

Three Decades of India/ICIMOD Collaboration

Strategic shifts in partnership

ICIMOD

FOR MOUNTAINS AND PEOPLE



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वहाँ है खुशहाली।।

Ministry of Environment and Forests
Government of India



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Foreword



The International Centre for Integrated Mountain Development (ICIMOD) is an independent non-political intergovernmental organisation established in 1983, whose primary objective is to promote the development of economically sound mountain ecosystems and to improve the living standards of mountain populations in the Hindu Kush-Himalayan (HKH) region. ICIMOD has been making concerted efforts to place itself strategically as a regional mountain institution catering to the knowledge needs of its regional member countries (RMCs). The centre is continuously making efforts to absorb and effect change to strengthen its role as a knowledge development and sharing platform and to help the RMCs gain from each other's experiences and best practices.

As ICIMOD has developed, its programmes and strategies have evolved through the three distinct phases of inception, the Regional Collaborative Programme (RCP), and the Medium-Term Action Plan (MTAP). Through all three phases, India has been an active RMC, playing a lead role in formulation of the centre's institutional and programmatic strategies and action plans. Its contribution has gradually become more and more important and useful in the development of regional themes for action in the HKH. In recent years the Government of India has shown increasing interest in ICIMOD activities, reflected in the participation and contribution of government officials and other Indian partner agencies in ICIMOD programmes and events.

Aware of the India's increasing influence at the global level, ICIMOD and its management wish to continue to benefit from the country's robust technical expertise as well as economic strength in building and implementing its regional mission. It is in this context that we have organised a day's programme to highlight the ICIMOD-India collaboration and further strengthen it. On this opportune occasion, this booklet profiling three decades of India/ICIMOD collaboration serves as a mirror to reflect on past efforts and achievements, identify gaps, and reorient the collaboration for enhanced action on the regional issues of mountains and their people. We seek and solicit intensified guidance from the Government of India and its network of agencies and expertise in the years to come.

Andreas Schild
Director General, ICIMOD
30 September 2011

जयंती नटराजन
Jayanthi Natarajan



राज्य मंत्री (स्वतंत्र प्रभार)
पर्यावरण एवं वन मंत्रालय
भारत सरकार
नई दिल्ली-110 003
MINISTER OF STATE (INDEPENDENT CHARGE)
ENVIRONMENT & FORESTS
GOVERNMENT OF INDIA
NEW DELHI-110 003

MESSAGE

It is commendable that the International Centre for Integrated Mountain Development (ICIMOD), Kathmandu has brought out a publication, "**Three Decades of India/ ICIMOD Collaboration: Strategic Shifts in Partnership**" providing a sequential documentation of performance and achievements of ICIMOD-India Collaboration since its inception in 1983.

The Importance of a regional knowledge development and sharing centre of this kind has a greater relevance now than any phase in the history due to climate change effects and repercussions on the Himalayan ecosystems and upon over half a billion people culturally and historically embedded within it.

This publication "**Three Decades of India/ICIMOD Collaboration: Strategic Shifts in Partnership**" takes stock of its performance and achievements in collaboration with various government and non-government agencies in India, and is therefore provides valuable insights into this issue.

I congratulate the Director General and staff of ICIMOD on the conception of the publication and also for creating a historical base to guide future endeavours.


(Jayanthi Natarajan)

तिथ्यरक्षित चटर्जी
Dr. TISHYA CHATTERJEE



सचिव
भारत सरकार
पर्यावरण एवं वन मंत्रालय
Secretary
Government of India
Ministry of Environment and Forests



MESSAGE

It gives me immense pleasure to know that the International Center for Integrated Mountain Development (ICIMOD) is bringing out a publication chronicling its three decades of collaborative efforts in India in the form of "Three Decades of India/ICIMOD Collaboration: Strategic Shifts in Partnership".

ICIMOD has been contributing to develop and provide integrated and innovative solutions to the problems of the mountain people. This publication reflects the varied contributions made by ICIMOD over the years in India. It gives an opportunity to draw lessons from the past and realize the gaps and the needs of the country like India and to strengthen the ties of ownership and commitment between ICIMOD and India.

In the context of the climate change realities and mountain dwellers getting affected much more intensively the Government of India has assigned greater priority to its mountain regions in its various Missions and development planning. The Ministry of Environment & Forests looks forward to strengthening the association with ICIMOD to work towards the sustainable development of the mountain and mountain communities in the Indian Hindu Kush-Himalayan region.

I congratulate Dr. Andreas Schild, Director General and the staff of ICIMOD for bringing out this publication. I hope the researchers and other stakeholders in the Himalayan region take advantage of this publication and build on the strong knowledge platform created by the ICIMOD a more broad based network of experts and agencies to deliver sustainable development to the mountain people.

Wishing all the ICIMOD staff and its partners in India a collaborative success in their future endeavours.


(T Chatterjee)



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पर्यावरण भवन, सी.जी.ओ. कॉम्प्लेक्स, नई दिल्ली-110 003 फोन : 24360721, 24361896, फैक्स : (011) 24362746
PARYAVARAN BHAWAN, CGO COMPLEX, NEW DELHI-110 003, Ph. : 24360721, 24361896, Fax : (011) 24362746
E-mail : t.chatterjee@nic.in, titlichatterjee@gmail.com

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ICIMOD also wishes to thank and acknowledge the timely assistance provided by Mr Brij Mohan Singh Rathore, Joint Secretary, and Mr Vivek Saxena, Director, Ministry of Environment and Forests; and Dr LMS Palni, Director, and Dr Kireet Kumar, GB Pant Institute of Himalayan Environment and Development (GBPIHED).

Acronyms and Abbreviations

ADB	Asian Development Bank
ATREE	Ashoka Trust for Research in Ecology and the Environment
CBD	Convention on Biological Diversity
CHEA	Central Himalayan Environment Association
CSKHPAU	CSK Himachal Pradesh Agricultural University
GBPIHED	Govind Ballabh Pant Institute of Himalayan Environment and Development
GIS	Geographical Information System
GTZ	Gesellschaft für Technische Zusammenarbeit (now Deutsche Gesellschaft für Internationale Zusammenarbeit [GIZ])
HIMAWANTI	Himalayan Grassroots' Women's Natural Resources' Management Network
HKH	Hindu Kush-Himalayas
ICIMOD	International Centre for Integrated Mountain Development
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
MAP	Medicinal and aromatic plant
MoEF	Ministry of Environment and Forests
MTAP	Medium-Term Action Plan
MZU	Mizoram University
NCMRWF	National Centre for Medium Range Weather Forecasting
NECERD	North East Centre for Environment and Rural Development
NEPED	Nagaland Environment Protection and Economic Development through People's Action
NERCORMP	North Eastern Regional Community Resource Management Project
PARDYP	People and Resource Dynamic Project
QQR	Quinquennial Review
RCP	Regional Collaborative Programme
RMC	Regional Member Country
RS	Remote Sensing
SDC	Swiss Development Cooperation
Sida	Swedish International Development Cooperation Agency
TERI	The Energy and Resources Institute
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Social and Cultural Organisation
USAID	United States Agency for International Development
YSPUHF	Dr Yashwant Singh Parmar University of Horticulture and Forestry



India and ICIMOD: History of a Fruitful Collaboration

ICIMOD – A Regional Knowledge and Learning Centre for the Hindu Kush-Himalayas

ICIMOD – the International Centre for Integrated Mountain Development – is an independent non-political intergovernmental organisation established in 1983, whose primary objective is to promote the development of economically sound mountain ecosystems and to improve the living standards of mountain populations in the Himalayan region. ICIMOD encourages technical cooperation among governments in the region, and over the past 25 years has acted as a knowledge, learning, and enabling centre working to build awareness and taking action to preserve the unique role that the Hindu Kush-Himalayan (HKH) mountain system must continue to play. ICIMOD's long history of working in the region, its well-honed core competencies, and its strategic position and comparative advantages put it in a unique position to make significant contributions to helping the region take on new challenges. A holistic approach ensures that economic analysis, gender and equity mainstreaming, and governance are an integral part of all centre activities.

ICIMOD's partners are agencies and organisations in the regional member countries (RMCs) – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – that interact with development policy makers, practitioners, and advocates. A feedback loop among these groups ensures that as conditions and policies change, inputs are continuously revised. ICIMOD also encourages long-term partnerships with international centres of excellence from outside the region as a means of acquiring the specific expertise it needs in technical areas. ICIMOD's donors are its financial partners, in recognition of the fact that developments in the region benefit both the people of the region and the larger global community.

The HKH region – the area addressed in ICIMOD's mission – extends 3,500 km over all or part of the eight RMCs from Afghanistan in the west to Myanmar in the east. The region is the source of ten large Asian

river systems – Amu Darya, Brahmaputra, Ganges, Indus, Irrawaddy, Mekong, Salween, Tarim, Yangtze, and Yellow – and provides water, ecosystem services, and the basis for livelihoods to a population of more than 210 million people in the region. The basins of these rivers provide water to 1.3 billion people, one-fifth of the world's population.

ICIMOD's Vision and Mission

ICIMOD's Vision is that the mountain population of the greater Himalayas enjoys improved well-being in a sustainable global environment.

ICIMOD's Mission is to enable and facilitate the equitable and sustainable well-being of the people of the Hindu Kush-Himalayas by supporting sustainable mountain development through active regional cooperation.

Genesis

ICIMOD was inaugurated in December 1983. However, its establishment had its origins in intensive deliberations at international meetings dating back to the 1970s, starting with acknowledgement by the United Nations Conference on the Human Environment (Stockholm, 1972) that processes of development and protection of the natural environment are interdependent. An International



Birth of ICIMOD – A Personal Account

“Between that first walk in the Buddha Jayanti gardens and the inauguration of ICIMOD ten years down the road in Kathmandu, hope, disappointment, and frustration were our companions. The great encouragement was to find mountain scientists and men of concern all over the world, who became friends and implementers of the ideas. But such ideas needed more than that. They need unpredictable synergies in high places.

When that breakthrough came on sunny winter days in Kathmandu, when the ten governments took over the idea at a formal inauguration ceremony, my joyful spirit found ... release ...”

