

ICIMOD's Strategy for Delivering High-quality Research and Achieving Impact for Sustainable Mountain Development

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ICIMOD's Strategy for Delivering High-quality Research and Achieving Impact for Sustainable Mountain Development

Thirty years ago, 8 countries of the Hindu Kush–Himalayan region (Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan) realized the importance of mountains and established the International Centre for Integrated Mountain Development (ICIMOD). With an 8-country charter, ICIMOD serves as a regional intergovernmental center for cooperation on the sustainable development of the Hindu Kush–Himalayan region. ICIMOD believes in a future in which the region's mountain people can experience enhanced livelihoods, equity, and social and environmental security; in which they can adapt to environmental, socioeconomic, and climate change; and in which generations of mountain and downstream populations can enjoy the benefits and opportunities afforded by the region's natural endowment. ICIMOD foresees a future in which the role of the region, as the water tower for more than a billion people, a cultural and spiritual hub, the home of global biodiversity hotspots, a significant ecological buffer zone, and a source of resources and services for mountain and lowland people, is upheld, valued, and recognized globally and regionally.

A mission of holistic development

The mission of the International Centre for Integrated Mountain Development (ICIMOD) is to enable sustainable and resilient mountain development for improved and equitable livelihoods through knowledge and regional cooperation. It aims to serve the region through information and knowledge generation and sharing to find solutions to critical mountain problems. It connects science with

policy and practice. It provides a regional platform where policy-makers, experts, planners, and practitioners can exchange ideas and perspectives to foster sustainable mountain development. It facilitates knowledge exchange across the region, helps tailor international knowledge to the region's needs, and brings regional issues to the global stage. It sees knowledge-sharing initiatives as a source of inspiration, innovation, and questioning, helping in the design of present and future practices, policies, and strategies.

ICIMOD has a unique niche within the development community. It specializes in mountain people and environments, an area with high poverty and environmental degradation that is bearing the brunt of climate change. Although it is not the only institution that addresses mountain issues, it is the only one that is a regional intergovernmental organization with global outreach. It works with people living in the mountains and who face common challenges and have solutions to share. Its mandate spans community experience and intervention, national plans and policy, regional knowledge sharing and transboundary issues, and engagement at the global level. Its work is thus relevant and useful for mountain people; development workers; environment and natural resource managers; local, national, and regional policy-makers and planners; students and teachers; and the general public.

