, supported the lead agency, the Ministry of Environment and Forests, in facilitating the consultative multi-stakeholder approach, building the capacity of implementing agencies, and contributing knowledge and expertise to critical sectors. Beginning in late 2016, ICIMOD helped the government bring together stakeholders across sectors, disciplines, and levels, to chart out a roadmap with the scope, roles, and responsibilities of those involved, and steps needed to develop a comprehensive set of options to support adaptation across the country.

A series of consultations and workshops enhanced common understanding of the challenges and strategies for addressing them, and nine priority themes were identified for adaptation action, each led by a different government ministry. ICIMOD facilitated technical working groups, contributed technical knowledge, and supported four of these thematic sectors: forest and biodiversity, water resources, gender and

ICIMOD helped bring together stakeholders across sectors, disciplines, and levels to chart out a roadmap for the development of a comprehensive set of options to support adaptation across the country

social inclusion, and livelihood and governance. ICIMOD also built stakeholder capacity on governance through an exposure visit to Bhutan, where stakeholders learnt about governance mechanisms that have proven effective. This collaboration resulted in several key reports that will underpin the rest of the NAP development - Synthesis of the Stocktaking Report for the NAP Process, Vulnerability and Risk Assessment Framework and Indicators for the NAP Formulation Process in Nepal, and Observed Climate Trend Analysis of Nepal (1971-2014).



These documents were officially launched in June 2017, which laid a foundation for conducting assessments required to prepare Nepal's NAP. Nepal is now well positioned to take this plan forward, and is setting an example for other Least Developed Countries undertaking their NAP processes.

ICIMOD is using this experience in Nepal to support NAP processes in other HKH countries. Under the Himalica initiative, it is supporting the UN Human Settlements Programme (UN-Habitat) and the Myanmar Climate Change Alliance (MCCA) - a technical unit based in Myanmar's Ministry of Natural Resources and Environmental Conservation (MoNREC) - to test an approach for vulnerability and risk assessments that is suitable for the country's hill and mountain areas. These assessments have already been conducted for deltas and dry zones. ICIMOD's support has helped ensure that the adaptation needs of mountains are clearly reflected in those nations' national adaptation planning processes.

Modeling national climate trends for adaptation planning in Nepal



As the Government of Nepal was beginning to develop its National Adaptation Plan, ICIMOD researchers were completing climate change modelling projections for the entire HKH. Although these were at a regional scale and not suitable for observing climate projections at a national scale, they provided a foundation from which ICIMOD could support the development of future climate scenarios to be included in the NAP process.

ICIMOD, under its Himalica and HI-AWARE initiatives, worked with Nepal's Department of Hydrology and Meteorology, Ministry of Population and Environment, and NAP expert team to identify climate models appropriate for further downscaling at a higher resolution at a national level in Nepal. The collaborative study analysed seasonal and annual climate change trends in Nepal at district and physiographic levels, including climatic extremes. The study generated important information about the future climate projections for Nepal and will ensure decisions on adaptation strategies guided by Nepal's National Adaptation Plan are supported by strong evidence.



BUILDING THE CAPACITY FOR SUSTAINABLE MOUNTAIN DEVELOPMENT

Amplifying positive change
through improved human and
institutional capacity





Using geospatial tools to strengthen local adaptation planning

Across the HKH, communities and government officials are working together to develop local adaptation plans for action (LAPAs) that capture local needs and direct resources where they are most needed to support adaptation. However, these plans do not always take into account broader changes that affect communities, like shifting land use patterns. Geospatial tools allow local planners to zoom out and look at their community and surrounding area as a whole, identifying areas for priority action. ICIMOD trained government officials leading the LAPA process in two districts of Nepal in the use of geospatial tools and analysis to better understand complexities at the sub-watershed level and develop more robust and effective adaptation plans. Considering the similarities across the HKH, this method could easily be adapted for other hilly areas. ICIMOD is taking this experience to Myanmar, where it is working with the government and partners to develop a vulnerability and risk assessment for Chin state.



New certification programme strengthens local adaptation action

Government officers working on the ground play an essential role in ensuring research about ways to enhance climate change adaptation and build resilience is put to use. They provide a vital connection with communities that will most benefit from this knowledge, and are on the front line of implementing climate change adaptation programmes and projects. In Nepal, ICIMOD and Practical Action developed a climate change certification course for Chitwan district. The four modules of the course covered the basics of climate change and climate science, disaster risk, understanding climate change adaptation at the local scale, and mainstreaming gender into climate change and development planning. After the six-month course, 20 graduates — from government agencies working on irrigation, forests, tourism, and water — walked away with greater capacity to effectively implement projects. The success of this programme has spurred demand in India and Pakistan for similar capacity building opportunities.

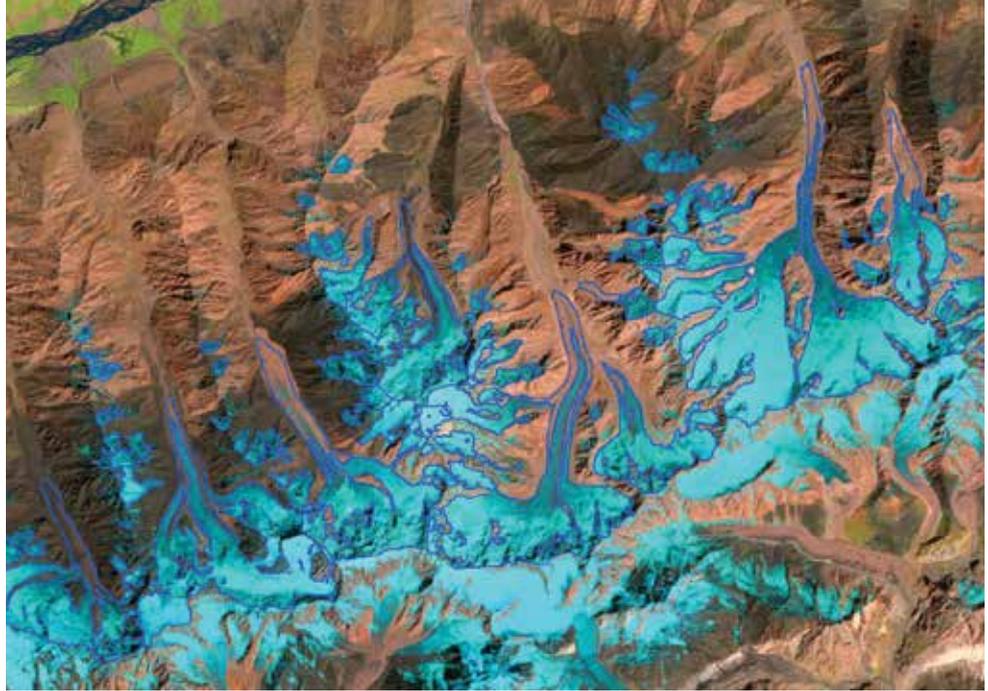


Strengthened capacity enables expansion of flood monitoring network

Each year, thousands of people across the HKH deal with the deadly effects of floods, and countries expend precious resources toward recovery. For flood-prone Bangladesh, real-time information is essential to saving lives and property. ICIMOD has been working with partners in Bangladesh since 2012 to modernize the nation's flood monitoring network. ICIMOD's HYCOS programme has upgraded nine stations and helped national agencies build necessary expertise by providing training on the installation, operation, and maintenance of these stations and on managing the influx of data.

With this expertise, partners in Bangladesh have been able to attract larger investment funds to fully upgrade their flood monitoring network. So far, they have been able to upgrade 32 stations with modern hydro-meteorological monitoring technology to improve the flow of accurate and timely flood information to communities at risk.

BUILDING CAPACITY ON EARTH OBSERVATION LEADS TO AFGHANISTAN'S FIRST GLACIER INVENTORY



The Afghan Ministry of Energy and Water is now better equipped to map and monitor glaciers, which will support better water resources management in Afghanistan



Glaciers are a key indicator of climate change, but the remote nature and challenging terrain of Afghanistan's mountains make mapping glaciers and monitoring glacier change particularly challenging. The country's first glacier inventory is the result of a collaboration between ICIMOD's SERVIR-HKH initiative and Afghanistan's Ministry of Energy and Water (MEW).

Before this collaboration, lack of baseline data or skills in the latest technology made it impossible for national agencies to track glacier change. ICIMOD helped Afghan national agencies improve their ability to use geospatial technologies to analyse glacier change and the impacts of climate change on water resources. ICIMOD organized multiple on-the-job trainings for staff from the ministry at its headquarters in Kathmandu.

Experts at ICIMOD took MEW trainees through the process of mapping and monitoring glaciers using geographic information system tools and remote sensing techniques, and carried out quality assurance for the generated datasets. In addition, four Afghan research assistants worked closely with ministry staff in Afghanistan to develop the nation's first glacier inventory.

The Afghan Ministry of Energy and Water is now better equipped to map and monitor glaciers. The inventory they developed will serve as a baseline for future research to understand and support water resources management in Afghanistan.