Source: *Voices in the Wind* by AD Moddie, a strong supporter of ICIMOD from India

Workshop on the Development of Mountain Environment held in Munich, Germany in December 1974 recommended the establishment of an institution in Nepal to promote an ecologically sound development process in mountain regions. His Majesty's Government of Nepal invited the establishment of such an international centre in 1975, and the idea was endorsed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1976. However, the formal agreement between Nepal and UNESCO was not signed until September 1981. The years 1982 and 1983 were dedicated to the development of logistics, organisational structure, professional contacts, a draft work programme, and selection of the first Director. The founding sponsors were UNESCO, Switzerland, Germany, and Nepal.

Governance

ICIMOD is governed by a Board of Governors (the Board) consisting of one representative each from the eight RMCs and seven independent members who are nominated by the ICIMOD Support Group based on their recognised professional expertise and competence. The ICIMOD Support Group is composed of the representatives from all such organisations and institutions (including the RMCs) that provide financial support to ICIMOD. The Board also has three associated committees in support of its regular business – the Board Executive Committee, comprising the three Chairpersons (present, outgoing, and incoming); the Programme Advisory Committee, consisting mainly of the independent members; and the Finance Committee, with mixed membership (regional as well as independent members).

The day-to-day functioning is led by a Director General appointed by the Board, and the operational aspects are guided by the Statutes. The ICIMOD Foundation, a not-for-profit organisation, was established in 2003 to support ICIMOD's mission by seeking broader support for the centre's activities, including financial assistance from the private sector.

Evolution of Programmes

The overall progression of ICIMOD, as observed through evolution in its programmes and strategies, can be divided into three distinct phases: Inception, Regional Collaborative Programme (RCP), and Medium-Term Action Plan (MTAP) (see table opposite).

Inception phase

In the period leading up to 1994, ICIMOD went through a formative stage during which it had to find its footing, build its identity and niche, and establish a base of operation. The Phase-I work programme (1983–1987) included five areas: watersheds, employment, energy, engineering, and information. The activities were determined annually based on available staff expertise and funding mandates. This phase was marked by several seminars and workshops with RMC participation to gather state-of-the-art knowledge on the relevant themes. However, the setting and steering of mandates from the RMCs was weak, mainly because of lack of confidence in the true potential of the regional set-up and in the need for a regional approach to problem solving.

Board of Governors Meetings Hosted by India

21st meeting, November 1994, New Delhi

35th meeting, November 2005, Shillong

41st meeting, November 2010, Mussoorie



Evolution of Programmes

Phase	Period	Programme themes
Inception		
Phase-I Work Programme	1983–1987	Watershed Management Off-farm Employment Generation Rural Energy Planning Engineering in Fragile Environments Information System for Mountain Development
Phase-II Work Programme	1988–1994	Mountain Farming Systems Mountain Environmental Management Mountain Infrastructure Development Mountain Institutional Development
Regional Collaborative Programme (RCP)		
RCP-I	1995–1998	Mountain Farming Systems Mountain Natural Resources Mountain Enterprises and Infrastructure Mountain Environment and Natural Resources Information Systems Documentation, Information and Training Administration, Finance and Logistics
RCP-II	1999–2002	Sustainable Livelihoods for Mountain Households Gender Balanced Mountain Development Sustainable Management of the Mountain Commons Capacity Building of Mountain Development Organisations Information and Outreach
Medium-Term Action Plan (MTAP)		
MTAP-I	2003–2007	Natural Resources Management Agriculture and Rural Income Diversification Water, Hazards and Environment Management Culture, Equity, Gender, and Governance Policy and Partnership Development Information and Knowledge Management
MTAP-II	2008–2012	Integrated Water and Hazard Management Environmental Change and Ecosystem Services Sustainable Livelihoods and Poverty Reduction Integrated Knowledge Management

The Phase-II work programme (1988–1994) witnessed a need to institutionalise the functions and expansion of activities but with concentration on four key components: farming systems, environmental management, infrastructure development, and institutional development. The RMCs started realising the importance of ICIMOD's regional nature, as reflected in their greater involvement in activity planning and implementation. This period can be termed the phase of the Mountain Perspective Framework development. The achievements were masked, however, by the centre's dwindling financial status, which was eclipsing the viability of the institution.

Regional Collaborative Programme (RCP) phase

The second era in ICIMOD's evolution comprised two RCPs of four years each. RCP-I (1995–1998) conceived three thematic divisions (farming systems, natural resources, and enterprises) and three service divisions (environment and natural resources information, documentation and training, and administration and finance). To consolidate activities and identify niches based on strengths, considerable attention was paid to packaging programmes and projects, increasing the donor base, and reinforcing partnerships.

RCP-II (1999–2002) continued the momentum with reorganisation of the programmes into five areas: livelihoods, gender, commons, capacity building, and information/outreach. The consolidation efforts paid off, and ICIMOD was able to carve out a strong niche for itself at both the regional and international levels. Celebration of the International Year of Mountains in 2002 provided opportunities for ICIMOD to exhibit its potential. That year ICIMOD played a lead role in forming and launching the Global Mountain Partnership at the World Summit on Sustainable Development in Johannesburg, South Africa, which ultimately resulting in ICIMOD hosting the global Mountain Forum Secretariat.

Medium-Term Action Plan (MTAP) phase

The third and current phase includes two MTAP periods of five years each. Recognition of the need to take advantage of the growth and development among the RMCs led to the development of an overall strategy and MTAP-I (2003–2007). Six integrated programmes were defined for that period: natural resources; agriculture and rural income; water and hazards; culture, equity, gender and governance; policy and partnership; and information and knowledge.

The current plan, MTAP-II (2008–2012), builds on growing awareness of the Himalayas as part of greater global ecosystems and recognition that it is not possible to consider in isolation the changes taking place here. Globalisation, which affects the environmental, social and economic spheres, also has ramifications for the ecosystems of the Himalayas. MTAP-II focuses on three strategic programmes – water and hazards, environmental change and ecosystem services, and livelihoods and poverty – sub-divided into nine action areas. The past decade has seen tremendous financial growth – from US\$ 6 million annual budget in 2003 to US\$ 14 million in 2011. ICIMOD's role is increasingly recognised on the global level, as reflected in its association with such bodies as the International Union for Conservation of Nature (IUCN); global conventions such as the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the Ramsar Convention on Wetlands; the Intergovernmental Panel on Climate Change (IPCC); the Global Earth Observation System of Systems (GEOSS); and the Asia-Pacific Water Forum (APWF).

India and the Growth of ICIMOD

Throughout the phases of ICIMOD's development, India as an active RMC has played a lead role in formulating the centre's institutional and programmatic strategies and action plans. Over the years, enhanced interaction with partner institutions in India, through specialised training programmes and capacity building events, has led to deeper understanding of the need for a regional player to help address mountain development issues in the Indian Himalayan region.

Dr TN Khoshoo represented India in the first meeting of the Board (August 1983), and Mr NN Jha delivered the country statement from India at ICIMOD's inauguration (December 1983). India also participated in ICIMOD's tenth anniversary symposium (December 1993).

Valued collaborative initiatives in the first phase (1983–1994) included programmes on mountain risk engineering, sloping agricultural land technology, and seabuckthorn (see pp23–24). A highlight was the establishment of the Godavari demonstration site near Kathmandu, which owes much to the ideas and inputs of Prof. AN Purohit and Mr R Rajamani, who advocated for on-the-ground demonstration of relevant technologies for sustainable mountain development, based on the concept of 'seeing is believing'. It is noteworthy that in India, the Govind Ballabh Pant Institute of Himalayan Environment and Development (GBPIHED) has similarly developed a research demonstration, gene bank, and education outreach centre.

In the second phase (1995–2002), several secretaries from the Ministry of Environment and Forests (MoEF) chaired the Board, namely Mr NR Krishnan (1995/96), Mr TKA Nair (1996), and Mr KC Mishra (2003). Prof. AN Purohit and Mr R Rajamani continued to advise ICIMOD as independent members of the Board.

Two professional experts from India served as distinguished panel members in the quinquennial reviews (QQRs) of ICIMOD. Dr Kamla Chowdhury (Centre for Science and Environment [CSE] and Chairperson, Society for Promotion of Wastelands Development [SPWD]) served in the Second QQR (1995) and Ms Bharti Gupta Ramola (Partner, PricewaterhouseCoopers) in the Third QQR (2001).

By this era, ICIMOD's Mountain Environment and Natural Resources' Information System (MENRIS) was supporting several Indian agencies in establishing their geographic information systems (GIS) and remote sensing units and applying the technology for the cause of sustainable mountain development.

Mr Sunder Lal Bahuguna, the popular environmental activist from Uttarakhand, visited ICIMOD in March 1996 for an interaction programme (see box right). High level visitors from India during this period included Mr Vir Bhadra Singh, the then Chief Minister of Himachal Pradesh (twice) and Mr Narayan Dutt Tiwari, the then Chief Minister of Uttar Pradesh.

In the current phase (2003–2012), India/ICIMOD collaboration has benefited from increased financial support and strategic developments.

Insights from Mr Sunder Lal Bahuguna, Visiting ICIMOD in 1996

"Up to the early 20th century, the hill farmers were very prosperous, exporting 30 commodities while importing only three, but the situation is the reverse now. The hill people have become poor and most men have migrated to the plains in search of better prospects, leaving the women to eke out a living in the harsh environment. Humanitarian scientists, social activists and compassionate artists and journalists should work together. Greed and fear have to be dispensed with and 'gyan' (knowledge), 'karma' (action) and 'bhaku' (devotion/prayer) have to be combined/balanced in order to achieve any ideal."

Source: ICIMOD (2004) *Two Decades of the International Centre for Integrated Mountain Development 1983/4-2003/4, 2004*



In strategic terms, the MoEF identified GBPIHED as the nodal agency for the collaborative programmes with ICIMOD in the Indian Himalayan region. GBPIHED and ICIMOD signed a Memorandum of Understanding (MoU) to this effect in September 2008.