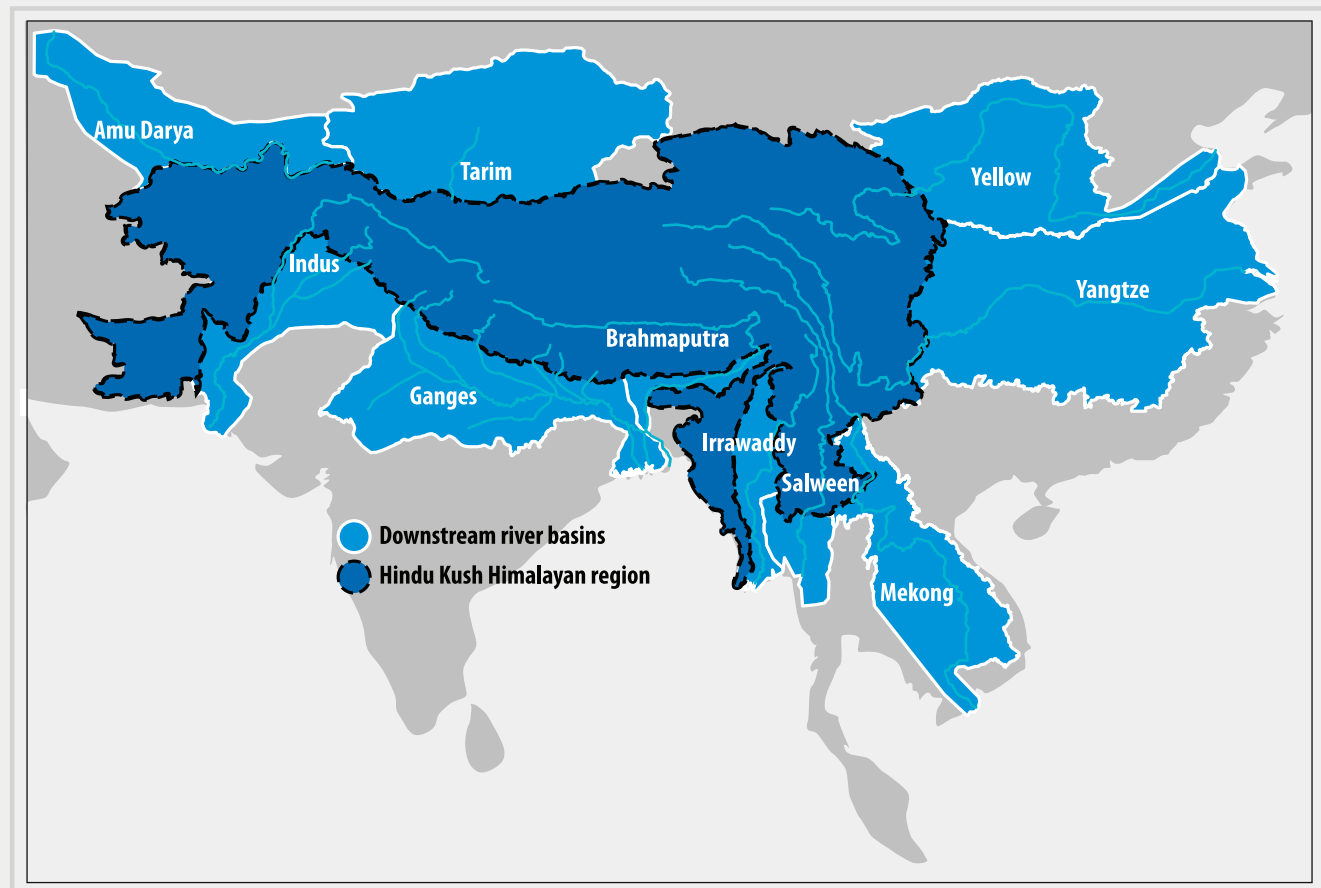
Challenging changes in the region

The Hindu Kush–Himalayan (HKH) region is the source of 10 large Asian river systems (Figure 1) and provides

water, ecosystem services, and the basis for livelihoods to more than 210 million people. The basins of these rivers supply water to more than a fifth of the world's population. Snow covers 760,000 km², and glaciers cover 60,411 km² of its area; its 6101 km³ ice reserve, the largest outside the 2 poles, truly constitutes a "third pole" (Bajracharya and Shrestha 2011; Gurung et al 2011). The HKH region acts as an ecological buffer, which influences the temperature, wind, and rainfall patterns of South Asia and creates favorable conditions for agriculture. It is home to immense cultural and ethnic diversity; more than 1000 languages are spoken in the region (Turin 2005). It is a treasury of genetic resources and home to 4 of the 34 global biodiversity hotspots (Sharma et al 2010). The HKH region is truly a global resource.

Adaptation and resilience have always been hallmarks of mountain people and landscapes, especially in the HKH region. The people have a rich cultural identity and have managed food security and abundant biodiversity within the parameters of their own traditions. During recent years, rapid population growth, urbanization, out-migration (especially of men), economic development, and climate change have begun to challenge traditional livelihood strategies and coping mechanisms (Singh et al 2011). Mountain populations are, on the whole, poorer than the national average in the HKH region (Figure 2) (Hunzai et al 2011). Although women are key managers of their environment and often carry out a disproportionate amount of agricultural, household, and community work, they are often excluded from decision-making and knowledge sharing.

FIGURE 1 ICIMOD's region covers the headwaters of the 10 major river basins of the HKH region; changes in the region also affect people living downstream. (Map by ICIMOD)



The region's vast ice reserve is shrinking, with accelerated glacial melting, and threatening its role as a water reservoir (Bolch et al 2012). The frequency of floods and droughts has increased. Degradation of forests, wetlands, spring sources, and rangelands threatens livelihoods and biodiversity. But opportunities

arise with change, even with climate change. Countries recognize that they must cooperate to deal with glacier melt and the increased threat of floods that cross borders. Likewise, they increasingly recognize the need for transboundary cooperation for biodiversity management. With increased urbanization comes a high demand for niche, organic, and high-value products, many of which can only be grown in mountain and hill areas.

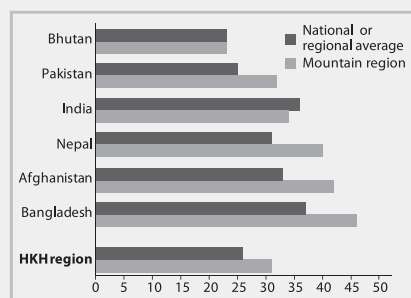
To meet these new challenges, ICIMOD itself must adapt and respond to local needs yet represent mountain issues globally. Institutional capacities of regional member countries differ and change, which requires ICIMOD to continually evaluate its partnership arrangements. Externally, ICIMOD must change its strategies on partnership with regional member countries to meet new challenges and

adjust to a changing context. Internally, it has grown substantially as an organization and needs to reassess its structure and priorities to serve member countries effectively. To adjust to these changing conditions and to meet the new challenges, the ICIMOD strategy was modified through broad consultation.