CREATING OPPORTUNITES FOR SMALL BUSINESSES IN THE YAK VALUE CHAIN IN PAKISTAN

Entrepreneurship training has brought new small businesses into the yak value chain in Gilgit-Baltistan, many of which are run by women

Yak are an important resource in the HKH rangelands. Building and strengthening yak value chains can contribute to sustainable rural development. In Gilgit-Baltistan, Pakistan, ICIMOD and the Aga Khan Rural Support Programme (AKRSP) built community capacity to strengthen the yak value chain. A combination of market research, capacity building, and private sector collaboration will make it possible for communities in the region to benefit from the projected exponential growth in the market for yak products in the next five years.

To ensure that community members are ready to take advantage of the new income opportunities this growth will lead to, ICIMOD and AKRSP provided training on improving yak husbandry and pasture management, as well as on technical skills and knowledge about processing yak products and preparing



yak-based recipes to cater to the tourist market. Efforts were also made to develop micro-enterprises and entrepreneurship. Under the Himalica initiative, ICIMOD developed a training programme on entrepreneurship and the business life cycle. Existing entrepreneurs learnt ways to run small businesses more efficiently, and new and aspiring entrepreneurs hoping to venture into the yak value chain were given technical support to develop business plans. This training has resulted into new and existing small businesses entering the region's yak value chain. In one district, the number of small and medium-sized yak-related enterprises more than doubled, with 75% of the new businesses run by women.

These efforts to build capacity at the local level were met with investment by Sky Frozen, a lead enterprise with over a decade of experience in producing and packaging frozen food. They are currently building a modern slaughterhouse for processing, branding, and distribution of yak meat. Once constructed, yak producers will have an ensured market, and through collaboration with Sky Frozen, they will be paid a competitive price for their products.



SPURRING A CLEAN BRICK KILN REVOLUTION ACROSS THE HKH

Over the last three years, hundreds of brick kilns have been modified according to a new design that has environmental, health, and economic benefits

There are more than 100,000 brick kilns operating across the plains of Bangladesh, India, Nepal, and Pakistan. Each year, millions of bricks produced in these kilns feed the rapid development of cities and urban centres across the HKH region. However, despite the availability of clean technology, many of these kilns are inefficient. The costs of this inefficiency are high. Inefficient burning produces particulate matter and noxious pollutants that affect the health of neighbouring communities and ecosystems, even those hundreds of miles away from the kiln. Poor fuel efficiency also has economic implications for brick kiln entrepreneurs.

In Nepal, there are around 1,000 brick kilns burning more than 400,000 tonnes of coal each year. After the 2015 Nepal Earthquake,

which damaged more than 99% of kilns in the Kathmandu Valley, ICIMOD demonstrated alternative brick production techniques with environmental, health, and economic benefits. This was done through a multi-stakeholder partnership consisting of engineers and scientists, brick kiln entrepreneurs, and development partners.

Over the last three years, 20 kilns have been rebuilt using the new design and hundreds of brick kiln owners have modified their operational patterns. There is also growing interest from brick entrepreneurs in Bangladesh, India, and Pakistan. To support their transition to cleaner burning and more efficient kilns, ICIMOD has trained more than 1,000 people on clay preparation, firing and stacking, and the operation of zigzag kilns, as



Improved brick kilns increase energy efficiency and significantly reduce emissions



well as on occupational health and safety issues within brick kilns.

In 2017, ICIMOD organized three training workshops in Bangladesh and two in Pakistan. Eight brick kiln entrepreneurs from the two countries invested their own resources to visit Nepal to learn about zigzag firing technology, and five Pakistani entrepreneurs reconstructed their brick kilns based on the design adopted in Kathmandu. As brick kiln entrepreneurs take up the new design, ICIMOD is working with national governments in Bangladesh, Nepal, and Pakistan to support policy change in the brick sector. It has organized policy workshops in all three countries to this effect.

Business decisions are often driven by complex cost-benefit analyses. For years, brick kiln owners in Nepal were hesitant about upgrading their kilns to feature cleaner burning technologies. Evidence of reduced environmental impact was not enough. They needed assurance of economic benefits. Following the 2015 Nepal Earthquake, brick kiln owners got together with ICIMOD and other partners to build better brick kilns in Kathmandu. Scientific and economic analyses of the benefits of improved brick kiln designs are providing evidence for more brick kiln owners across the HKH region to make similar upgrades.

ICIMOD conducted an extensive field measurement campaign in brick kilns across the region on the emissions, energy efficiency, and exposure of brick kiln workers to pollutants at different types of kilns. The campaign was one of the largest in South Asia, covering 21 kilns featuring a variety of kiln structures and firing practices, including the modified forced draught zigzag kiln design introduced by ICIMOD and partners following the earthquake in Nepal. Analysis is ongoing, but preliminary findings suggest that converting from predominantly used Bull's trench kilns to modernized zigzag kilns brings multiple benefits. Use of forced draught zigzag kilns reduces emissions of fine particulate matter ($PM_{2.5}$) and black carbon by 40% and 60%, respectively. Energy efficiency was shown to increase by up to 25% as well, which means less fuel is needed and more potential profits for brick kiln entrepreneurs.



KNOWLEDGE GENERATION AND USE

Filling knowledge gaps and ensuring communities, government agencies, practitioners, and scientists use new data to drive positive change





Food security system uses geospatial technology to help predict shortages

ICIMOD has developed a platform for comprehensive information on food security indicators to improve food security monitoring and analysis. The dynamic information system builds on a collaboration that began in 2014 between Nepal's Ministry of Agriculture Development and the World Food Programme.

The system uses a combination of remote sensing, geospatial products, and field-based assessments to map and visualize levels of food security at district and sub-district levels. The interactive mapping platform provides policy makers and institutions working on food security management with reliable and up-to-date information they can use to design immediate relief efforts and appropriate policies to improve availability, access, and utilization of food across the country.



Understanding sedimentation in the Koshi to support collaborative action

Its broad and shifting alluvial plain is one sign of the dynamic nature of the Koshi River. It is also evidence of the massive amounts of sediment the Koshi transports from its upper reaches to the plains downstream. The river's excessive sediment flux affects agricultural land and infrastructure — hydroelectric power stations, barrages, and irrigation canals — downstream. It also affects water quality and freshwater habitats. Sediment deposits in downstream rivers and plains in southern Nepal and northern India contribute to frequent flooding and bank erosion. ICIMOD's Koshi Basin Initiative has been working with the Indian Institute of Technology in Kanpur to identify erosion dynamics and to make recommendations for further action. Understanding sediment load and its transboundary impacts in the Koshi River will help authorities understand and reduce water-related hazards resulting from heavy amounts of sediment deposited in the southern plains of the Koshi River basin. It will also support collaborative efforts at the regional level to address this challenge.



New research links beekeeping to agricultural productivity

Beekeeping is a source of livelihood for many mountain households in the HKH. Although traditionally kept for honey production, there is immense economic value to be derived from the pollination services bees provide. Pollinator populations are declining due to a mix of land use change, habitat loss, and the negative impacts of modern agricultural practices. Recent research explores the economic value honeybees add to agricultural productivity. A 2015 study in Chitral, Pakistan, found that management of honeybee colonies for pollination — not only honey production — resulted in higher apple yields and more marketable and valuable produce. Integrating pollination into mainstream agricultural production and marketing systems can increase farmers' incomes and improve their livelihoods, enhancing the resilience of agricultural systems, beekeepers, and orchard owners in the HKH. This knowledge is forming the base of new, mutually beneficial partnerships between farmers and beekeepers.

EXTENDING THE REACH OF AGRICULTURAL EXTENSION SERVICES

Climate change adaptation is crucial for women farmers in the HKH. As men move abroad seeking economic opportunities, women are forced to take up more agricultural work. In Nepal, the burden on women is growing as more men migrate. The reach of agricultural extension services in the country is limited, with an unmet need for trusted advice on new knowledge and technologies to support women as they adapt to climate change. Rigorous research in Nepal has demonstrated that women can be capable allies in the uptake of knowledge and technologies to support rural farmers.

A three-year randomized controlled trial tested how to engage local farmers as partners in augmenting extension services. The findings have provided a basis to rethink strategies for delivering extension services. The study tested the use of combinations of incentives and knowledge sharing among lead and peer farmers, and found lead and peer farmers can be just as effective at transmitting agricultural technologies and knowledge as extension workers. It is important to utilize local networks in disseminating new technologies and practices, and to recognize the important role that women play.



When women lead and peer farmers shared information about agricultural technologies, there were significantly higher adoption rates among households headed by both men and women, highlighting the benefits of engaging more women in this role. In addition to highlighting the need to focus on delivering extension services in ways that are more accessible to women, this research also made it clear that there is a need for regular training and capacity building programmes to maintain knowledge retention over longer periods of time.

