

Adaptation to Change



Adaptation and resilience have always been hallmarks of mountain people and landscapes, especially in the Hindu Kush Himalayan region. However, across the region, communities are facing unprecedented changes. Rapid population growth, migration, urbanization, and climate change have begun to pose new challenges to traditional livelihood strategies and coping mechanisms.

ICIMOD worked in 2012 to enhance the resilience of vulnerable mountain communities by providing scientific support to the development of adaptation mechanisms and policy and working with partners to promote them. The AdaptHimal Initiative focused on building the resilience of the poor to climate and socioeconomic change, and the Himali Initiative explored ways to improve livelihoods by enriching high-mountain agribusiness. ICIMOD research has

“Building on 25 years of its research and development on indigenous honeybees, conservation issues, and wider use for pollination and bee products for improving livelihoods, ICIMOD should carry this programme further by adopting and promoting a completely new approach to extensive beekeeping with *Apis cerana* and become the Centre of Excellence for Asian Bees.”

– From the external evaluation of ICIMOD’s beekeeping programme

Bandarban District, Bangladesh



shown that focusing solely on natural resources for community-based climate change adaptation is not sustainable given the magnitude of projected future climate change. ICIMOD initiatives will also focus on alternative livelihoods that consider access to markets, remittances, skills development, and tourism.

Progress has been made in 2012 to reduce the uncertainties of climate change impacts and enhance capacities and policies for adaptation

through the Himalayan Climate Change Adaptation Programme (HICAP). In its second year, the programme generated knowledge that can be used to help develop equitable adaptation measures and influence policies that take women’s role in natural resource management into account. HICAP has partnered with over 20 organizations. This partnership approach is expected to lead to greater ownership, impact, and uptake of HICAP knowledge.

Assessing poverty, vulnerability, and adaptive capacity

Analysis of poverty and vulnerability, economic development, migration, and value chains provides valuable information to help policy makers make informed decisions to address issues in the region.

For instance, ICIMOD's analysis of mountain poverty in the HKH revealed that poverty levels in the mountains are about 5% higher than in the plains, thus facilitating a better understanding and awareness of mountain poverty amongst national and regional policy makers. These findings were referenced in the development of India's Twelfth Five-Year Plan. ICIMOD now has an MoU with India's National Institute for Administrative Research to develop training modules and a communication package for public service employees and policy makers.

“The ICIMOD assessment draws our attention towards some of the poorest regions of India: Manipur Hills, Assam Hills, Tripura, Uttarakhand and West Bengal Hills,“

– Dr RS Tolia, former Chief Secretary of State, Uttarakhand, India



Uttaranchal, India



Data from ICIMOD's Poverty and Vulnerability Assessment Tool has significantly shaped the design of IFAD's Country Strategy Programme for Nepal. Linkages between labour migration and water stress highlighted in the results have been taken up by the United Nations University; UN Population Fund; UK Government's Foresight Committee; ADB; University of Sussex; and IFAD.

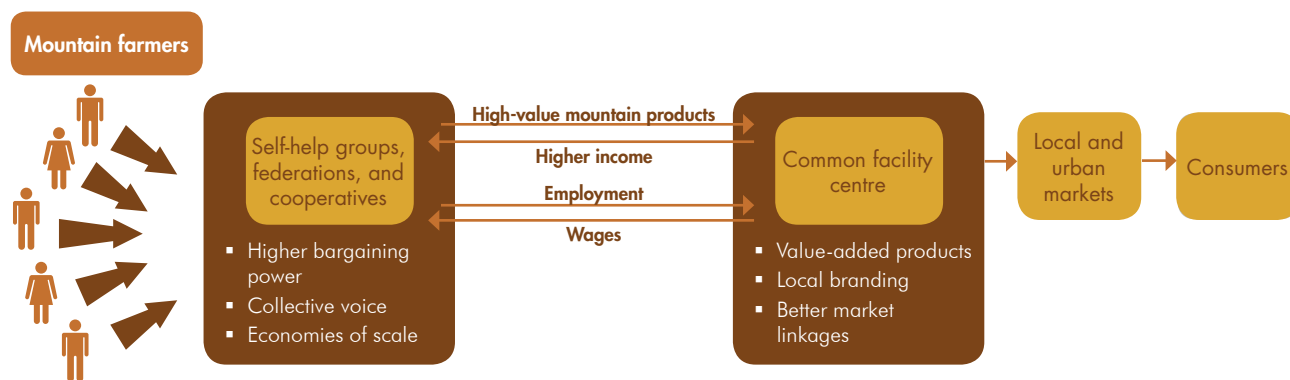
The Vulnerability and Adaptive Capacity Assessment (VACA) is perhaps the first large-scale, statistically sound assessment of livelihood vulnerability and its determinants in the HKH, as well as the adaptive capacity of the region's mountain people. So far, the assessment has covered more than 7,000 households in four river sub-basins that traverse China, India, Pakistan, and Nepal, with more to come. The study's results will be integrated with other scientific research findings in the sub-basins to help identify and promote adaptation patterns and strategies at the community level. The VACA results will be used to map target areas and groups for interventions and will serve as a baseline for further in-depth studies.