Dr Raghunandan Singh Tolia from India served as one of the distinguished panel members of the Fourth QQR of ICIMOD (2006). India participated in ICIMOD's twentieth anniversary celebration (December 2003), and ICIMOD benefited from the appointment of Prof. JS Singh as an independent member of the Board in 2001. At ICIMOD Headquarters, Dr Eklabya Sharma, a professional staff member from India, assumed the post of Director Programme Operations effective January 2011.

In terms of finance, India made a generous contribution to the construction of ICIMOD's new headquarters, completed in 2005. In January 2007, Dr Prodipto Ghosh, Secretary, MoEF chaired a special meeting on RMC funding strategy where the RMCs indicated a substantial increase in their contribution to ICIMOD. As committed, India increased its contribution substantially beginning in 2009.



Programme Locations in India

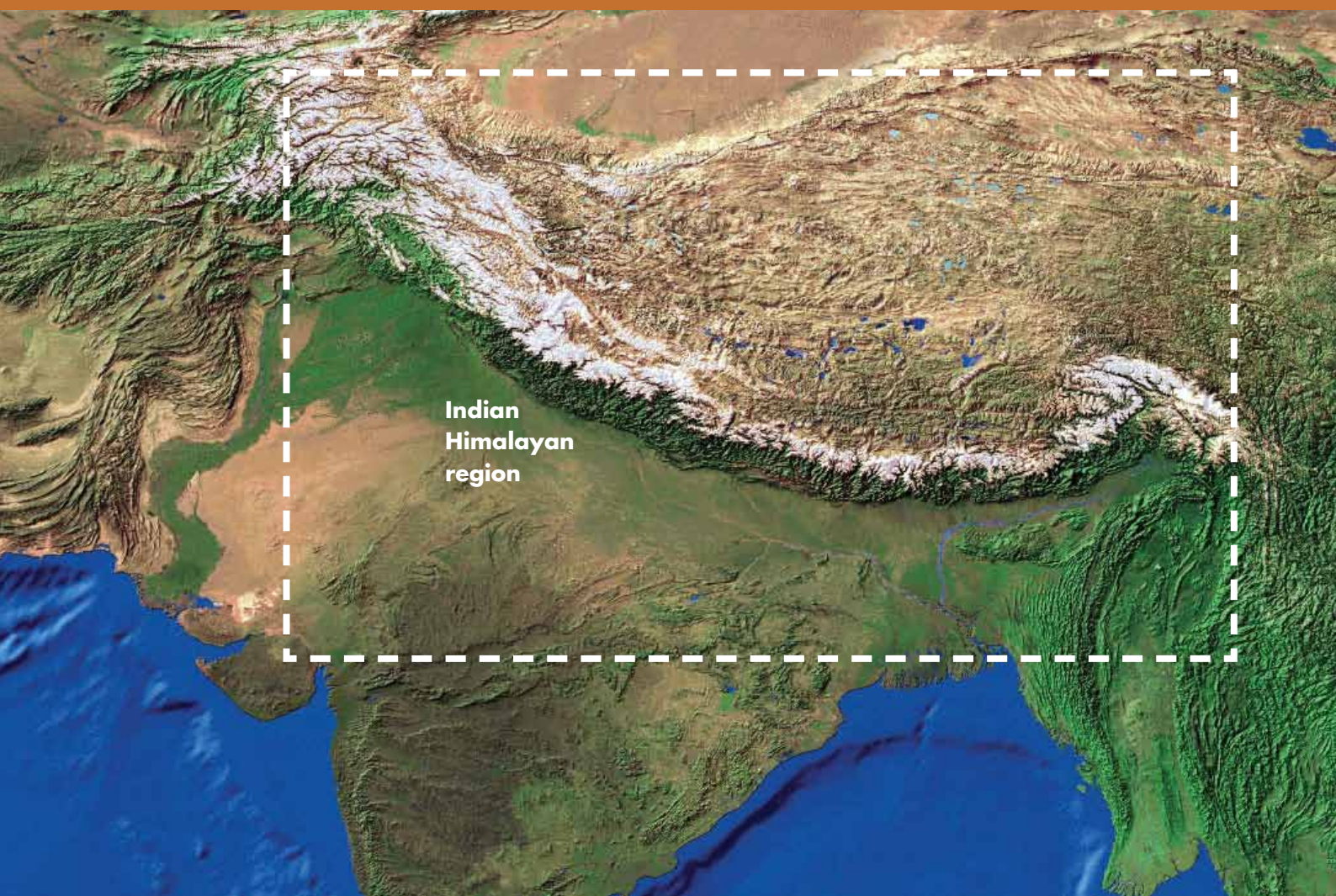
The Indian Himalayan region, including the Himalayas proper and the northeastern hill states, lies between 21°57' and 37°5' N latitudes and 72°40' and 97°25' E longitudes covering an area of 533,000 km² (16.2% of the total geographical area of the country). It stretches over 2,500 km from west to east, while its width varies from 150 to 600 km at different places. The region is home to 40 million people (3.8% of the total population of the country) and more than 170 of India's 701 scheduled tribes.

The region comprises twelve states – ten completely in the Himalayas (Arunachal Pradesh, Himachal Pradesh, Jammu and Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, and Uttarakhand) and two partially (hill districts of Assam and West Bengal).

The region is heterogeneous, with a wide spectrum of biophysical gradients as well as great socio-cultural diversity, necessitating location-specific development plans and local solutions to problems. Social awareness on conservation and natural resource management is high, as reflected by the origin of the world famous 'Chipko' environmental movement and the existence of a number of traditional institutions such as Dzumsa (the form of self-governance found in villages in Sikkim), Mangma, and Dwichi in the region.

The region is broadly divided into the eastern and western Himalayas. There is a considerable degree of variation in the management of natural resources in the two parts; the eastern region shows a greater degree of control by local communities, while in the western Himalayan states the natural resources are largely under the control of the state governments. The ethnic mosaic of the western Himalaya also differs conspicuously from that of the east.

The states featuring most frequently in collaborative activities are Himachal Pradesh (livelihoods, agriculture, and gender and governance projects) and Uttarakhand (previously Uttar Pradesh) (agriculture, water, energy, and gender and governance projects). Broader livelihood and water projects have been carried out in the northeast, and biodiversity projects in the Eastern Himalayas. Some specific studies have also been carried out in Ladakh (rangelands), Sikkim (agriculture), and Assam (water).



The highlight of this era to date was the visit to ICIMOD by the Honourable Sri Jairam Ramesh, Minister for Environment and Forests, in October 2010. Minister Ramesh stressed regional cooperation and collaboration while commending ICIMOD for its role.

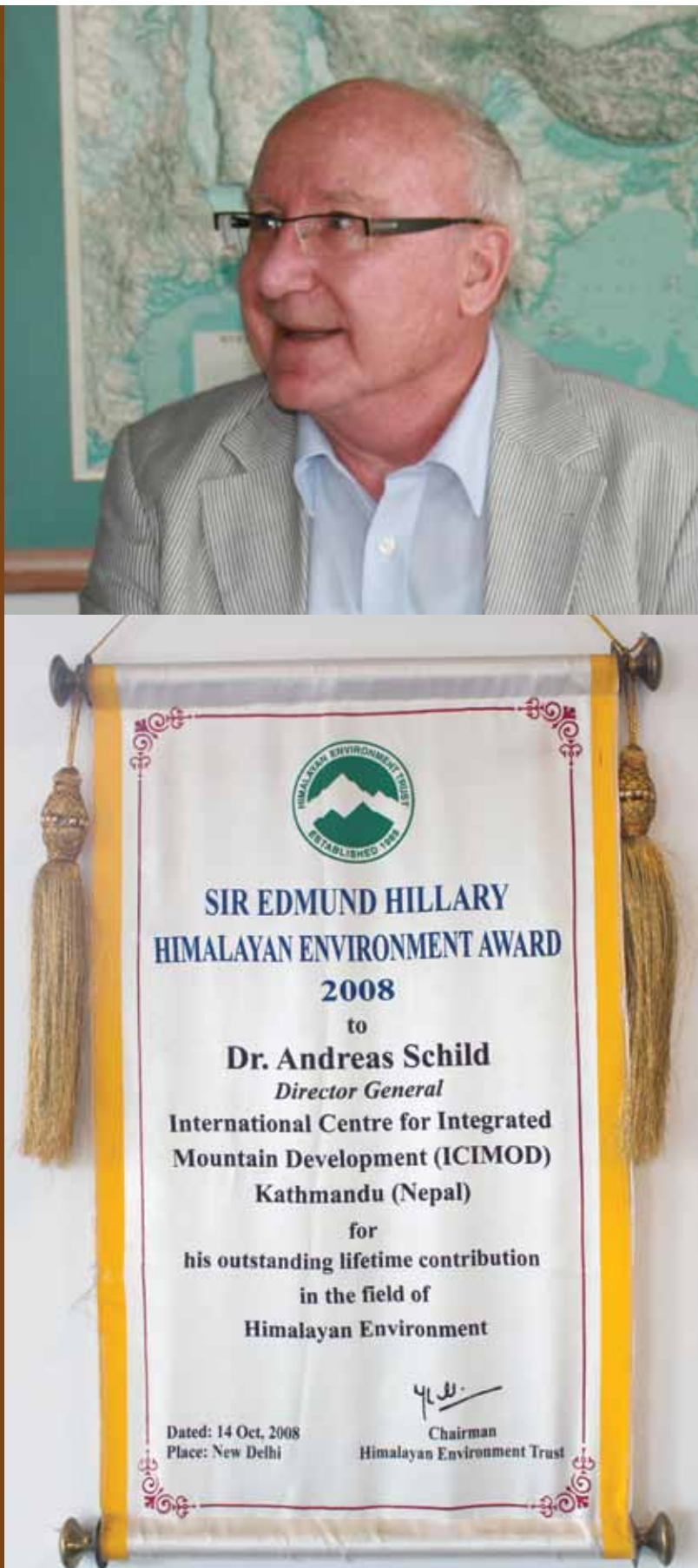
In 2008, the India-based Himalayan Environment Trust awarded the first Sir Edmund Hillary Himalayan Environment Award to the ICIMOD Director General (see box below).