Because of the remote and rugged terrain of the HKH, extension services in other parts of the region are also overstretched. Given this, the findings of this research will have relevance for government officials across HKH countries.

Rigorous research in Nepal has demonstrated that women can be capable allies in the uptake of knowledge and technologies to support rural farmers



MAPPING GLACIAL LAKES IN THE HINDU KUSH HIMALAYA

Monitoring changes in glacial lakes can provide evidence of the long-term impact of climate change on the region's cryosphere

ICIMOD generated the first comprehensive inventory of glacial lakes in the HKH region using a consistent data source to map glacial lakes in five major basins of the region. Monitoring how glacial lakes are changing provides evidence of the long-term impact of climate change on the region's cryosphere and water resources. These changes have implications for the safety of communities living downstream, whose lives and property are at risk when glacial lakes breach, sending a flood of water down steep mountain valleys.

This comprehensive report has created an important baseline that will help researchers around the globe monitor change and evaluate the risks of glacial lake outburst floods. This will support decision makers in the region in efforts to reduce risks of potential glacier lake outburst floods in the future. The study will also help to target future research on lakes considered more vulnerable. With further research, glacial lake change can be monitored, critical lakes identified, and hazard and risk levels assessed.



APPROACH TO SPRING REVIVAL YIELDS PROMISING RESULTS

For communities across the mid-hills of the HKH, springs are the main, and often only, source of water. As in many parts of the HKH, in Dullu, a village in Dailekh district in mid-western Nepal, drying springs are a growing problem, especially for women and children. New research testing a six-step method of monitoring, managing, and conserving these important water sources is giving communities in Dailekh hope.



As a part of a broader CGIAR Research Programme on Water, Land, and Ecosystems, ICIMOD and its partners worked with communities in Dailekh to identify spring recharge areas and design interventions to increase groundwater recharge. The results are promising. Spring revival activities undertaken in Kathnaula spring resulted in lean season (November–March) water discharge doubling within one year. Over the same period, water discharge remained unchanged in Ganjakhanevani, a spring with a separate recharge area but with similar geology and located on the same hill slope. The success of this project in Dailekh presents new options for communities across the mid-hills of the HKH facing water shortages.



Transboundary exchange helps change policy on access and benefit sharing



Regional exchange between China, India, and Nepal has contributed to action and Nepal's ratification of the Nagoya Protocol

Every plant has a purpose. This is an adage by which most communities in the remote Kailash Sacred Landscape must live. Any community's understanding of the natural world is intertwined with its connection to and stewardship of these important resources. Traditional knowledge about the cultivation and use of indigenous plants, animals, and organisms is passed down through the generations for human benefit.

Society can gain significantly by accessing these genetic resources and making use of them. However, to ensure conservation and sustainable use, benefits arising from their use need to be shared equitably. Failing to do so puts such knowledge, unique genetic resources, and associated indigenous communities at risk.

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (popularly known as Access and Benefit Sharing or ABS) to the Convention of Biological Diversity is a global option to create incentives for conservation and sustainable use, and to contribute to a more equitable economy

to support sustainable development. It creates a framework to promote transparent and effective implementation of the ABS concept at the regional, national, and local levels. The protocol ensures that genetic diversity and associated traditional knowledge are valued appropriately, and that local communities benefit equitably from them.

Between the three countries that share the Kailash Sacred Landscape - China, India, and Nepal - experience in access and benefit sharing is varied. In India, there is already significant experience in implementing the Nagoya Protocol, with established policies, governance mechanisms, institutions and models for community involvement. In Uttarakhand State, India, which adjoins China and Nepal and is home to the Indian part of the Kailash landscape, biodiversity management committees and people's biodiversity registers - two key components of the country's approach to implementing the Nagoya Protocol - were established shortly after the Nagoya Protocol entered into force in 2014 with support from the State Biodiversity Board and National Biodiversity Authority.

This allowed ICIMOD to facilitate an exchange of experience and knowledge between India, China, and Nepal through the Centre's Kailash Sacred Landscape Conservation and Development





Initiative (KSLCDI). Efforts undertaken with partners ranged from raising awareness among communities and building capacity at local and national levels, to regional exchanges through which policy makers from Nepal were able to learn from the implementation of the Nagoya Protocol in Uttarakhand.

ICIMOD's support has contributed to many impacts, the most prominent being the ratification of the Nagoya Protocol in Nepal in September 2017. More than 40 Nepal government officials now have greater capacity to implement access and benefit sharing, and a training manual in Nepali is supporting field-level activities to implement ABS at the national level.

Lessons learnt in each country have transboundary impacts, and the integration of indigenous knowledge into protecting biodiversity benefits local communities. The ratification of the Nagoya Protocol in Nepal is only the first step. ICIMOD is now supporting the Ministry of Environment and Forest to draft its ABS bill. The transboundary connections established through KSLCDI will continue to provide opportunities for shared learning and exchange between the three countries as they work to ensure the protection of genetic resources and the rights of local communities to benefit from traditional knowledge.

ICIMOD supports key policies for mountains and people



ICIMOD works hard to ensure its knowledge and expertise contribute to action by governments to support the conservation of HKH environments and the sustainable development of mountain communities. Over the last five years, ICIMOD has encouraged countries to create space for mountain voices in the development of national-level plans and policies, including the following:

- National Food Security Policy in Pakistan
- Ecotourism in Myanmar and Bangladesh
- Seventh Five-Year Plan in the Chittagong Hill Tracts, Bangladesh
- Ratification of the Nagoya Protocol in Nepal
- Agricultural policy in Bhutan



FACILITATING REGIONAL COOPERATION

Bringing countries together
to address shared challenges
as a platform for knowledge
exchange and collaboration





Four countries come together for common rangeland assessment

The Hindu Kush Karakoram Pamir Landscape (HKPL), a remote stretch of land where Afghanistan, China, Pakistan, and Tajikistan meet, is largely untouched by development. Nomadic tribes and small communities dot the countryside, and a majority of the economy in this region depends on the vast rangelands blanketing the landscape. For the first time, researchers from these four countries have come together to develop a common protocol for researching this important resource. Data will be collected using a single research method and harmonized land classification to ensure comparability and create a baseline status for resources in the HKPL from which to monitor change. This comprehensive assessment will support collaboration and coordination among the countries in the landscape on the protection of shared natural resources, as well as sustainable development within the communities who depend on them.



HKH countries identify need for regional centre on renewable energy

Despite strong demand for decentralized sustainable energy solutions, especially in off-grid mountain areas, a broad range of barriers have prevented the region from taking full advantage of existing and potential renewable energy sources. Through a consultative process begun in 2016, ICIMOD and the UN Industrial Development Organization (UNIDO) have explored demand within the region for a regional centre dedicated to researching and promoting renewable energy and energy efficiency solutions for the HKH. A meeting of 50 energy experts from the eight HKH countries in December 2017 made clear the need for a coordinated effort to demonstrate, invest in, and promote technology and policy to support rural energy access. When established, the centre will become an important avenue for scaling up climate-resilient sustainable energy markets, industries, and innovation customized for mountain areas.



Adapting a regional approach to wellbeing in sustainable development

Wellbeing is at the core of ICIMOD's work. It is enshrined in the Centre's mission – to improve the wellbeing of the men, women, and children of the HKH. ICIMOD is taking inspiration from successful models that gauge progress across multiple dimensions of social, economic, and environmental indicators to critically look at the state of wellbeing in the region and create a more holistic and sustainable development narrative.

ICIMOD conducted research to assess existing tools for monitoring wellbeing. Inspired by Bhutan's Gross National Happiness approach to development, the Centre has tested ways to adapt this approach to other parts of the HKH through pilots in Pithorogarh, India and Godavari, Nepal. A primary focus of this work has been to explore how this tool can measure and strengthen cultural diversity and resilience, community vitality, and psychological wellbeing – aspects that are key to the sustainable development of HKH communities.



HIMALAYAN UNIVERSITY CONSORTIUM SPURS CROSS-BORDER COLLABORATION ON WATER RESEARCH

Academic institutions from the HKH are coming together to work on water-related research



Academic institutions in different HKH countries have come together to investigate the region's water resources through research projects funded by seed grants under the Himalayan University Consortium (HUC) with support from the World Bank South Asia Water Initiative (SAWI).

Over the past two years, these grants were awarded to teams representing research institutions from at least two HKH countries. In most cases, these projects were led by researchers from under-resourced countries. The motivations for the design of the grant project were two-fold — to support transboundary collaboration on water-related research in the HKH, and to promote exchange and capacity building among

academic institutions in the region. Several of these partnerships have flourished beyond the initially funded projects, with creative collaborations emerging through leadership shared among the partners.

One major outcome has been the establishment of the HUC Water Thematic Working Group. This group, hosted by the TERI School of Advanced Studies, has members representing research institutions in Afghanistan, Bangladesh, Bhutan, China, India, Nepal, and Pakistan. The working group — which is quickly expanding beyond the members originally involved in the joint grant projects — will continue to explore new areas for research collaboration on water in the HKH.