Strategic shift toward delivering high-quality research and improved impacts

ICIMOD's work is expected to be measured by the results it has achieved in addressing 6 strategic goals: (1) widespread adoption of innovations developed by ICIMOD and partners to adapt to change that leads to positive impacts for women, men, and children; (2) significant

FIGURE 2 Percentage of population below the poverty line in countries of the HKH region. (Source: Hunzai et al 2011)



advances in the generation and use of relevant data, knowledge, and analysis; (3) significant development of human and institutional capacity; (4) considerable influence of work by ICIMOD and its partners on policies and practices; (5) enhanced regional cooperation for sustainable mountain development; and (6) global recognition of the importance of mountains, and provision of global resources to mountain people to ensure improved and resilient livelihoods and ecosystems.

ICIMOD's new strategic framework represents an evolution of ideas and regional programs based on stakeholder feedback and needs (ICIMOD 2012). Recent member-country efforts have included the transboundary Kailash Sacred Landscape and Koshi River Basin initiatives. There is an increased demand for impacts of ICIMOD's activities and for high-quality research on mountain issues. Based on these rationales, the modified Strategic Framework emphasizes Regional Programs for integration and impacts, whereas strategic Thematic Areas describe its core competencies and individual work areas. This change in structure promotes a more interdisciplinary approach, improved science quality, and more evidence-based change and impact.

Thematic areas

The framework's 4 main Thematic Areas—Livelihoods, Ecosystem Services, Water, and Air—and Geospatial Solutions, are all relevant to meeting the challenges of today's mountain agenda. An additional cross-cutting centerwide supporting field, Knowledge Management and Communication, facilitates information flow among these areas and brings the results both to the regional member countries and to a global arena. Work on gender, governance, inclusive development, and economic analysis will be strengthened.

Regional programs

ICIMOD has always used integrated and holistic approaches to meet the multifaceted challenges of development. Yet, even more-effective integration and cross-disciplinary work will be needed to address the complex issues that face the region. ICIMOD's Regional Programs will provide platforms for more effective integrative research and policy-relevant advice to generate transformative ideas and actions. The Regional Programs have been formulated with the long-term goals of testing, piloting, and monitoring innovative approaches; demonstrating transboundary cooperation on landscapes and river basins; addressing common issues related to the cryosphere and adaptation; developing regional information and databases; and meeting capacity-building needs in the region. Five Regional Programs have been conceived and another is under development. Whereas, the Thematic Areas focus on developing knowledge products for individual disciplines, the Regional Programs are oriented toward integrating knowledge products and delivering impacts.

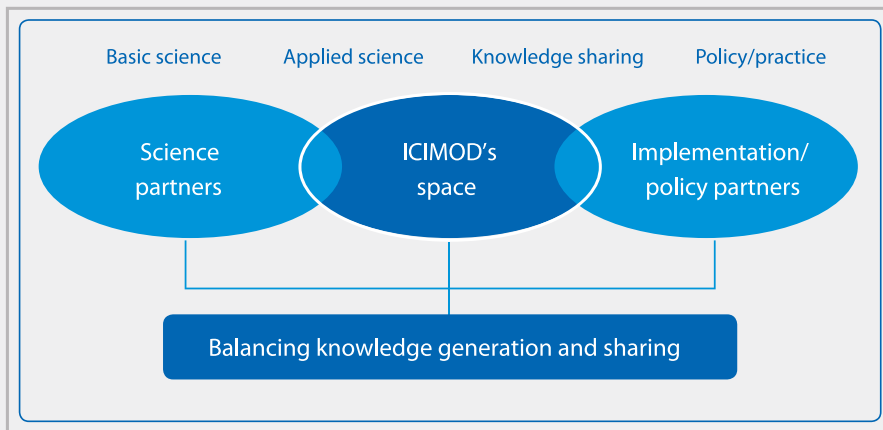
Adaptation to change: The overall objective of this program is to enhance resilience and support adaptation by vulnerable mountain communities and ecosystems. The program develops adaptation mechanisms and works with partners to promote them. It seeks to capture indigenous knowledge on autonomous adaptation and to provide scientific support for planned adaptation. Innovative livelihood improvement and sustainable natural resource management strategies will be tested and outscaled to ensure continued ecosystem services and to promote adaptation. Particular attention will focus on the challenges and roles of women in adaptation. Outcomes will include the testing of adaptation strategies for improved livelihoods

and the adoption of changed policies and practices for better adaptation.