ICIMOD Director General Awarded First Sir Edmund Hillary Himalayan Environment Award

At a ceremony held at the headquarters of the Indian Mountaineering Foundation in New Delhi, India on 14 October 2008, the first Sir Edmund Hillary Himalayan Environment Award was awarded to Dr Andreas Schild for his outstanding contribution, successful leadership, and strong commitment towards sustainable development over the previous 30 years. The annual award is given by the Himalayan Environment Trust to an organisation or individual for an outstanding lifetime contribution to the cause of the Himalayan environment. The Honourable Dr Karan Singh, MP of the Government of India, Advisor to the trust and Chairman of the Award Committee, presented the award.

The event marked both the twentieth anniversary of the Himalayan Environment Trust and 50 years of the Indian Mountaineering Foundation. The Chief Guest, Dr RK Pachauri, Chairman of the Intergovernmental Panel on Climate Change (IPCC) and Director General of The Energy Research Institute (TERI), released the publication *Call of the Mountains*, prepared for the event; its many distinguished contributors on Himalayan issues included two authors from ICIMOD.

Source: ICIMOD (2008) *Celebrating 25 Years of ICIMOD – Souvenir of the 25th Anniversary Events*



Strategic Shifts in Partnership

India/ICIMOD collaboration has prevailed over the past three decades though healthy debate on the level of country ownership of ICIMOD as well as participation in collaborative programmes and reciprocal flow of services and benefits. In the past decade the partnership has witnessed several strategic shifts, as global climate change and the emerging green economy concept have come to the fore as major themes shaping the current discourse on sustainable mountain development.

In this decade, India has devoted increased attention to the mountain agenda and to the specific needs of the Himalayas through mechanisms such as a high-level committee for mountain development in the Himalayas, a chapter on the Himalayas in the National Plan for Climate Change Adaptation, the Himalaya Mission, the Indian Mountain Initiative, and the Conclave of Himalayan Chief Ministers.

Heightened Interest in Regional Cooperation

As the issues of environmental change, including climate change, are of transboundary nature, India has expressly acknowledged ICIMOD as an anchor for regional cooperation and collaboration. To quote Honourable Sri Jairam Ramesh, Minister for Environment and Forests, "the future lies in regional

cooperation based on strong national institutions..." During his visit to ICIMOD in October 2010, Minister Ramesh stressed the importance of the collaboration among China, India, and Nepal on the Kailash Sacred Landscape and looked forward to supporting similar initiatives in three other transboundary landscapes with sectors in India. Recently, the Government of India has given clearance for collaborative work in the Indian sectors of the Kailash (see box) and Kanchenjunga landscapes.

Strengthened Government Participation

Changes in programme participation by the country partners have appeared to be cyclical. The number of partners in India reached three dozen during the MTAP-I period (2003–2007). With the introduction of the new programme phase of MTAP-II (2008–2012), collaboration was renewed with only half a dozen partners in 2008, but by mid-2011 the number had already reached over two dozen. However, there has been a qualitative change in the composition of partners. ICIMOD currently works in partnership with more national research institutions (NRIs) and universities than in the previous programme phases. As new institution-wide projects on climate change scenarios and adaptation (such as the five-year Himalayan Climate Change Adaption Programme {HICAP}) emerge, collaboration with NRIs (e.g., the Indian Institute of Technology [IIT]) becomes increasingly crucial.

Increased Staff Representation

In collaborative programming, the expertise of Indian professionals is always sought after. At ICIMOD Headquarters, representation of Indian professionals is continuously on the rise. To date, a total of 45 Indian nationals have served at ICIMOD in various capacities, of which 10 are engaged at present. The expert input of Indian nationals has also been recognised through their assumption of higher offices and responsibilities. All of the currently serving staff are in senior positions, including four Action Area Team Leaders, the Deputy Programme Manager, and the Director of Programme Operations (see Annex).





Kailash Sacred Landscape Conservation Initiative – A Unique Ecosystems Approach to Transboundary Biodiversity Management

The Kailash Sacred Landscape Conservation Initiative (KSLCI) is a collaborative regional programme for transboundary cooperation on biodiversity conservation in China, India, and Nepal. ICIMOD initiated the programme with the active participation of the three countries and strategic partnership with the United Nations Environment Programme (UNEP).

In India, the nodal ministry, the Ministry of Environment

and Forests (MoEF), has designated the GB Pant Institute of Himalayan Environment and Development (GBPIHED) as the lead institute. The Wildlife Institute of India and the Uttarakhand Forest Department are other major national partners. Within India, the programme involves an area of over 7,000 sq.km, inhabited by over 460,000 people, in the districts of Didihat, Pithoragarh, and part of Bageshwar.

The lead partners in China and Nepal are the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, and the Ministry of Forest and Soil Conservation, Government of Nepal.

The three countries have agreed on a common framework from the very beginning of the programme and have demonstrated their commitment by each hosting a regional meeting for it; in India, the meeting was held in Almora.

Based on common methodologies and approaches, the programme has completed a feasibility assessment for the area, a conservation strategy, and a comprehensive environmental monitoring strategic plan. These documents and studies form the basis for planning and developing a long-term implementation strategy for the landscape.

The initiative is the first piloting of transboundary cooperation as promoted in the Government of India's National Climate Change Action Plan of 2008. Strategically, the Kailash initiative is also the first effort to implement the transboundary landscape and ecosystem approach of the Convention on Biological Diversity (CBD) in the Hindu Kush-Himalayan region. This initiative will serve as a valuable example for demonstrating transboundary cooperation on landscape conservation and adaptation to climate change during the eleventh Conference of the Parties (COP-11) of the CBD, which will be held in India in 2012.

Increased Country Ownership

India has continued its support to ICIMOD with policy guidance, provision of expert services, and financial as well as in-kind contribution. India supported the proposal for an increase in the financial contribution of the RMCs and also chaired a special meeting on RMC funding strategy held in January 2007. Subsequently, the annual contribution from India almost doubled in 2009 compared to the previous years and increased slightly again in 2010 (see Annex). Moreover, India has recently announced a substantial contribution to the ICIMOD Foundation, which is expected to open up a fresh chapter for ICIMOD's role in the region.

Enhanced Programme Coordination

India wants to streamline ICIMOD's services in implementing collaborative activities in the Indian Himalayan region in conformity with its policies. To this end, the MoEF has identified GB Pant Institute of Himalayan Environment and Development (GBPIHED) as the nodal agency for the collaborative programmes with ICIMOD in India (see also p5). The parties will work together on projects for outreach in the subjects of mutual interest and will try to cater to a wide range of stakeholders.

Collaborative Programme Highlights

Because of ICIMOD's regional character, most of its programmes and projects (excluding a few scaling-up projects) are carried out in collaboration with at least two regional member countries (RMCs). This section highlights selected programmes and projects (of three years or more duration) that have been implemented in collaboration with partners in India along with other RMCs. The purpose is to capture a broad spectrum of the collaborative initiatives promoted in the Indian Himalayan region.

Exploring Livelihood Options

ICIMOD's work with Indian partners has made a significant contribution towards building the knowledge pool on pro-poor development, gender equity, feminisation of agriculture, and labour migration. Another important achievement has been the development of an analytical and strategic framework for integrated value chain development as a tool for poverty alleviation in rural mountain areas. Immediate impacts have been seen in increased capacity with regard to natural resource management practices and income generating activities (domestication of medicinal and aromatic plants [MAPs], beekeeping, gender mainstreaming, and value chain development approaches). Communities have also benefited from cash crop diversification, pollination services, and improved land resource management.

Increased participation of women in the development process and better understanding of gender issues strengthened the capacity of partners and project teams to mainstream gender issues in mountain development. The adoption of a mountain-specific value chain approach contributed to better understanding of concepts related to mapping of value chains, product selection, analysis, and strategy development for selected products. The ongoing AdaptHimal livelihood project also identified poverty



determinants for India and strengthened efforts to initiate a pilot project on participatory long-term land use planning for managing change in shifting cultivation. In this context, participatory three-dimensional (P-3D) models developed earlier proved to be effective tools for community-based natural resources management (see box opposite).

Exploring Livelihood Options – Selected Programmes and Projects

Title	Period	Research location	Partners	
			Implementation	Financial
Livelihood and ecosystem services (AdaptHimal)	2009–2012	Northeast Uttarakhand	Ajeevika, ULIPH, MRDS, NERCORMP	IFAD
Livelihoods in uplands	2000–2010			
Regional rangeland programme	1999–2009	Ladakh	WII, LAHDC	Austria
Medicinal aromatic plants programme	1998–2009	Chhattisgarh, Himachal Pradesh	NMPB, CSKHPAU	IDRC
Mountain tourism	1993–1998	Himachal Pradesh, Uttar Pradesh	AME	NORAD

ULIPH = Uttaranchal Livelihood Improvement Project for Himalayas; MRDS = Meghalaya Rural Development Society; NERCORMP = North Eastern Regional Community Resource Management Project; IFAD = International Fund for Agricultural Development; WII = Wildlife Institute of India; LAHDC = Ladakh Autonomous Hill Development Society; NMPB = National Medicinal Plant Board; CSKHPAU = Chaudhary Sarwan Kumar Himachal Pradesh Agricultural University; AME = Academy for Mountain Environments; IDRC = International Development Research Centre; NORAD = Norwegian Agency for Development Cooperation

Participatory Three-Dimensional (P-3D) Models: Effective Community-Level Planning Tools

Participatory three-dimensional (P-3D) models were developed in villages surrounding Nokrek National Park in Meghalaya, India. P-3D models are effective tools for community-based natural resources management and have been extensively used by the communities for land allocation in shifting cultivation, natural resource use, village planning, and negotiating with government officials about services and the development of natural resources. After an original model was up-scaled by the project and the communities, it became available in 12 villages.

Source: ICIMOD (2004) ICIMOD in 2005 – Special Inauguration Edition. *Sustainable Mountain Development*, No. 46 Winter

The rangelands programme focused on the promotion of ecologically appropriate, socially equitable, and gender sensitive innovations for enhancing the livelihoods of herders and the ecological health of the rangeland ecosystem on which they depend, paying special attention to women and other vulnerable groups. The outcomes were increased awareness and enhanced capacity for appropriate management of rangeland ecosystems, processes for promotion of co-management of rangeland resources, and recognition of the need for a legal framework. Specific examples include the adoption of a co-management approach in the Ladakh 2025 Vision Document and the successful efforts of Ladakh women to organise themselves into Ama groups to help each other and challenge gender inequities.