SOUTH–SOUTH EXCHANGE HELPS HKH COUNTRIES SET FOREST REFERENCE LEVELS

Exchange between Asia-Pacific and the HKH has supported critical first step to accessing results-based payments efforts to protect forests



As huge stores of carbon, forests play an important role in addressing global climate change. Reducing emissions from deforestation and forest degradation (REDD+) is an international mechanism that creates value for the carbon stored in forests and provides financial incentives to developing countries to protect and better manage their forest resources and contribute to global efforts to mitigate climate change.

For developing countries to participate in the global REDD+ programme, they must first establish and submit a national Forest Reference Level (FRL). The FRL is a benchmark for each country's greenhouse gas emissions from which the success of their efforts to reduce emissions from deforestation and

forest degradation will be measured. It is also required for a country to become eligible to receive results-based payments for successfully implementing REDD+ activities. The process of setting a national FRL is complex, and for many countries, gaps in capacity and data have prevented the completion of this important step in the global REDD+ process.

ICIMOD's Regional REDD+ Initiative provided a South-South platform for countries from the HKH to learn from the experience of countries in the Asia Pacific, which are at more advanced stages of setting FRLs. Representatives from 12 countries in the Asia-Pacific, four of which had already submitted their FRL, joined a meeting in April 2017 with representatives from Bhutan, India, Myanmar, and Nepal to reflect on the

development of FRLs in their own countries, as well as the challenges they have faced.

Prior to this meeting, no country from the HKH had developed and submitted an FRL to the UNFCCC. The understanding of the complex FRL process gained through this exchange prepared countries in the HKH to take this move forward. Since then, Nepal, with support and guidance from ICIMOD, and India have developed their own FRLs and submitted them to the UNFCCC. Bhutan and Pakistan are currently in the process of developing FRLs. These documents are a critical first step in efforts by these countries to demonstrate their ability to reduce emissions by protecting their forests.



MAPPING A CRITICAL INDICATOR OF ENVIRONMENTAL CHANGE

Land cover data can tell a broader story of social and environmental change in a given area

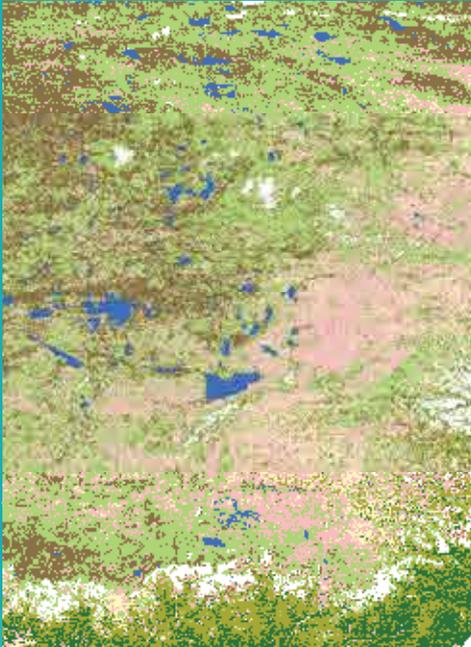
Over recent decades, mountain areas across the HKH have experienced rapid change. From rapid urban expansion and the construction of roads to the changing dynamics of forest ecosystems, land cover can tell a broader story of social and environmental change in a given area.

In an area as diverse and complex as the HKH, monitoring land cover change is particularly challenging. However, it plays an important role in identifying where changes in a landscape occur, what types of transformation take place, and what the possible causes and impacts of change are. This knowledge is essential to sustainably managing natural resources, protecting the environment, conserving biodiversity, and sustaining rural livelihoods.

In 2012, ICIMOD introduced a standard approach in the HKH for mapping land cover, adapting the latest geospatial technology for use in the HKH region. This led to the development of decadal land cover data from 1990, 2000, and 2010 for Bhutan, Bangladesh, Nepal, and Pakistan, and data from 2010 for Myanmar. Through national and regional consultation workshops, ICIMOD has created a harmonized classification scheme and a land cover database that will improve our understanding of complex change processes across the HKH.

To ensure national partners are able to use this data and generate their own in the future, ICIMOD organized a series of trainings in all eight countries of the HKH. During these

Land cover data feeds into national forest inventories



The harmonized land cover database is improving our understanding of complex change processes across the HKH

trainings, national partners learned how to consistently collect, analyse, and use land cover data to inform national policies and plans. The system will soon be upgraded with technology that generates data annually. This will allow researchers and decision makers to better evaluate and respond to fluctuations in land use and land cover in the HKH.

ICIMOD's efforts to generate consistent land cover data over several decades in the HKH is helping fill critical data gaps and supporting HKH countries as they develop national inventories on environmental themes.

In Nepal, data on land cover dynamics has been used to develop the nation's REDD+ forest reference emissions level, an essential first step in accessing results-based payments under the global REDD+ programme. At the national level, Nepal's Central Bureau of Statistics is using decadal land cover data to assess the state of the nation's forests in the first national forest land accounting. The land cover data ICIMOD

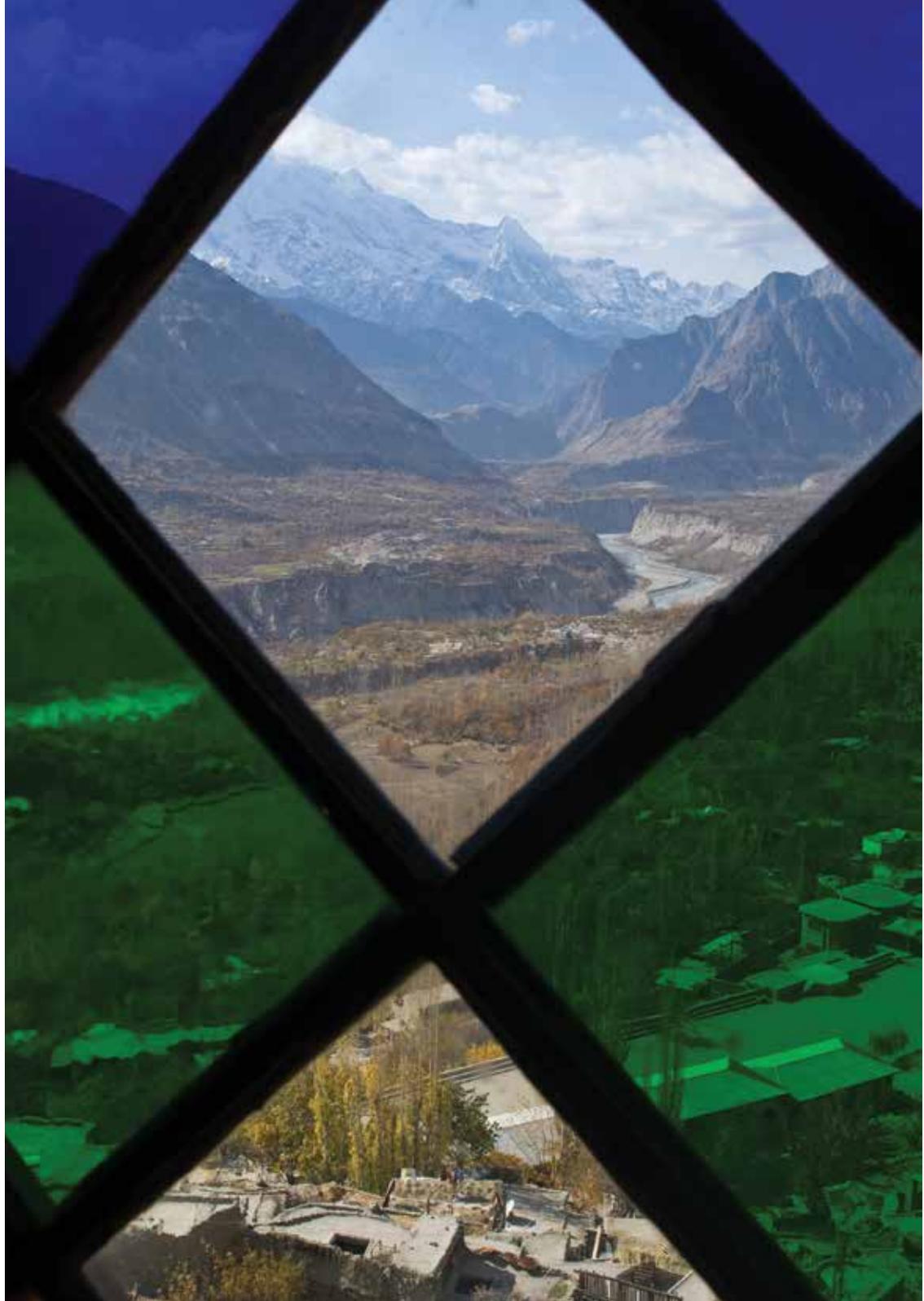
prepared with partners in Pakistan has also been used by the Government of Gilgit-Baltistan to develop a forest inventory as part of the country's REDD+ preparation phase.