Rukum, Nepal

Promoting Livelihoods through Value Chain Development

In spite of the challenges resulting from rapid change in the Hindu Kush Himalayas, opportunities are also emerging. With increased urbanization comes a demand for niche, organic, and high-value mountain products. Through work with partners on pro-poor value chain development and the creation of common facility centres in Bhutan and Nepal, ICIMOD has worked to ensure poor mountain people benefit from these opportunities by including them as producers and entrepreneurs of high-value products.

How value chain development benefits mountain farmers: an example of common facility centres



The tulsi solution

Deepa Devi, from Chamoli in the Indian state of Uttarakhand, maintains her family’s fields. Deepa and many others in her community were forced to leave their fields fallow because of attacks by wildlife, particularly monkeys. By growing tulsi (basil), she is able to again cultivate her fields and her income has increased. Below she shares her story:

“I started planting tulsi three years ago, when the Himalayan Action Research Centre [an ICIMOD partner] told us about its benefits. The idea that we could reap full benefit from fields we had previously left fallow because of monkeys was very attractive. We received intensive training on tulsi plantation at a common facility centre (CFC) run by HARC on tulsi plantation.

“In the beginning, only a few of us started as an experiment, and we all earned a small profit. We soon started expanding the production. Today, I grow around 10-12 quintals of tulsi and I am thinking of expanding further. If there is good rainfall, I can earn up to USD 45 from one field. Even if I hire help for tilling the land or other related work, I still make a nice profit.

“The best thing about tulsi is that as soon as it is ready for cutting, we have the buyer at our doorstep. The CFC purchases it directly from us for use in making tulsi tea in its processing unit. We can also work in the processing unit to earn extra money. Other women without land are also able to earn money by working in the processing unit.

The ripple effect:

“When we started working with tulsi, only a few savings group members were growing it. Now everyone in the village is interested because they have seen us reap the benefits. Last year, I gave four other families seeds from my personal store. This year they were able to grow 2-3 quintals of tulsi.

“Today I have become financially independent. My husband is not here but I no longer have to wait for him to send money. If I need something, I have my own money to spend. I have gained so much confidence. I have my own opinion and thoughts on issues. I feel I can help others now!

“We want the CFC to expand. If the groups come together and work well then we can set an example and others will join us. It is not impossible. Today I feel nothing is impossible. I want to keep learning.”

Protecting Indigenous Honeybees; Promoting Mountain Livelihoods

ICIMOD's work on beekeeping over the last 20 years has led to significant improvements in the livelihoods of poor mountain producers and biodiversity conservation at national and regional levels. In the beekeeping project's last phase, implemented from 2008 to 2012, ICIMOD conducted action research for generating and sharing knowledge and building the capacity of individuals and institutions to increase the income and improve the livelihoods of mountain people. Research and development was undertaken in collaboration with 17 national partner institutions, including government organizations, NGOs, associations, federations, and cooperatives in Afghanistan, Bangladesh, Bhutan, China, India, Nepal, and Pakistan.



Alital, Dadeldhura, Nepal

Local, national, and regional impacts

Key achievements include the development of national and regional support networks and a diverse range of knowledge products targeted at farmers that have been improved, published, and translated. The *Beekeeping Training for Farmers in the Himalayas - Resource Manual for Trainers*, a landmark publication from 2012, has been translated into five regional languages: Bangla, Dari, Hindi, Nepali, and Urdu.

Community-based beekeeping enterprises have led to the empowerment of mountain beekeepers through increased participation in cooperatives and associations. Himsara Kami, Nepal, was trained by a beekeeping cooperative. She is doubly disadvantaged being as a widow and being from a lower caste. She says beekeeping is her main source of cash income. For five years, Himsara has practised improved beekeeping and now has 14 colonies of *Apis cerana*. Last year, she sold honey to a nearby trader worth USD 290.

“Thank you for sharing this useful publication.