The decade-long medicinal plants programme developed organic production protocols and local certification of MAPs through Chhattisgarh Certification. Furthermore, it developed a pro-poor value chain and reviewed related policies. The partners in India – with seed funds provided by the programme – generated US\$ 1 million from the National Medicinal Plants Board (NMPB, the nodal agency) and the United Nations Development Programme (UNDP). Strategic partnership with NMPB enabled the programme to contribute to national MAP programmes. Collaboration with research institutions, e.g., CSK Himachal Pradesh Agricultural University (CSKHPAU), and experts in the field informed both technological and policy aspects of development of the sector. Provincial governments and national and local NGOs participated in the programme to develop innovative mechanisms to strengthen MAP-based livelihoods and facilitated scaling-up.

The tourism studies resulted in a strategy for mass tourism, class tourism, and value tourism and suggested elements for promoting sustainable mountain tourism in the Himachal Pradesh and Uttar Pradesh hills. It also suggested introducing strategic and infrastructural changes to attract tourists from outside, who bring greater value. Specific lessons learnt included identification of the need to formulate a consistent, community and environmentally friendly tourism policy at national and state levels, with an emphasis on encouraging a policy based on the value rather than the volume of tourism.

Two short-duration projects dealing with high-value products for livelihood enhancement in the mountains (see boxes on following page) are worth special mention as they also contributed immensely to the policy and actions related to natural resources management. A project on value-chain development of Indian bay leaf helped increase the income of participant households substantially through effective market development. Another project on linking high-value products and services to value-chain development identified, analysed, and developed value chains of selected high-value products to address socio-economic and institutional barriers that prevent upstream producers and service providers from benefiting equitably from these products. One of the project's successes was in promoting Malta oranges.



Developing Entrepreneurship in Value-Chains of *Cinnamomum tamala* (Indian Bay Leaf): Linking Poor Producers to Markets for Essential Oils and Spices

A project implemented in Chamoli district of Uttarakhand, India facilitated the harvesting of bay leaf from the forests by steering a policy readjustment allowing local communities to obtain collection permits. It also linked the production to markets by bringing the markets to the producers' doorsteps through an innovative modification of the existing mandi system (market yards) called 'floating mandies'. The project helped each collector earn INR 3,150 on average in 2009 by harvesting an average of 1,500 kg of bay leaves, an increase from INR 2,500 in 2003. The diversification of income, although small, made a major contribution to the rural mountain households. The impact of the increased income at the project sites was seen in the improved food security of households, repayment of loans, children's education, provisioning for clothing, and availability of cash for meeting other household needs such as fitting solar lights in houses.



Source: ICIMOD (2011) *Pro-Poor Value Chain Development for High Value Products in Mountain Regions: Indian Bay Leaf*

Malta Orange: Converting a Single-Product Value Chain to a Multi-Product Value Chain

ICIMOD, along with the Himalayan Action Research Centre (HARC), implemented a Ford Foundation-funded project to develop the orange value chains and promote livelihood opportunities in Uttarakhand, India. The government gave land for establishing a facility for Malta orange processing. The project helped create livelihood options for the region, with an observed increase in the price of Malta oranges. The project led to the establishment of 27 self-help groups and seven common facility centres among the growers. The adoption of processing and value addition techniques has created new employment opportunities for local households. In 2010, the self-help groups processed 50 tonnes of oranges at the common facility centres and sold 10,000 litres of 'Malta squash'. The self-help groups have converted a single-product value chain into a multiple-product value chain venture. In the second year of the project, the investment of US\$ 125,000 had already achieved a business turnover of US\$ 68,000.



Source: ICIMOD (2011) *Annual Report 2010*

Conserving Biological Diversity

The Indian Himalaya region is home to rich biodiversity. In its work on biodiversity conservation, ICIMOD is now focusing on interventions at the landscape level. Activities are under way in the Kailash and Kanchenjunga landscapes, and steps are being taken to initiate work in the Namdhapha-Hkakaboraji-Gaoligongshan and Brahmaputra-Salween landscapes as well.

The decade-long transboundary landscape conservation initiative for the Kanchenjunga Landscape aims at achieving biodiversity conservation through regional cooperation while complying with national and international agendas. It has increased understanding among the partners about the significance of conservation at the landscape level. It has resulted in national strategic

plans for corridor development and their integration in national strategies. A framework for regional cooperation for implementation of the CBD has been published, and the framework for a national strategy for the management of biodiversity is under way.

The ongoing Kailash sacred landscape initiative aims to engage regional, national, and local partners and other stakeholders in a consultative process to facilitate a transboundary, integrated approach to sustainable development and conservation. Landscape and ecosystem management approaches will be promoted to address threats to the cultural and environmental integrity of the area, to analyse change processes, and to develop a knowledge base on which to build a regional conservation framework and implementation strategy. This is the first pilot activity under ICIMOD's trans-Himalayan transects approach.

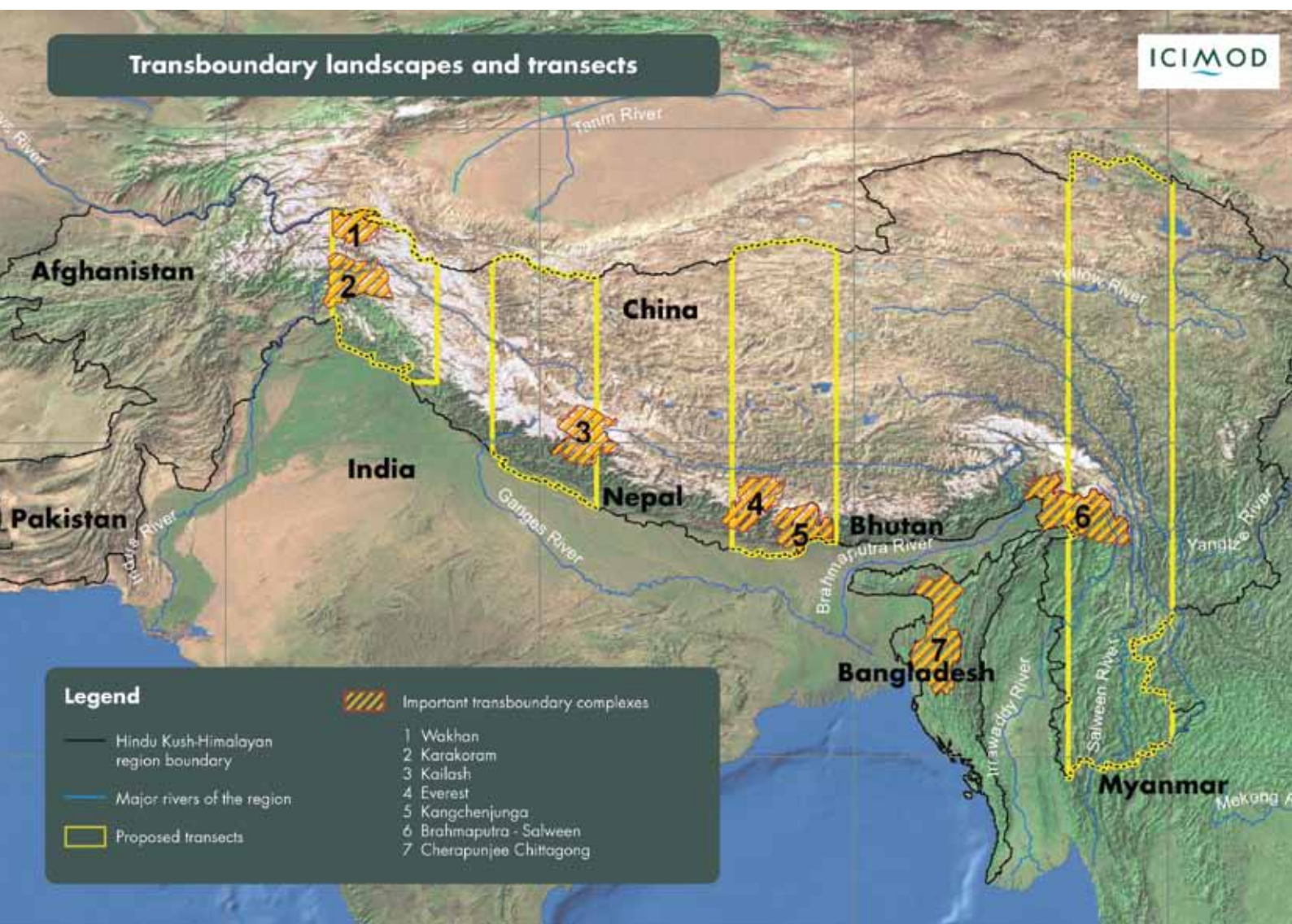
Conserving Biological Diversity – Selected Programmes and Projects

Title	Period	Research location	Partners	
			Implementation	Financial
Kailash sacred landscape conservation	2009-2012	Eastern Himalayas	GBPIHED	UNEP, GIZ
Access and benefit sharing from genetic resources	2004-2008	Eastern Himalayas	NERCORMP, NEPED, ATREE, HIMAWANTI, MZU	GTZ
Kyoto: think global, act local	2003-2008	Uttarakhand	CHEA	Twente University
Transboundary landscape conservation – Kanchenjunga	2002-2011	Eastern Himalayas	MoEF, GBPIHED	MacArthur
Indigenous honeybees	1999-2012	Himachal Pradesh	YSPUHF	Austria

GBPIHED = Govind Ballabh Pant Institute of Himalayan Environment and Development; UNEP = United Nations Environment Programme; GTZ = Gesellschaft für Technische Zusammenarbeit (now Deutsche Gesellschaft für Internationale Zusammenarbeit [GIZ]); NEPED = Nagaland Environment Protection and Economic Development; ATREE = Ashoka Trust for Research in Ecology and the Environment; HIMAWANTI = Himalayan Grassroots' Women's Natural Resources' Management Network; MZU = Mizoram University; CHEA = Central Himalayan Environment Association; MoEF = Ministry of Environment and Forests; YSPUHF = Dr Yashwant Singh Parmar University of Horticulture and Forestry

An earlier project facilitated the development and implementation of the Convention on Biological Diversity (CBD) access and benefit sharing regime. The goal of this process was to strengthen equity and livelihood security through sustainable management of biodiversity resources for the indigenous peoples of the eastern Himalayas.