Pakistan and Nepal are using land cover data as they take required steps to participate in the global REDD+ programme



REGIONAL AND GLOBAL OUTREACH

Drawing global attention to the HKH
to place mountains on regional and
international agenda





ICIMOD names first Mountain Chair

ICIMOD has awarded the first honorary title of ICIMOD Mountain Chair to Phanchung, Director of Research and External Relations at the Royal University of Bhutan. During his two-year role as ICIMOD Mountain Chair, Phanchung will promote cooperation to exchange knowledge between HKH universities and enhance institutional capacities. He will visit universities in other HKH countries to conduct academic seminars on mountain issues, and will hold discussions with faculty to explore possible collaboration on research and the development of curriculum targeted at sustainable mountain development. He will also act as an ambassador for the Himalayan University Consortium, which supported the prize, at regional and international events. HUC has been promoting collaboration between universities in the HKH. The ICIMOD Mountain Chair is a new initiative to promote the exchange of knowledge, enhance institutional capacities, and develop joint research projects to better understand challenges common across different countries.



Documenting stories of the Kailash Sacred Landscape

Within the Kailash Sacred Landscape — a remote area where China, India, and Nepal meet — there are many age-old stories that continue to inform the social and cultural traditions of communities living in the region. These stories reflect the landscape's rich cultural history and provide some understanding of what connects communities living here.

ICIMOD's Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) and the India-China Institute brought together a team of over 20 scholars from diverse backgrounds to collect these folk stories. The team took three years to collect and transcribe these tales. As societies evolve in this remote yet rapidly changing landscape, recording its ancient stories becomes all the more important. KSLCDI has published a series of books that provide glimpses of the unique traditions and cultures of the people of this shared sacred landscape. The stories demonstrate the complex connections the people and traditions of this important region share.



Guiding engagement with the private sector

For ICIMOD, partnering with the private sector is an essential step in developing and scaling up sustainable solutions to address challenges in mountain areas. ICIMOD launched a private sector engagement strategy focusing on five areas: linkages with ongoing ICIMOD activities, sharing knowledge, scaling up solutions, promoting regional cooperation, and encouraging investment in sustainable mountain development. A series of roundtable discussion with the private sector and development partners in ICIMOD's regional member countries outlined areas for collaboration where ICIMOD's goals align with the core interest of private sector actors.

With this strategy in place, ICIMOD is already strengthening its partnerships with diverse private sector actors. To support the implementation of ICIMOD's fourth medium-term action plan beginning in 2018, the Centre's Strategic Partnership Unit identified networks of potential private sector partners in each country that could add value to new activities.



COUNTRIES COME TOGETHER TO DISCUSS MOUNTAIN RESILIENCE



Resilience — the ability to spring forward in the face of change and bounce back from shocks — is critical to the future of mountain communities and ecosystems. The current narrative is often one of fragility and limitations, but ICIMOD is helping rewrite this narrative to reflect opportunity, innovation, and empowerment, all key to sustainable development in the HKH.

Over four days in December 2017, more than 300 policy makers, development practitioners, scientists, researchers, and journalists working in the region came together to discuss resilience. The international conference, “Resilient Hindu Kush Himalaya: Developing Solutions towards a Sustainable Future for Asia”, provided a platform to share major policy priorities and actions on resilience, as well as associated challenges and opportunities.

There were discussions around SDG-consistent mountain priorities — a set of goals developed by ICIMOD as a means to achieve the UN Sustainable Development Goals within the unique context of the HKH region. Participants and facilitators discussed ways to integrate the building blocks of resilience into development plans and programmes.

Discussions emphasized the importance of regional and global cooperation in tackling the challenges of building resilience taking into account the upstream-downstream linkages between the HKH region and the rest of Asia. Key messages that will guide future discourse and action on resilience in the HKH emerged out of the conference.

More than 300 policy makers, development practitioners, scientists, and journalists discussed the need for cooperation to tackle resilience while considering upstream-downstream linkages between the HKH region and the rest of Asia



INTEGRATING THE HKH INTO GLOBAL CLIMATE CHANGE ASSESSMENTS

Increasing representation from the HKH in teams developing the IPCC's assessment reports will strengthen evidence for climate action in the HKH



ICIMOD and its partners make concerted efforts to ensure that the knowledge their research generates fills critical data gaps. The goal is to make existing research on the social, environmental, and economic status of the HKH accessible and relevant to a broader global audience. The Intergovernmental Panel on Climate Change (IPCC) — the leading international body for the assessment of climate change — has recognized these efforts. The IPCC will incorporate data and information from the HKH in its future assessments.

In April 2017, more than 250 experts, policy makers, government officials, journalists, and youth joined an official outreach event of the IPCC hosted by the Government of Nepal

and ICIMOD. The event brought attention to the impacts of climate change in the HKH, as well as the collaborative action needed to address them.

ICIMOD and its partners have made a case for including greater representation from the HKH in the teams developing the IPCC's flagship reports. The Hindu Kush Himalayan Monitoring and Assessment Programme (HIMAP) coordinated by ICIMOD is a major effort to consolidate knowledge and profile researchers from the region. HIMAP assembles the collective knowledge of over 300 leading researchers and professionals and presents evidence-based policy solutions to safeguard the HKH environment and advance its people's wellbeing. The first HIMAP report —

a comprehensive assessment of the HKH — is set to be published by Springer by the middle of 2018. These efforts have helped make a case for the importance of the mountains and people of the HKH.

Nine ICIMOD researchers and a number of HIMAP authors are now part of IPCC author and review teams. The IPCC Special Report on Oceans and Cryosphere will have one chapter dedicated to high mountain areas. This will strengthen future IPCC assessments, consolidate evidence for global and regional collaboration, and inform policy to help address climate change.



PARTNERS

AFGHANISTAN

Ministry of Agriculture, Irrigation and Livestock – Focal Agency

National Environmental Protection Agency
Ministry of Energy and Water
Afghanistan Meteorological Department
Afghanistan National Disaster Management Authority
Aga Khan Assistance for Habitats (formerly known as Focus Humanitarian Assistance)
Aga Khan Foundation
Eshraq Institute of Higher Education
Kabul University
Kandahar University
Nangahar University
Wildlife Conservation Society

BANGLADESH

Ministry of Chittagong Hill Tracts Affairs – Focal Agency

Ministry of Environment and Forests
Ministry of Disaster Management and Relief
Ministry of Water Resources
Arannayk Foundation
Asian Centre for Development
Bandarban Hill District Council
Bangladesh Agriculture Research Council

Bangladesh Centre for Advanced Studies
Bangladesh Meteorological Department
Bangladesh Space Research and Remote Sensing Organization
Bangladesh University of Engineering and Technology
Bangladesh Water Development Board
Base Camp Bangladesh Ltd
BRAC University
Center for Environmental and Geographic Information Services
Centre on Integrated Rural Development for Asia the Pacific
Chakma Circle
Coastal Forest Division
Global Reporting Initiative
Institute of Forestry and Environmental Science, University of Chittagong
Institute of Remote Sensing, Jahangirnagar University Bangladesh
Institute of Water Modelling
Local Government Engineering Department
Palli Karma Sahayak Foundation
Rajshahi University
Refugee and Migratory Movements Research Unit
Social Science Research Institute
University of Chittagong

University of Dhaka

BHUTAN

Ministry of Agriculture and Forests, Royal Government of Bhutan – Focal Agency

Gross National Happiness Commission
Ministry of Economic Affairs
Bhutan Centre for Environment and Development
Bhutan Chamber of Commerce and Industry
Bhutan Media and Communications Institute
Bhutan Trust Fund for Environmental Conservation
Center for Climate Change and Spatial Infrastructure, Sherubtse College
College of Natural Resources
Council for Renewable Natural Resources Research of Bhutan, Ministry of Agriculture and Forests
Department of Forests and Park Services
Department of Research and External Relations
National Center for Hydrology and Meteorology (formerly known as Department of Hydro-met Services)
National Environment Commission
National Land Commission
Royal Society for the Protection of Nature
Royal Thimphu College
Royal University of Bhutan

SAARC Forestry Centre
 Samtse College of Education
 Taranayan Foundation
 Ugyen Wangchuk Institute for Conservation and Environment
 Women Culinary Association of Bangladesh and Inventor
 Youth Business Cooperatives

CHINA

Chinese Academy of Sciences – Focal Agency

Institute of Mountain Hazards and Environment
 Ministry of Science and Technology
 Asian International Rivers Center, Yunnan University
 Beijing Normal University
 Chengdu Institute of Biology
 China Dialogue
 China-ICIMOD Committee
 China Metrological Administration
 Cold & Arid Regions Environmental & Engineering Research Institute
 Collaborative Innovation Center for Security and Development of Western Frontier China
 Institute of Geographic Sciences and Natural Resources Research
 Institute of Remote Sensing and Digital Earth
 Institute of Tibetan Plateau Research