The updated information on beekeeping will be beneficial for staff in the Environment and Natural Resource Management Section of our institute as well as for people who attend our library, including staff of rural support programmes and development sector organizations, and university students.”

– Seerat Fatima, Institute of Rural Management, Islamabad, Pakistan

The National Bee Board of the Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India expressed interest in printing 4,000 copies. Another publication explored quality assurance measures for improving the marketability and quality of honey from the HKH region.

These achievements have led to significant impacts. At the national level, Bhutan has included beekeeping in its five-year plan; Indian farmers have improving apple yields as a result of honey bee pollination; and Himachal State Government in India now supports pollination enterprises at a policy level.

ICIMOD is a now respected partner of the International Pollinator Initiative, with rising global credibility for its research on indigenous honeybees and pollination management. In 2012, an ICIMOD publication on the value of insect pollinators to agricultural economies provides evidence of the role insect pollinators play in improving food security and livelihoods of mountain communities to inform policy and decisions at all levels.

In 2012, a team evaluated the project's successes and challenges over the last two decades and looked for ways to incorporate this important research into ICIMOD's revised Strategic Framework and new Medium-Term Action Plan. One recommendation included the establishment of a Centre of Excellence for Asian Bees at ICIMOD.

Uptake of REDD+ Learning in the HKH Region

ICIMOD, together with partners in Nepal, piloted a pioneering REDD+ project in three watersheds in 2011 that explored and tested options for the governance and financial transparency of community-based REDD+ initiatives. The project provided local communities with necessary training and incentives for the protection and the enhancement of local forest through the establishment of a community-managed Forest Carbon Trust Fund. Within this community-based model, REDD+ benefits reached the poorest and most disadvantaged communities. As one of the world's first carbon offset projects involving local communities in monitoring the carbon in their forests, the project provides valuable global learning on how to build the capacity of local stakeholders in implementing carbon offset programmes. Through this project, local communities will be in a position to make informed decisions when an international REDD+ policy is decided.

Gorkha, Nepal

“The REDD+ project has brought together various stakeholders in the district, including District Forest Officers, the District Development Committee, and representatives from the Nepal Federation of Indigenous Nationalities, as well as a mix of women and men. It has helped identify the problems people are facing, the relationship between the forest and humans, and areas for improvement. We are happy with this.”

– Bharat Dhungana, Coordinator,
Chitwan District REDD+ Programme

Replicating the approach

Pakistan is now replicating this REDD+ approach, beginning with a series of district-level consultations at the end of 2012 to which ICIMOD was invited. ICIMOD is providing guidance to a similar project in Bhutan. In addition, one of the national partners from the pilot project in Nepal, the Federation of Community Forest Users-Nepal, is using experiences from the field to help shape a national REDD+ policy framework. The other national partner, the Asian Network for Sustainable Agriculture and Bioresources, is now using the methodology in other similar project sites in Nepal.

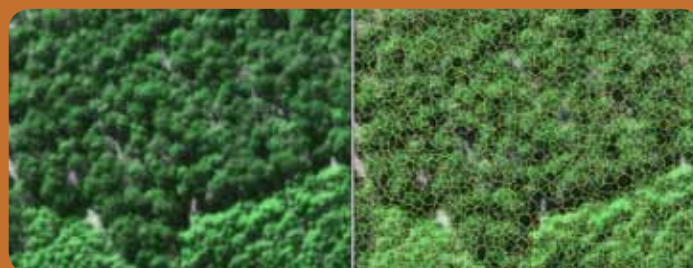
“With thanks I would like to acknowledge receipt of two copies of the video ‘REDD+ for Green Communities: Lessons from a pilot project in Nepal’. The video would be of great use for our division as we are also in the initial phase of REDD+ programme in Bhutan.”

– Tsering Gyeltshen, Offtg. Chief,
Watershed Management Division,
Department of Forests and Park Services,
Ministry of Agriculture and Forests,
Thimphu, Bhutan



Remote sensing for REDD+

Obtaining comprehensive field measurements of carbon for large swathes of forest in remote areas can be a difficult or impractical task. Drawing on its expertise in geospatial solutions, ICIMOD has developed a method to map and calculate carbon pool estimates of above-ground biomass using remote sensing images. The method uses high-resolution satellite images to estimate tree crown area and relate that information with ground-based carbon measurements. Such relationships help to precisely extrapolate ground-based carbon estimation for larger areas. Carbon databases prepared over different time periods using these approaches help facilitate accurate assessments of changes, trends, and the effectiveness of REDD+ efforts.



High-resolution satellite image (left) with application of remote sensing-estimated tree crown area mapping (right)