The 'Kyoto: Think Global, Act Local – Action Research' project analysed the relationship between community forest management and the biological sequestration of carbon, helping to establish the case for inclusion of community forestry under the Kyoto Protocol. The project also enabled communities to measure the carbon being sequestered by their



forests. It successfully sensitised policy makers on issues related to community forestry and carbon sequestration (see box below).

Another decade-long initiative on honeybees promotes sustainable management of native hive bees, *Apis cerana*, and other indigenous honeybees by mountain communities for overall biodiversity conservation. It addresses *Apis cerana* selection and multiplication, integration of pollination in farming systems, indigenous honeybees, honey hunting communities, market study and enterprise development, training and extension, networking, and capacity building. The initiative has been successful in bringing high-value bee products and services to the awareness of local farmers. As an impact, the Rural Development Programme of the Himachal Pradesh (HP) government provided financial assistance to the Dr Yashwant Singh Parmar University of Horticulture and Forestry (YSPUHF) to promote management and sustainable use of *Apis cerana* and managed pollination. The HP government created a policy on the provision of subsidies for renting honeybee colonies to farmers for apple pollination. Moreover, the government is providing training on beekeeping



and pollination and making arrangements for availability of bee colonies to farmers through the Department of Horticulture. Increased awareness about the importance of high-value products has motivated several institutions to develop and implement programmes in promoting honey and other bee products and pollination services.

Monitoring Water Resources and Hazards

The conservation and sustainable management of water is of paramount importance in the Himalayan region. Water is not only the most important resource but also the source of catastrophic hazards. The collaborative activities of ICIMOD in India focus on managing this resource and providing sound knowledge on measures for mitigating the catastrophic effects it may have.

Communities in India commonly face stress due to too much and too little water; however, they also have traditional coping mechanisms. A case study in India documented and assessed the local and/or traditional practices that have enabled communities to survive water stresses and cope with hazards and disasters over the long term in the flood plains of the Brahmaputra basin of eastern Assam. These practices have evolved from the communities' culture, beliefs, skills, and indigenous knowledge systems.

To complement traditional knowledge, state-of-the-art technology in rainfall estimation using space-based technology was introduced in pilot basins to enable timely flood prediction in countries that are highly vulnerable to flood disasters. The United States Geological Survey (USGS) Geospatial Streamflow Model (GeoSFM) was tested in a small pilot area of the Brahmaputra basin. Subsequently, a project on climate impacts on glaciers was introduced to incorporate the snow and ice component into the

Letter of Appreciation from the Government of Uttaranchal to the Central Himalayan Environment Association, ICIMOD Partner

In a letter dated 4 July 2005, Dr RS Tolia, eminent social scientist and Chief Secretary of the Uttaranchal Secretariat, Government of Uttaranchal, India expressed appreciation for efforts being made to enable local communities to measure and monitor carbon sequestration in community forests and to make a claim for payment for carbon service under the project 'Kyoto: Think Global, Act Local – Action Research'. The project helped bring community managed forests under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The Chief Secretary lauded the efforts of the Central Himalaya Environment Association (CHEA), ICIMOD's national partner in India, which is based in the state of Uttaranchal. The Secretary expressed interest in receiving further information on community forestry, carbon trading, and climate change, not only in Nepal and India but also in other countries. According to Dr Tolia, the government of Uttaranchal has "used some finding and concepts [from the project] profusely in sending necessary directives to the concerned state officials" and in "framing policy related issues for the state".

Monitoring Water Resources and Hazards – Selected Programmes and Projects

Title	Period	Research location	Partners	
			Implementation	Financial
Too much too little water	2008–2010	East Assam	Aaranyak	Sida
Satellite rainfall estimation / climate impact on glaciers	2006–2012	Northeast	NCMRWF, NECERD	USAID
Twinning European and South Asian river basins	2006–2009	Assam, Northeast	Aaranyak	EC
People and resource dynamics	1996–2002	Uttarakhand	GBPIHED	SDC, IDRC
Rehabilitation of degraded lands	1992–1994	Almora, Uttar Pradesh	GBPIHED	IDRC
Mountain risk engineering	1988–1991	Almora, Uttar Pradesh	GBPIHED	EEC, SDC, GTZ

Sida = Swedish International Development Cooperation Agency; NCMRWF = National Centre for Medium Range Weather Forecasting; NECERD = North East Centre for Environment and Rural Development; USAID = United States Agency for International Development; EC = European Commission; SDC = Swiss Development Cooperation; EEC = European Economic Commission

hydrological models, as many of the basins of the region are snow fed, which is not accounted for in the GeoSFM modelling. This project aims to develop better understanding of the snow and glacier contribution to the flows of the rivers and to look at various scenarios from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report. These collaborative efforts are promoting regional cooperation to mitigate flood disasters and to identify specific needs and priorities in flood forecasting, and are strengthening partner networks to increase their awareness and facilitate national consultations.

A river basin twinning project compared case studies conducted in the Upper Brahmaputra and the Upper Danube in Europe to learn from developments in other parts of the globe. The case studies aimed to:

- show implications of climate change for water and soil resources management in two transboundary basins that have significant water storage in snow and glaciers;
- develop and apply integrated assessment approaches and establish an integrated water resources management (IWRM) system toolset;
- disseminate these results and contribute to the capacity building and implementation of harmonised IWRM plans in the twinned basins.

The rehabilitation of degraded lands and watersheds is high on the agenda in the Himalayan region. A project on people and resource dynamics responded to concerns about pressure on the resources and the people in the middle mountain areas of China, India, Nepal, and Pakistan. Its achievements included generation of substantial information and knowledge on watershed management, and use of HYMOS (Hybrid Functionals for Metal Oxide Surfaces and Nano-Particles) software for storage and analysis of hydro-meteorological data. The project also encouraged increased involvement of local people in the management of common property resources leading to major changes in governance and access



Fish Farming in India

ICIMOD piloted a fish farming scheme in the Bheta Gad Garur Ganga Watershed in Uttarakhand State, India in December 2000 under the People and Resource Dynamics Project (PARDYP)-India Programme, in collaboration with the GB Pant Institute of Himalayan Environment and Development (GBPIHED), Almora. The purpose of the trial was to use ponds prepared for water harvesting to generate income as well as to improve the management and utilisation of water through an attractive income generating scheme for the poor farmers living in the watershed. After just three years, the income of poor farmers from fish farming had increased substantially, with reported net profits ranging from INR 1,040 to INR 26,900 depending on the size and number of fish ponds. Forty farmers from 22 villages had embraced the technology and were operating around 61 fish ponds. Most of the farmers belonged to poor, lower caste groups, which indicates that the scheme could be an effective means of addressing poverty and equity issues. Its effectiveness was possible because the technology was cheap and simple and thus affordable easily learned and. The approach is now being extended to other watersheds.

Source: ICIMOD (2006) *ICIMOD – Achievements, Challenges, and Lessons Learned*



in bio-engineering methods for controlling roadside slope instability and supported establishment of a mountain risk engineering training unit at the GB Pant Institute of Himalayan Environment and Development (GBPIHED).

Promoting Sustainable Agriculture

Agriculture is an important livelihood generation activity in mountains. Collaborative initiatives through the 1990s dealt with agricultural sustainability and options for enhanced production in marginal lands. Several studies and high-level meetings and workshops were conducted to promote sustainable mountain agriculture in the Indian Himalayas. A study in the state of Sikkim in the eastern Himalayas suggested that the priorities for sustainable mountain agricultural development should address the mountain-specific characteristics and noted that cropping patterns were fast changing towards high-value cash crops such as vegetables, ginger, fruits, oilseeds, and pulses, for which the state has a comparative advantage.

Another study, carried out in the Kullu district of Himachal Pradesh, examined the effects of mountain agricultural development processes on livelihood options and their implications for sustainability. The study also analysed the motivating factors behind changes in investments and the use of alternative tools and knowledge to increase the quality of farm resources. The study suggested that the process of agricultural transformation did not affect the number of livelihood options adopted by the households, but it improved the per worker earnings of households significantly.

High-level meetings and workshops on promoting sustainable agriculture in the Indian Himalayas included a meeting of the Indian Council for

regimes. In India, the project rehabilitated 4.5 ha of highly degraded land, introduced a simple and cheap water harvesting technology to store rainfall in dry seasons, and incorporated fish farming in watershed management (see box above). Moreover, it promoted regional exchange of methodologies and analytical frameworks for sustainable watershed management.

The precursor to this watershed management initiative was an action-research project conducted to improve understanding of the forces and processes underlying land degradation and to identify measures for restoring and developing degraded lands using options that are field tested and found economically, environmentally, and socially viable. Degraded community land in Almora was used for interventions. The most important aspect of this initiative was the introduction of the Sloping Agricultural Land Technology (SALT) – an effective technology for soil conservation, soil fertility improvement, and water retention.

An even earlier technological intervention involved mountain risk engineering. It built partner capacity

Promoting Sustainable Agriculture – Selected Programmes and Projects

Title	Period	Research location	Partners	
			Implementation	Financial
Appropriate technologies for soil conserving farming	1994–1996 1998–2001	Arunachal, Ladakh, Nagaland, Uttar Pradesh	GBPIHED	ADB
Mountain farming systems	1992–1995	Himachal Pradesh, Sikkim, Uttar Pradesh		Government of the Netherlands
Seabuckthorn cultivation	1991–1994	Himachal Pradesh, Uttar Pradesh	GBPIHED, HSCSTE, YSPUHF, CSKHPAU, HDST	Various
Sustainable mountain agriculture	1988–1993	Himachal Pradesh, Uttar Pradesh		ADB

ADB = Asian Development Bank; HSCSTE = Himachal State Council for Science, Technology and Environment; HDST = Himachal Government Department of Science and Technology

Agricultural Research (ICAR) and ICIMOD Steering Committee and a two-day brainstorming on mountain agriculture and resources management in Dehradun, India in late 1998. The latter meeting drew up a work plan for joint programme activities to be implemented in the Indian Himalayas in 1999.