Kunming Institute of Botany
 Lanzhou University
 National Natural Science Foundation of China
 NorthWest University
 Qinghai University
 Sichuan University
 Southwest Forestry University
 Third Pole Environment
 Tibet Academy of Agriculture and Animal Sciences
 Tibet Treasure of Plateau Yak Dairy Co. Ltd
 UN Office for Outer Space Affairs (UN-SPIDER)
 UNEP International Ecosystem Management Partnership
 UNIDO International Solar Energy Center for Technology Promotion and Transfer
 University of Chinese Academy of Sciences
 Xinjiang Institute of Ecology and Geography
 Yunnan Agriculture University
 Yunnan Academy of Social Sciences
 Yunnan Minzu University
 Yunnan University

INDIA

Ministry of Environment, Forests and Climate Change – Focal Agency

GB Pant National Institute of Himalayan Environment and Sustainable Development

Ministry of Rural Development
 Ministry of Skill Development
 Ministry of Water Resources
 A N Sinha Institute of Social Studies
 Advanced Center for Water Resources Development and Management
 Bihar State Disaster Management Authority
 Central Himalayan Environment Association
 Centre for Ecology Development and Research
 Confederation of Indian Industry
 CSK Himachal Pradesh Agricultural University
 Department of Science and Technology
 Federation of Indian Chambers of Commerce and Industry
 Forest Research Institute
 Geospatial Media and Communications
 Greentech Knowledge Solutions
 HNB Garhwal University
 Indian Council of Forestry Research and Education
 Indian Institute of Science
 Indian Institute of Technology
 Institute For Financial Management & Research
 Institute of Economic Growth, University of Delhi Enclave
 Institute of Integrated Resource Management
 International Initiative for Impact Evaluation



Kashmir University
LEAD India
Megh Pyne Abhiyan
Meghalaya Basin Development Authority
National Institute of Administrative Research,
Lal Bahadur Shastri National Academy of
Administration
National Institute of Disaster Management
Niti Aayog
North-Eastern Space Applications Centre
Pan Himalayan Grassroots Development
Foundation
People's Science Institute
Penguin India
RML Information Services Pvt. Ltd
Shoolini University
Sikkim University
Sri Guru Ram Rai University
South Asian University
SKUAST Agriculture University
Swayam Sikshan Prayog
Tata Institute of Social Sciences
TERI School of Advanced Studies
TERI University
The Energy and Resource Institute
The Mountain Institute
Wildlife Institute of India
Yuganter

MYANMAR

Ministry of Natural Resources and Environmental Conservation – Focal Agency

Forest Department/ Ministry of Natural
Resources and Environment Conservation
Ministry of Hotels and Tourism
Agriculture University
Chin Organization for Rural and Agriculture
Development
Department of Meteorology and Hydrology
Forest Research Institute
Heritage Management and Responsible Tourism
Myanmar Institute for International Development
Myanmar Survey Research
Nature and Wildlife Conservation Society
One Map Initiative
Phyo Kyaw Trading
Relief and Resettlement Department
Union of Myanmar Federation of Chambers of
Commerce and Industry
University of Forestry
Wildlife Conservation Society
Yezin Agricultural University
Yangon University

NEPAL

National Planning Commission – Focal Agency

Ministry of Agriculture, Irrigation and Livestock
Ministry of Forests and Soil Conservation

Ministry of Population and Environment
Ministry of Science and Technology and
Environment
Agriculture and Forestry University
Alternative Energy Promotion Centre
Asian Centre for Development
Asian Institute of Technology and Management
Beed Management Pvt. Ltd
Bharatpur Metropolitan City Office
Center for Environmental and Agricultural Policy
Research, Extension and Development
Central Bureau of Statistics
Central Department of Biotechnology
Central Department of Environmental Science
Central Department of Geography, Tribhuvan
University
Central Department of Hydrology and
Meteorology
Clean Energy Nepal
Dabur Nepal Pvt. Ltd
Department of Agriculture
Department of Environment
Department of Hydrology and Meteorology
Department of Soil Conservation and Watershed
Management
Environment Conservation and Development
Forum
Environment Development Society
Environment Protection Nepal
Environmental Camps for Conservation

Awareness
 Federation of Nepal Brick Industries
 Federation of Nepalese Chambers of Commerce and Industry
 Forest Action Nepal
 Forest Department
 Forest Resource Assessment
 Geographic Information System and Integrated Development Center
 Green Governance Nepal
 Ground Water Resource Development Board, Ministry of Irrigation
 HELVETAS Swiss Interco operation Nepal
 Human Resource Development Centre
 I.C.T. For Agri Pvt. Ltd
 Integrated Development Society Nepal
 International Water Management Institute
 Kathmandu Medical College
 Kathmandu University
 Koshi Victim Society
 Lumbini International Research Institute
 Maha Sanchar
 METCENAS o.p.s.
 MinErgy Pvt Ltd
 Namsaling Community Development Centre
 National Reconstruction Authority
 National Trust for Nature Conservation
 Nepal Academy of Science and Technology
 Nepal Development Research Institute

Nepal Environment and Scientific Services Pvt. Ltd
 Nepal Forum of Environmental Journalists
 Nepal GIS Society
 Nepal Institute of Development Studies
 Nepal Mountaineering Association
 Nepal Water Conservation Foundation
 Nesta Enterprises Limited
 Niti Foundation
 Pokhara University
 Practical Action
 Real Time Solutions
 Red Panda Network
 Renewable Energy Test Station
 Research Centre for Applied Science and Technology
 Resource Himalaya Foundation
 Rootics Association of Nepal
 SAARC Business Association of Home Based Worker
 Sabal Nepal
 Sahayeya Samajik Sanstha
 Shodhshala
 Sun Farmer Pvt Ltd
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 Water and Energy Commission Secretariat
 Water Modelling Solutions
 Women Organizing for Change in Agriculture and NRM

World Wildlife Fund
 Young Innovations Pvt. Ltd

PAKISTAN

Ministry of National Food Security and Research – Focal Agency

Ministry of Climate Change
 Aga Khan Foundation
 Aga Khan Planning and Building Service
 Aga Khan Rural Support Programme
 Agriculture University Peshawar
 Change, Alternative Energy and Water Resources Institute
 Arid Agriculture University
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 Institut of Space Technology
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 International Livestock Research Institute



International Water Management Institute
Karakoram International University
Lahore University of Management Sciences
Leadership for Environment and Development (LEAD)
Mountain Society for Research and Development
National Rural Support Programme
National Agricultural Research Centre
National University of Computer and Emerging Sciences
National University of Sciences and Technology
NWFP Agricultural University
Pakistan Agricultural Research Council
Pakistan Council of Research in Water Resources
Pakistan Environment Protection Agency
Pakistan Institute of Development Economics
Pakistan Meteorological Department
Pakistan Water and Power Development Authority
Pir Mehr Ali Shah ARID Agriculture University and Consortium of Research and Development Organizations
Planning Commission
Range Research Institute
Resource Himalaya Foundation
Rural Support Programme Network
SAARC Chamber of Commerce and Industry
School of Civil and Environmental Engineering, National University of Sciences and Technology
Shaheed Benazir Bhutto University

SUPARCO
Sustainable Development Policy Institute
University of Swat
Water and Power Development Authority
World Wildlife Fund

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Akvo Foundation, the Netherlands
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Asian Disaster Preparedness Center, Thailand
Asian Institute of Technology, Thailand
Bjerknes Center for Climate Research, Norway
Center for International Climate and Environment Research, Norway
Centre for Development and Environment, University of Bern, Switzerland
Centre for Development Innovation, the Netherlands
Centre for Geoinformatics, Austria
Chubu University, Japan
Clean Air Asia, the Philippines
Climate & Health Research Network
Commonwealth Scientific and Industrial Research Organisation, Australia
Communications Development Inc, USA
Department of Foreign Affairs and Trade, Australia

Disaster Prevention Research Institute, Kyoto University, Japan
DNV GL, Norway
ENERGIA International Network on Gender and Sustainable Energy, the Netherlands
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Finish Meteorological Institute, Finland
Finnish Meteorological Institute, Finland
Futurewater, the Netherlands
Global Alliance for Clean Cook Stoves, USA
Global Centre of Excellence on Climate Adaptation
Global Earth Observation
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Institute for Global Environmental Strategies, Japan
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International Initiative for Impact Evaluation, USA
International Institute for Geo-Information Science and Earth Observation, the Netherlands
International Institute of Asian Studies, the Netherlands
International Institute of Social Studies, the Netherlands