Transboundary landscapes: This concept makes it possible to address the conservation and sustainable use of natural resources (biodiversity, rangelands, farming systems, forests, wetlands, and watersheds) in landscapes defined by ecosystems rather than administrative boundaries. Because the region is extremely heterogeneous, there are linkages between biomes and habitats and between upstream and downstream areas related to the provisioning of ecosystem services. ICIMOD and its partners have identified 7 transboundary landscapes for programmatic cooperation; from west to east across the HKH region, they are Wakhan, Karakoram–Pamir, Kailash, Everest, Kangchenjunga, Brahmaputra–Salween, and Cherrapunjee–Chittagong. This approach is people centered and builds on culture and traditional values and approaches as an essential first step to resource conservation efforts in the region. Successful resource conservation translates into sustainable and equitable development. Expected outcomes include improved ecosystem management of the landscapes and better livelihood options.

River basins: Improved water resource management in the mountain areas will be essential for the sustainable development of the region and downstream countries. The river basin approach strikes a balance between the existing natural functions of the river system and the expectations of the society for livelihoods, industry, recreation, nature management, and agriculture. The aim is to maximize the economic and social benefits derived from water resources in an equitable manner while conserving and, where necessary, restoring freshwater ecosystems. Over the past decade, ICIMOD has worked at the river

FIGURE 3 ICIMOD's role in linking knowledge generation with policy and implementation.



basin level on flood-related topics; now it will extend this approach to conservation, management, and development of water, land, and related resources across sectors. The program focuses on a range of topics such as climate change and variability; the hydrological regime and water availability; water-related risk management; community water management; and vulnerability and adaptation. The program emphasizes improved understanding of upstream–downstream linkages and the links between water resources and livelihoods. Key outcomes will include improved estimates of future water availability and its impact, and adaptive water management strategies at the basin and community levels.

Cryosphere and atmosphere: This program aims to build a regional knowledge hub to collate and share knowledge of partners working in the region and to build research capacity. The impact of climate change on glacial melting and atmospheric processes and its implications for water availability and quality of life are at the core of this program. ICIMOD's cryosphere work focuses on the monitoring of glaciers, snow, and glacial lakes; glacio-hydrology modeling; and remote sensing and mass balance measurements. Its atmospheric work focuses on short-lived climate

pollutants, for example, black carbon, which have increased significantly during the past 2 decades. It will study emission sources; atmospheric transport and transformation processes; and impacts on health, crop production, the atmosphere, glaciers, and snow melt. This knowledge will be used to develop and promote key mitigation strategies to reduce pollution from a variety of sources, including cooking stoves, forest fires, and diesel engines. Outcomes will include an increased understanding of the cryosphere and atmosphere, the changes they are undergoing, the impacts of these changes, and policies and strategies for the uptake of pollution mitigation measures as well as improved regional capacity.

Mountain environment regional information system: This program encompasses long-term monitoring, database development, and uptake of knowledge on the region. The system will include information on the cryosphere, meteorological and hydrological parameters, air pollution, ecological and climate change, status and change of land use and land cover, biodiversity, floods and natural disasters, and socioeconomic changes generated by remote sensing, spatial analysis, and fieldwork. ICIMOD will work with partners to deliver and use the information at the community,

national, regional, and global levels. Key outcomes will include the use of information and knowledge from a significantly improved knowledge base by mountain communities, partners in the region, and global communities.

Himalayan University Consortium: The vision of the Himalayan University Consortium (HUC) as an emerging regional program is to contribute to enhanced collaboration among the universities of the region and to promote centers of excellence on relevant topics. It aims to build a dynamic knowledge partnership between universities and other partners to promote research and learning. ICIMOD and universities will develop joint research and knowledge management programs that will help overcome limitations in individual institutions' capacity and funding. HUC partners will be involved in developing and sharing new curricula. Key outcomes will include the new curricula and an increased number of students trained to meet the mountain challenges of the future.