In August 1992, a four-day workshop was organised on approaches to sustainable development in the Indian Himalayas. The workshop shared the results and methodologies of the field studies conducted to understand the dynamics of unsustainability. The workshop was held in Manali, India with the participation of 40 professionals from, among others, ICIMOD, GBPIHED, the Indian Planning Commission, and the Universities of Shimla, Palampur, and Solan in Himachal Pradesh.

The promotion of seabuckthorn (*Hippophae rhamnoides*) in the 1990s is still highlighted by ICIMOD and Indian policy makers. Seabuckthorn is an indigenous mountain shrub serving multiple purposes such as provision of fuelwood, food and drink products, and raw material for agro-industrial

activities; vegetative control of soil erosion; and increasing soil fertility. In China, seabuckthorn was seen to provide options for using fragile and marginal mountain land to supply low-cost vitamins, a rich source of cash income, off-farm employment, and an effective means of slope stabilisation and soil moisture conservation. In India, several partners were involved in documentation, training, exchange, and replication of the Chinese experience. Prior to this, seabuckthorn was considered a weed and prevented from spreading. A research centre on seabuckthorn was established at Solan University in Himachal Pradesh, and a national mission was set up in 2010 to explore its potential further (see box on following page).

A project on identifying and disseminating appropriate technologies led to the development of prototype and cost-effective Sloping Agricultural Land Technology (SALT) models, among others. Documentation of appropriate technologies for cold and dry areas was used to encourage policy makers, public managers, NGOs, and international donors to realise the opportunities and potential of agricultural



National Mission on Seabuckthorn

The 'Seabuckthorn Leh Initiative' was launched at a one-day high-level 'Workshop on the National Mission on Seabuckthorn' organised by the Defence Institute of High Altitude Research (DIHAR) in collaboration with the Ministry of Environment and Forests at Leh in the state of Jammu and Kashmir on 14 July 2010. It highlighted the importance of seabuckthorn, a plant species used for health care, improving livelihoods, and upgrading marginal mountain lands in the Hindu Kush-Himalayan region.

The conference was attended by the Honourable Minister of State for Environment and Forests, Mr Jairam Ramesh, and the Honourable Minister of State for Defence, MM Pallam Raju, both of the Government of India, together with other senior government officials and senior researchers. The Honourable Ministers emphasised the need for international collaboration and synergies among countries to expedite seabuckthorn research, cultivation, and processing.

The conference concluded with the declaration of a 'National Mission on Seabuckthorn' and the formation of a 'Seabuckthorn Consortium' of scientists, managers, and organisations working in research and management. The consortium was asked to prepare a long-term mission plan for the period up to 2020 and a short-term three-year plan for increasing the resource base. DIHAR took on the responsibility of compiling the research and action results in one place.

Researchers and practitioners from India will visit China, Mongolia, and Russia to study their strategies, and Germany and other European countries to study the market potential and requirements. ICIMOD will have a role in organising and providing a platform for exposure visits and knowledge transfer and exchange.

Source: ICIMOD (2011) Knowledge Management for Mountain Development: Knowledge and technologies for mountain development. *Sustainable Mountain Development*, Spring No. 58



development. A key lesson learnt was that indigenous knowledge should be captured, and where possible, funding should be provided for research on improving existing indigenous technologies and merging them with modern approaches. The project also pointed out the need for achieving gender equity without severely injuring social structures and family bonds.

Promoting Decentralised Energy

Recognising that many rural mountain populations have no access to modern energy supply as they are bypassed by the main grids, ICIMOD and Indian partners have undertaken collaborative initiatives on sustainable decentralised energy supply systems focusing on renewable technologies. Several studies

and pilot installations on mini- and micro-hydropower plants were made in Garhwal, Uttar Pradesh during 1993–1998 in collaboration with The Energy and Resources Institute (TERI) and the University of Roorkee, supported by the Norwegian Agency for Development Cooperation (NORAD).

A capacity building project on 'women, energy and water', carried out in collaboration with TERI from 2002–2004 with support from UNEP and the Swedish International Development Cooperation Agency (Sida), tested a new approach to water and energy development. In Uttarakhand, micro reservoirs were constructed on mountain slopes, an innovative approach with implications for sustainable water harvesting and livelihoods. Subsequently,

other villages began recharging traditional water springs based on the methods demonstrated by the project. These efforts were made possible with the social capital of the women's groups, developed with national and local partners. The outcomes of the intervention were time savings, reduced drudgery, and health benefits for women after adoption of energy and water related technologies. Income generation programmes and a revolving fund were initiated to help women make better use of the time saved. The women also created a savings and credit cooperative providing credit for income generation activities. These initiatives not only helped widen the options for productive use of time, but also reduced market barriers to access to technologies.

An action research programme on community-based energy planning and management was implemented in Chamba, Tehri District, Uttarakhand with the Uttar Pradesh Academy of Administration (UPAA) and the Society for Promotion of Wastelands Development (SPWVD) as the main partners. The main components of the study were preparation of an energy action programme with community participation, and assistance to implementation of selected renewable

Support to Micro-Hydropower Project in Dura-Baladinggre

A micro-hydropower project has helped the village of Dura Baladinggre in the West Garo Hills, Northeast India, successfully generate electricity from a perennial stream that flows by the village. The West Garo Hills Community Resources Management Society (WGHCRMS), an IFAD-supported project, and an NGO, Krima IV, a service provider, worked with the community for livelihood development through the formation of natural resources management groups and self-help groups. The villagers and WGHCRMS pooled together locally available materials and resources for a peltric set for generating power. ICIMOD assisted with installing the peltric set in the village.

The 1 kW of electricity generated was expected to be sufficient for all households in the village. Advantages included low cost and environmental friendliness, as peltric sets do not disturb the geological or ecological balance of the area. However, this type of micro-hydropower unit can only be used in villages where there are perennial streams.

Source: ICIMOD (2003) *Looking Forward: Building on International Year of Mountains 2002. Sustainable Mountain Development*, No. 43



energy technologies. The impacts included increasing commercialisation of renewable energy technologies by government agencies and donors, and encouragement to the private sector for participation in hydropower development. The capabilities of village-level extension workers to implement renewable energy technologies in parts of India were improved. The manuals on mini- and micro-hydropower plants were translated into Hindi and used by the Alternate Hydro Energy Centre. In effect,

the adoption of mini- and micro-hydropower plants was established as a valid approach to sustainable development, although a number of constraints were identified (see box above).

Mainstreaming Gender, Policy, and Governance

Mountain people are among the most marginalised populations worldwide. Not only do they live in remote and often harsh environments, but their voices are rarely heard, their knowledge and experience seldom acknowledged, and their needs barely addressed in broader national development strategies. Indigenous peoples, minorities, and women are particularly affected by unfavourable governance situations which are often exacerbated by the living conditions in the mountains. ICIMOD therefore undertakes collaborative initiatives to promote equity and empower mountain people.

A project on improving local governance has identified pertinent issues of equity, poverty, rights, justice, and entitlements related to key areas of

Mainstreaming Gender, Policy, and Governance – Selected Programmes and Projects

Title	Period	Research location	Partners	
			Implementation	Financial
Improving local governance	2009–2011	Assam, Himachal Pradesh, Sikkim, Uttar Pradesh,	TMI, Aaranyak, NERCORMP, RTDC	ICCO
Community-based organisation (CBO) advocacy strategies	2003–2008			
Policies, governance, participation and practices for mountain commons	1999–2002	Northeast	NEN, NEHU	Ford Foundation
Gender in sustainable development	1996–1998	Himachal Pradesh, Sikkim, Uttar Pradesh	SBMA, RDD, YSPUHF	Government of the Netherlands
Institutions for sustainable mountain agriculture	1992–1996	Himachal Pradesh, Uttar Pradesh	GBPIHD, YSPUHF	Government of the Netherlands
Participatory natural resources management	1990–1998	Eastern Himalayas, Himachal Pradesh, Sikkim, Uttar Pradesh	Various	Ford Foundation

TMI = The Mountain Institute; ICCO = Interchurch Organisation for Development Cooperation; RTDC = Regional Technology and Development Centre; NEN = North East Network; NEHU = North-Eastern Hill University; SBMA = Shri Bhubaneswori Mahila Ashram; RDD = Rural Development Department

mountain development. A country case study has documented and analysed experiences of good governance. Lessons learnt on mountain-specific good governance adapted to the social and political context will be generated, shared, and disseminated. Earlier work built the capacity of more than 70 community-based organisations (CBOs), including some from India, for advocacy to help mountain people find voice to claim their rights; these efforts focused on mountain-relevant issues of equity rights and access to natural resources. This initiative assisted the Rural Technology and Development Centre (RTDC), a partner organisation in Palampur, Himachal Pradesh, in its advocacy work to promote a special policy for India's mountain areas.

Collaborative studies with GBPIHD to promote sustainable mountain farming systems in India (focusing on agro-ecological zoning, farm biodiversity, and improving support through village-level organisations) included institutional strengthening activities, as did the seabuckthorn-related work with the YS Parmar University of Horticulture and Forestry (YSPUHF) (see p23–24).

Promotion of gender and development in the 1990s involved diagnostic activities, training research, and documentation. A gender profile of YSPUHF was produced. Need-based training was provided for rural women on horticulture, beekeeping, and



non-conventional energy use. A bibliography on the women of Himachal Pradesh was completed, and studies were also carried out on the impact of new farm technologies on women.

The participatory natural resources management programme promoted institutional mechanisms that could actively halt and reverse the deterioration of HKH ecosystems, in particular deforestation. It facilitated the formation of the Hindu Kush-Himalayan Forum on Forest Conservation and Management (HIFCOM) with initial chapters from Bhutan, India, and Nepal. A working group of NGOs in Himachal Pradesh was formed and strengthened to address issues related to participatory and natural resources management. A state-level training programme in participatory rural appraisal (PRA) was organised in Himachal Pradesh to strengthen institutions' use of participatory approaches to natural resources management.