International Network on Gender and Sustainable, the Netherlands
 International Organisation for Migration
 International Union for Conservation of Nature
 IOD PARC International Organisation, UK
 Japan Aerospace Exploration Agency, Japan
 METCENAS o.p.s., Czech Republic
 Microsoft Corporation, USA
 Molina Center for Strategic Studies in Energy and the Environment, USA
 Mongolia International University
 National Aeronautics and Space Administration, USA
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 Norwegian University of Life Sciences, Norway
 Norwegian Water Resources and Energy Directorate, Norway
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 Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
 Room to Read, USA
 Statkraft, Norway
 Stichting Wageningen Research, the Netherlands
 Stockholm Environment Institute, USA
 Stockholm Water Institute, Sweden
 Swiss Federal Institute of Technology Zurich, Switzerland

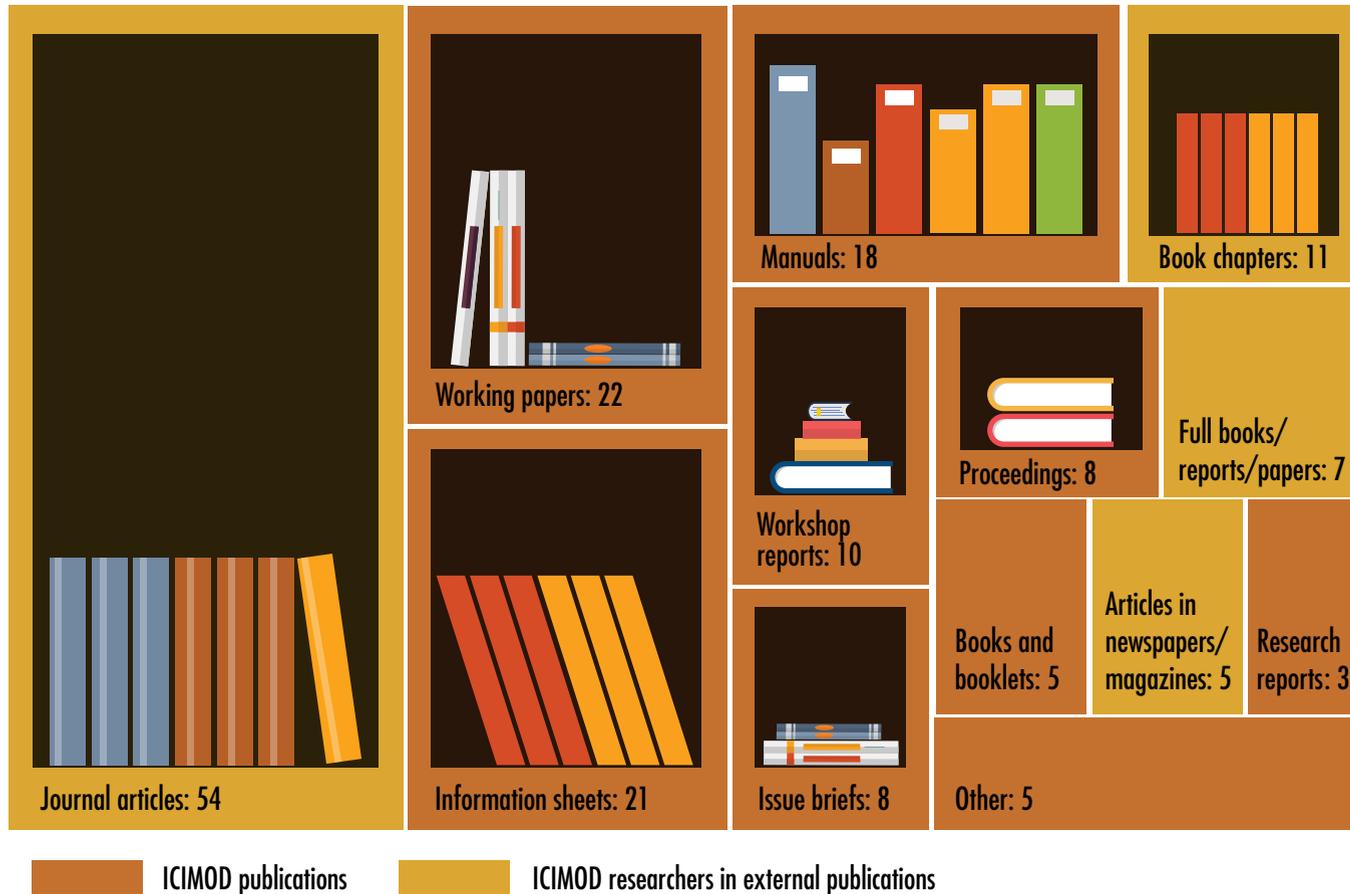
Technical University of Munich
 United Nations Capital Development Fund
 United Nations Development Programme
 United Nations Environment Programme, Thailand
 United Nations Environment Programme/GRID-ARENDALE, Norway
 University of Arizona, USA
 University of Bern, Switzerland
 University of Central Asia, Tajikistan and Kyrgyzstan
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 World Food Programme

World Food Programme
 World Meteorological Organization, Switzerland
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 Yale Himalayan Initiative, USA



PUBLICATIONS IN 2017

ICIMOD disseminates much of the information gathered during programme activities in the form of printed and electronic publications targeted at policy makers, development workers, government experts and decision makers, students, and the interested public. All ICIMOD publications can be downloaded free of charge from www.icimod.org/himaldoc. Hard copies are provided free to institutions actively involved in sustainable development of the Hindu Kush Himalaya. A link to the full collection of publications from 2017 can be found at: www.icimod.org/AR2017.



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HE Dr Joerg Frieden (*Vice Chair, ICIMOD Support Group*)
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Notes:

† Chair, Board of Governors

‡ Chair, Programme Advisory Committee, and Vice Chair, Board of Governors

*Mr Ajay Narayan Jha served from May 2016 till October 2017

**Dr Min Bahadur Shrestha served from September 2016 till August 2017

***Mr Muhammad Abid Javed served from March 2016 till August 2017

STAFF

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Sharma, Achala

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Gurung Goodrich, Chanda
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Shrestha, Mamata
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Tuladhar, Sabarnee
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Ecosystem Services

Wu, Ning
Aryal, Kamal
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Khaing, Phyo The
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KNOWLEDGE MANAGEMENT AND COMMUNICATION

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Maden, Utsav

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Mishra, Udayan
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Amatya, Trishna
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Bajracharya, Ujjwal
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Chitrakar, Indu
Dabas, Rahul
Dhakhwa, Prerana
Jirel, Birkha Bahadur
K.C., Dhruva
K.C., Rishi



K.C., Sudama
Kansakar, Chandra BS
Kumar, Sandeep
Lama, Sewanti
Maharjan, Chini Kaji
Maharjan, Kishore
Maharjan, Krishna
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Pradhan, Pallavi
Pradhan, Saisab
Rana, Ganga
Ranjit, Rabindra
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Sharma, Yuvraj
Shrestha, Bijay Kumar
Shrestha, Kiran Man
Shrestha, Kishore
Shrestha, Mohan
Shrestha, Nabindra
Shrestha, Rajani
Shrestha, Ram Kumari
Shrestha, Shyam
Singh, Sabak
Tamang, Mik Mar
Thapa, Chomu Prerna
Thapa, Shambhu
Upadhyaya Gairapiplee, Umesh
Vaidya, Jenny

VISITING SCIENTISTS

Hossain, Faisal
Meeks, Robyn
Saxer, Johannes Martin
Shea, Joseph
Shrestha, Anil
Thapa, Ganesh

COUNTRY OFFICES

Jasra, Abdul Wahid (Pakistan)
Jawid, Jawid Ahmad (Afghanistan)
Aslam, Muhammad (Pakistan)
Ayub, Haris (Pakistan)

SANDEE

Somanathan, E.
Nepal, Mani
Pradhan, Neesha

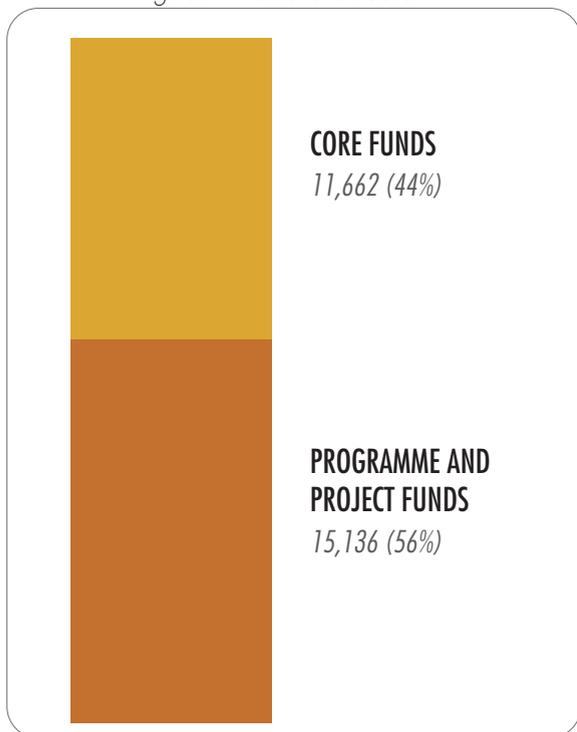
FINANCIAL REPORTS

The Centre receives funds in the following broad categories: a) core funds from regional member countries and non-regional countries, and b) programme and project funds. The actual income received in 2017 is presented in the chart below (left) and the breakdown of expenses by function is presented in the chart below (right). A total income of USD 26.80 million was realized during the year, and an expenditure of USD 23.08 million was made. This expenditure comes to 95% of the Board of Governors approved plan of USD 24.37 million. There has been an exchange gain of USD 1.4 million in 2017, which has been adjusted against the support cost in the audited financial statement.