Linking science, policy-making, and implementation

ICIMOD's role is to generate and package science-supported results that have real impact on the lives of mountain people. ICIMOD intends

to strike a balance among basic science, applied research, knowledge sharing, implementation, and policy-relevant advice on social, technical, institutional, and environmental issues. Partnership is crucial for ICIMOD. With its unique knowledge-sharing experience, it provides a crucial link among science partners (in both the natural and social sciences) who generate the primary knowledge, implementation partners who bring the practical aspects of this knowledge to mountain communities, and policy-makers (Figure 3). To be an effective link, ICIMOD contributes to regional development with the most up-to-date international knowledge, and its core competencies will be state of the art; it will also increase its impacts through policy and practice.

ICIMOD will increase its interface with international research centers and provide an entry point for their work in mountain areas and helping to link their research to policy and implementation. This collaboration will help ICIMOD work with basic and applied science in areas outside its core competencies, for example, production agriculture. ICIMOD will carry out applied research, enhance knowledge exchange and sharing, standardize methodologies, promote gender-disaggregated data, and effectively package and disseminate the results. ICIMOD will conduct action research to develop replicable innovations and will test them and scale them up with implementation partners such as governments, development agencies, and civil society organizations. It will continue to strengthen its core competencies in integrated and interdisciplinary research and collaboration, balancing quantitative and qualitative research in sustainable and equitable development.

The importance of mountains was highlighted in the United Nations Conference on Environment and Development's *Agenda 21* (UNCED 1992) and the United Nations Convention on Biological Diversity (UN 1992), and the Rio+20 Conference in 2012 recognized the importance of mountain ecosystems and mountain people and the need to take action to address the challenges that they face. Given the interconnectedness of mountain ecosystems and global society, ICIMOD will intensify its engagement with global initiatives that relate experiences from the HKH region to the world. With more evidence-based information and practical examples, ICIMOD will contribute to global processes and forums such as the United Nations Framework Convention on Climate Change, the Intergovernmental Panel on Climate Change, the Convention on Biological Diversity, the recently established Intergovernmental Platform on Biodiversity and Ecosystem Services, and others.

ICIMOD's strategic shift to better promote sustainable mountain development begins in 2013. Its strategy emphasizes evidence and science drawn from the data-scarce HKH region. It will take the next step to make sure that this information is used to improve policies and actions taken for the benefit of people and the environment. Partnerships among implementing organizations, research institutes, and global initiatives will focus attention on mountain issues and contribute to sustainable mountain development in the HKH region and around the world.

REFERENCES

Bajracharya SR, Shrestha B. 2011. *The Status of Glaciers in the Hindu Kush-Himalayan Region.*

Kathmandu, Nepal: International Centre for Integrated Mountain Development.

Bolch T, Kulkarni A, Kääb A, Huggel C, Paul F, Cogley JG, Frey H, Kargel JS, Fujita K, Scheel M, Bajracharya S, Stoffel M. 2012. The state and fate of Himalayan glaciers. *Science* 336:310–314.

Gurung DR, Giriraj A, Aung KS, Shrestha B, Kulkarni AV. 2011. *Snow-Cover Mapping and Monitoring in the Hindu Kush Himalayas.*

Kathmandu, Nepal: International Centre for Integrated Mountain Development.

Hunzai K, Gerlitz JY, Hoermann B. 2011.

Understanding Mountain Poverty in the Hindu Kush-Himalayas – Regional Report for Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. Kathmandu, Nepal: International Centre for Integrated Mountain Development.

ICIMOD [International Centre for Integrated Mountain Development]. 2012. *A Strategy and Results Framework for the International Centre for Integrated Mountain Development.* Kathmandu, Nepal: ICIMOD.

Sharma E, Chettri N, Oli K. 2010. Mountain biodiversity conservation and management: A paradigm shift in policies and practices in the Hindu Kush-Himalayas. *Ecological Research* 25:909–923.

Singh SP, Bassignana-Khadka I, Karky BS,

Sharma E. 2011. *Climate Change in the Hindu Kush Himalayas: The State of Current Knowledge.* Kathmandu, Nepal: International Centre for Integrated Mountain Development.

Turin M. 2005. Language endangerment and linguistic rights in the Himalayas: A case study from Nepal. *Mountain Research and Development* 25(1): 4–9.

UN [United Nations]. 1992. *Convention on Biological Diversity.* Rio de Janeiro, 5 June 1992. www.biodiv.org/convention/articles.asp; accessed on 13 August 2009.

UNCED [United Nations Conference on Environment & Development]. 1992. *Agenda 21.* New York, NY: United Nations Division for Sustainable Development. sustainabledevelopment.un.org/index.php?page=view&nr=23&type=400&menu=35; accessed on 15 February 2013.

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