The natural resources management programme also promoted grassroots women's empowerment in natural resources management, supporting the creation of the Himalayan Grassroots' Women's Natural Resources Management Network (HIMAWANTI). Another highlight was the workshop on this theme organised by the North East Network in Shillong, Meghalaya, in April 2000.

Using GIS and Remote Sensing

Application of geographic information systems (GIS) and remote sensing (RS) technology is vital in planning and implementing mountain development initiatives. ICIMOD and various partners in India have been carrying out mutual capacity building initiatives since 1990, through structured training, case studies, and provision of hardware and software, supported mainly by the Asian Development Bank (ADB) and the Government of the Netherlands.

The capacity building initiatives over the years have led to establishment of GIS/RS units in several partner organisations in India. For example, a GIS/RS Centre was established at YSPUHF and it received ERDAS (Earth Resources Data Analysis Systems) and GIS systems in 1996. Other partner institutions provided with this type of support include GBPIHED, Kumaon University, and Wadia Institute of Himalayan Geology (WIHG).

Training events in using GIS/RS have been organised with partners at different levels and have been supplemented by half-day policy workshops. Partners in India have participated in advanced-level regional training events. In addition, follow-up training at the national level has contributed to developing a critical mass of professionals. Selected training and workshop events in the 1990s catering to specific thematic and location-specific needs included: hands-on training for application of GIS/RS for natural resource assessment, monitoring and management (GBPIHED, 1999); a GIS policy workshop and professional level training for Indian professionals (Ladakh Autonomous Hill Development Council [LAHDC], 1999); managerial training on RS/GIS for senior professionals from various forest and agricultural agencies (1998); a policy seminar at YSPUHF (1996); and a policy workshop at GBPIHED (1996).

While capacity is built through focused training, its enhancement is ensured through collaborative case studies. Some examples of case studies on application of GIS/RS include mountain agricultural management and land-use planning in Hawalbag development block in Almora district; a study of the land use and land cover dynamics of Dagrath watershed; and a study on biodiversity conservation and assessment in the eastern Indian Himalayas.

The Way Forward

ICIMOD, having adopted a five-year intensive consultative methodology for planning its activities, is moving into its third Medium Term Action Planning Phase (2012–2016). This is an opportune time to take stock of the above activities and accomplishments in India and to plan for matching actions in India that deserve immediate interventions for knowledge development and transboundary collaboration within the HKH.

Annex: Facts and Figures

ICIMOD Staff and Alumni from India

Name	Current Designation	Period
Current Staff		
Dhrupad Choudhury	Project Coordinator, IFAD	Mar 06–present
Dyutiman Choudhary	MAPs Mkt & Ent Dev Specialist	Dec 02–present
Eklabya Sharma	Director, Programme Operations	Sep 01–present
Giridhar Kinhal	AA Team Leader, High Value Products	Apr 09–present
Gopal S Rawat	Deputy Programme Manager	Aug 11–present
Hari K Nibanupudi	AA Team Leader, DRR	Jun 10–present
Nakul Chettri	AA Team Leader, BCM	Dec 02–present
Priya Shyamsundar	Programme Director, SANDEE	Aug 09–present
Rajan Kotru	AA Team Leader, inFEWS	Feb 10–present
Uma Partap	Coordinator, Beekeeping Project	May 91–present
ICIMOD Alumni		
Ajay Rastogi	Project Assistant	Feb 96–Sep 98
Anupam Bhatia	Programme Manager	Nov 93–Dec 04
Asha Thapa	Secretary	Jun 84–Jul 86
Ashutosh Mohanty	Capacity Development Officer	Sep 08–Aug 11
Beena Kala	Gender action plan	Dec 97–Dec 98
CP Jayalaxmi	Consultant/Coordinator	Aug 98–Feb 02
CN Anil	Assistant Coordinator	2004–Mar 07
DC Das	Specialist on Mountain Soil	Mar 86–Jun 87
Dayanti Chhetri	Receptionist	Nov 84–Feb 86
Giriraj Amarnath	RS Specialist	Jan 09–Apr 11
J Bandyopadhyay	Senior Research Fellow	Apr 87–Jan 93
Joy Dasgupta	Asst Coordinator, ABSBIO	2005–Jun 08
KG Tejwani	Environment Management	Sep 84–Mar 89
Laiq Ram Verma	Agri Specialist, Apiculturist	Jun 89–Jun 98
MS Rathore	Horticulturalist	Jul 87–Jun 89
Manjari Mehta	Associate Scientist, Gender	2005–2007
Narpat Singh Jodha	Division Head	Apr 87–Dec 93
	Economist	Jan 97–Dec 04
Pradipto Roy	Soil Erosion Scientist	Jan 85–Jun 87
Pradyumna K Kotta	GIS Analyst	May 86–Jan 94
Prasad S Thenkabail	RS Specialist	Nov 95–Feb 97
Prashant Sharma	Programme Officer, Information Services	2004–Sep 07
Prem Thapa	Beekeeper	May 91–Jun 95
Purnima Wilson	Secretary	May 83–Aug 86
Radhika Gupta	Coordinator, Equity and Rights	Nov 04–Jan 07
Raghu B Singh Rawat	Regional Coordinator, MAPPA	2006–Jul 08
SD Bhardwaj	Gender Action Plan	Dec 97–Dec 98
SS Teotia	Rural Sociologist	Jul 86–Jun 91
Sanjay Madnani	Info & Comm Specialist	2003–Dec 05
Sanjeev Bhuchar	Asst Prog Coordinator, PARDYP	2005–Dec 08
Sofy Jomi Augustin	Secretary	Feb 93–Jun 98
Srabani Roy	Prog & Project Dev Specialist	Nov 03–Jun 06
Susan Ann Ranger	Digitiser	Jul 87–Aug 93
TM Vinod Kumar	Agri Economist	Jan 85–Jul 88
Tej Partap	Division Head, Agro-ecologist	Jul 87–Dec 00
Trilok Singh Papola	Division Head, Market Economist	Dec 95–Jun 02

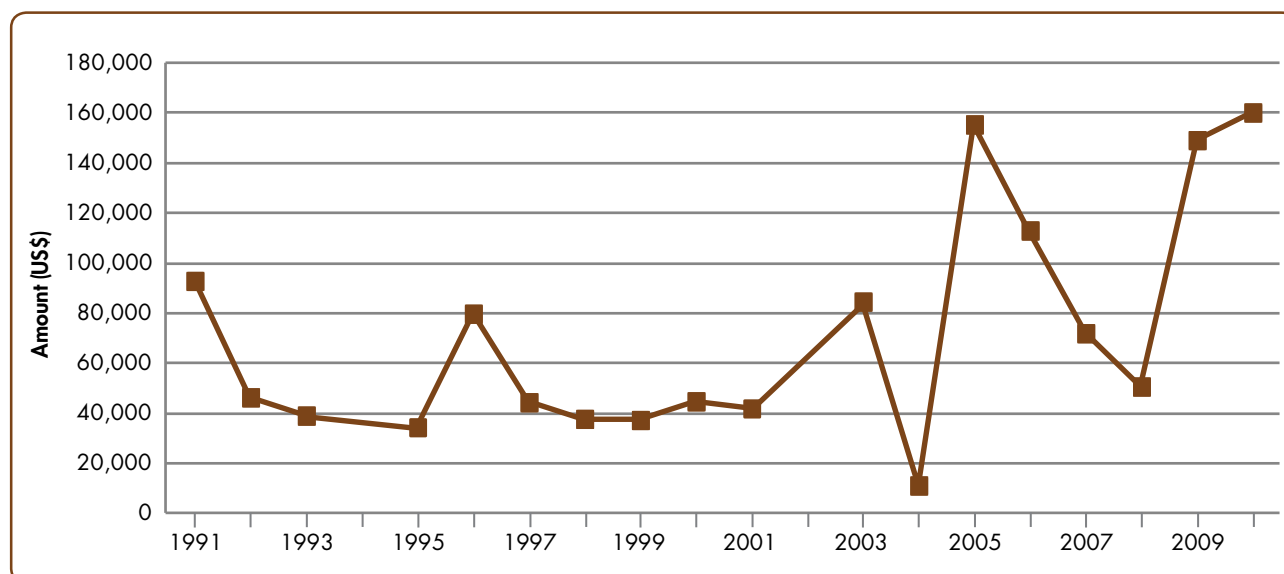
Note: Staff serving for less than a year and consultants not included

Members of ICIMOD's Board of Governors from India

Name	Position/Organisation	Category	Period
TN Khoshoo	Secretary, MoEF	Regional	1983–1985
NN Jha	Joint Secretary, MEA	Regional	1983–1984
TN Seshan	Secretary, MoEF	Regional	1986–1988
KP Geethakrishnan	Secretary, MoEF	Regional	1988–1989
Mahesh Prasad	Secretary, MoEF	Regional	1990–1991
AN Purohit	Director, GBPIHED	Independent	1991–1996
R Rajamani	Secretary, MoEF	Regional	1991–1994
	IAS (Retired)	Independent	1997–2001
NR Krishnan	Secretary, MoEF	Regional	1994–1996
TKA Nair	Secretary, MoEF	Regional	1996–1997
Vishwa Nath Anand	Secretary, MoEF	Regional	1997–2001
PV Jayakrishnan	Secretary, MoEF	Regional	2001–2002
Jamuna Sharan Singh	Professor, Banaras Hindu University	Independent	2002–2006
KC Mishra	Secretary, MoEF	Regional	2002–2003
Prodipto Ghosh	Secretary, MoEF	Regional	2003–2007
Meena Gupta	Secretary, MoEF	Regional	2007–2008
Vijai Sharma, IAS	Secretary, MoEF	Regional	2008–2010
Tishya Chatterjee, IAS	Secretary, MoEF	Regional	2011–present

Note: Observers and representatives not included; IAS: Indian Administrative Service

India's Financial Contribution to ICIMOD





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* Entry from the digital photo contest 'Mountains and People' organised by ICIMOD and APMN/Mountain Forum in 2008 (see www.icimod.org/photocontest/2008)

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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