INCOME BY SOURCE 2017

Total Income 2017: USD 26.80 million

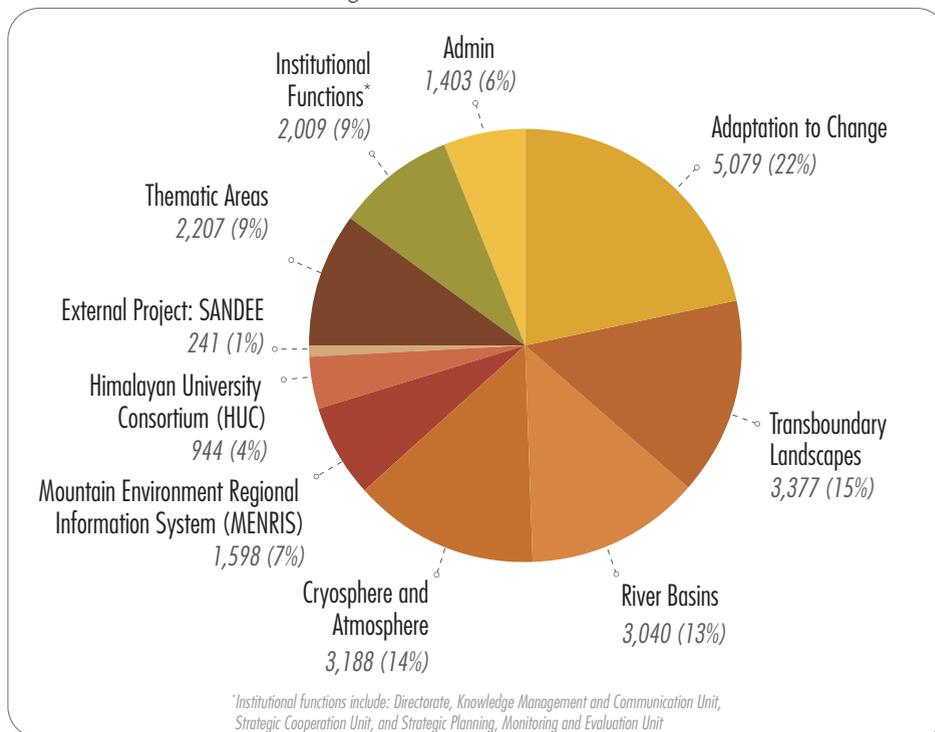
Figures in thousand US dollars



EXPENSES BY FUNCTION 2017

Total Expenditure 2017: USD 23.08 million

Figures in thousand US dollars



**Statement of Assets, Liabilities and Fund Balances as at 31 December, 2017***All amounts in United States Dollars*

FUND BALANCES	<i>As at 31 December, 2017</i>		<i>As at 31 December, 2016</i>	
General Reserve		4,509,819		4,650,815
Operational Reserve		10,478,569		8,330,266
Exchange Equalisation Reserve		503,606		503,606
Restricted Programmes Support Fund Balance (net)				
<i>Government of Germany</i>	(326,799)		(481,209)	
<i>Austrian Development Agency</i>	<u>146,961</u>	(179,838)	<u>109,933</u>	(371,276)
Restricted Core Programme Support Fund Balance (net)				
<i>Department of Foreign Affairs and Trade (DFAT), Australia</i>	972,414		838,635	
<i>Swedish International Development Cooperation Agency (Sida), Sweden</i>	<u>2,225,010</u>	3,197,424	<u>-</u>	838,635
Special Projects Fund Balance (net)				
<i>Amounts to be incurred on projects</i>	3,351,991		3,684,886	
<i>Amounts to be recovered</i>	<u>(1,371,818)</u>	<u>1,980,173</u>	<u>(1,563,732)</u>	<u>2,121,154</u>
Total Sources of Funds		<u>20,489,753</u>		<u>16,073,200</u>
 ASSETS AND LIABILITIES				
Fixed Assets		2,337,273		3,028,118
Capital Work-in-Progress		1,674,236		467,744
Current Assets, Loans and Advances:				
<i>Cash and Bank Balances</i>		17,988,774		14,341,628
<i>Loans and Advances</i>		<u>2,403,790</u>		<u>2,791,516</u>
		20,392,564		17,133,144
Less: Current Liabilities and Provisions		<u>(3,914,320)</u>		<u>(4,555,806)</u>
Net Current Assets		16,478,244		12,577,338
Total Application of Funds		<u>20,489,753</u>		<u>16,073,200</u>

Operating Statement for the year ended 31 December, 2017

All amounts in United States Dollars

INCOME	<i>Year ended</i> <i>31 December, 2017</i>	<i>Year ended</i> <i>31 December, 2016</i>
Contribution from Donors		
Restricted Programme Support	1,619,027	1,223,965
Restricted Core Programme Support	4,905,871	1,657,960
Core and Other Programmes Support	4,436,663	4,394,279
Special Projects	13,517,611	16,238,439
Other Income	2,319,555	2,459,354
	(A) <u>26,798,727</u>	<u>25,973,997</u>
 EXPENDITURE		
Programme Cost		
Restricted	1,427,589	1,410,348
Restricted Core	2,547,082	3,201,991
Core and Others	2,768,525	1,533,030
Special Project Cost	13,658,592	18,258,685
Core Support Cost		
Directorate Cost	1,281,156	1,295,300
Administrative Support Cost	1,244,575	1,141,102
Depreciation	159,022	191,488
Foreign Exchange (Gain)/ Loss (net)	(1,382,439)	755,006
	(B) <u>21,704,102</u>	<u>27,786,950</u>
Surplus/(Deficit) of Income over Expenditure	(A-B) <u>5,094,625</u>	(1,812,953)
Less: Surplus/ (Deficit) of Special Projects	(140,981)	(2,020,246)
Less: Surplus/ (Deficit) of Restricted Programme Support	191,438	(186,383)
Less: Surplus/ (Deficit) of Restricted Core Programme Support	2,358,789	(1,544,031)
Net Surplus of Operational Reserve before appropriation	<u>2,685,379</u>	<u>1,937,707</u>
Transfer to General reserve	537,076	387,541
Net Surplus adjusted to Operational Reserve	<u>2,148,303</u>	<u>1,550,166</u>

ICIMOD MEMBERS, SPONSORS, AND FUNDING PARTNERS

CORE FUNDING

Regional member countries

- Afghanistan
- Bangladesh
- Bhutan
- China
- India
- Myanmar
- Nepal
- Pakistan

Non-regional countries

- Government of Australia, Department of Foreign Affairs and Trade (DFAT)
- Government of Austria, Austrian Development Agency (ADA)
- Government of Norway, Ministry of Foreign Affairs
- Government of Sweden, Swedish International Development Cooperation Agency (Sida)
- Government of Switzerland, Swiss Agency for Development and Cooperation (SDC)

PROGRAMMATIC FUNDING

- Austrian Development Agency (ADA)
- Bundesministerium für Wirtschaftliche Zusammenarbeit (BMZ), Germany
- Department for International Development (DFID), United Kingdom
- European Union (EU)
- Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), Germany
- Government of Sweden (Swedish International Development Cooperation Agency [Sida])
- International Development Research Centre, Canada (IDRC)
- International Fund for Agricultural Development (IFAD)
- Norwegian Ministry of Foreign Affairs, Royal Norwegian Embassy, Kathmandu
- United States Agency for International Development (USAID)

STRATEGIC AND PROJECT FUNDING

- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- Food and Agriculture Organization of the United Nations (FAO)
- Institute for Advanced Sustainable Studies (IASS), Germany
- International Maize and Wheat Improvement Center (CIMMYT)
- International Water Management Institute (IWMI)
- SVP Industrial Development – Statkraft AS
- Swiss Agency for Development and Cooperation (SDC)
- The Arizona Board of Regents, University of Arizona
- The World Bank
- United Nations Environment Programme (UNEP)
- United Nations Foundation (UNF)
- United Nations Industrial Development Organization (UNIDO)
- USAID – SERVIR Demand Activity
- Wageningen University





About ICIMOD

The International Centre for Integrated Mountain Development, ICIMOD, is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalaya – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. Globalization and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. We support regional transboundary programmes through partnership with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now, and for the future.



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



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International Centre for Integrated Mountain Development

GPO Box 3226, Kathmandu, Nepal

Tel +977 1-5003222 **Email** info@icimod.org **Web** www.icimod.org

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