Partnerships in Sustainable Mountain Development
Securing the Future of the Hindu Kush-Himalayas

Overall Strategy 2003-2007
April 2003
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ACRONYMS AND ABBREVIATIONS

ACIAR  - Australian Centre for International Agricultural Research
AEPIC  - Alternate Energy Promotion Centre
AI   - action initiative
AMIC  - Asian Media Information and Communication Centre
APINET - Apiculturists Network, Nepal
APN   - Asia Pacific Network
ARID  - Agriculture and Rural Income Diversification
ATREE - The Ashoka Trust for Research in Ecology and the Environment
BEENPRO - Annapurna Beekeeping & Environment Promotion
CAPART - Council for Advancement of People’s Action and Rural Technology
CAS   - Chinese Academy of Sciences
CBO   - community based organisation
CEGG  - Culture, Equity, Gender and Governance
CEH/UK - Centre for Ecology and Hydrology
CHTDB - Chittagong Hill Tracts Development Board
CII   - Confederation of Indian Industries
CMA   - China Meteorological Administration
CMW   - Celebrating Mountain Women
CSIR  - Central Science Institute for Research
CSK University - Chaudhari Shrawan Kumar University of Palampur
DFID  - Department for International Development
DSS   - decision support system
EG    - environmental governance
ER    - expected result
FAO   - Food and Agriculture Organisation
FECOFUN - Federation of Community Forestry Users Groups in Nepal
GAD   - gender and development
GHG   - greenhouse gas
GIS   - geographical information system
GMWP  - Global Mountain Women’s Partnership
GTZ   - German Technical Cooperation
HKH   - Hindu Kush-Himalayas
ICAR  - Indian Council for Agricultural Research
ICCO  - Intercurch Organisation for Development Cooperation
ICIMOD - International Centre for Integrated Mountain Development
ICRAF - The World Agroforestry Centre (formerly, the International Centre for Research on Agroforestry)
IDE   - Institute of Development Enterprise
IDRC  - International Development Research Centre
IFAD  - International Fund for Agricultural Development
IFPRI - International Food Policy Research Institute
ILRI  - International Livestock Research Institute
IKM   - Information and Knowledge Management
IMCO  - Information Management, Communication and Outreach
IOH   - Institute of Horticulture
IP    - integrated programme
ISNAR - The International Service for National Agricultural Research
ITDG  - Intermediate Technology Development Group
IUCN - The World Conservation Union
IWMN - International Water Management Institute
KMTNC - King Mahendra Trust for Nature Conservation
KU    - Kathmandu University
LEDG - Ladakh Ecological Development Group
LI-BIRD - Local Initiatives for Biodiversity, Research, and Development
LU    - land use
MA    - Millennium Ecosystem Assessment
MDG   - Millennium Development Goals
MENRIS - Mountain Environment and Natural Resources Information System
MOA - Ministry of Agriculture
MOE&F - Ministry of Environment and Forests
MOF - Ministry of Forestry
MOUs - Memorandum of Understanding
MTAP - Medium Term Action Plan
MWR - Ministry of Water Resources
NARC - National Agricultural Research Centre (Nepal)
NEHU - North-Eastern Hill University
NGO - non-government organisation
NIFT - National Institute of Fashion Technology
NRM - Natural Resource Management
NSDI - national spatial data infrastructure
NTFP - non timber forest products
OFDA/USAID - USAID’s Office of U.S. Foreign Disaster Assistance
PARC - Pakistan Agricultural Research Council
PARDYP - People and Resource Dynamics in Mountain Watersheds of the Hindu Kush-Himalayas Project
PATA - Pan Asian Travel Association
PES - payment for environmental services
PFA - platform for action
PFI - Pakistan Forestry Institute
PPD - Policy and Partnership Development
RGII - Regional Geographic Information Infrastructure
RMC - regional member country
RRP - Regional Rangeland Programme
RSPN - Royal Society for Nature Conservation
SALT - sloping agricultural land technology
SDC - Swiss Development Cooperation
SDI - spatial data infrastructure
SDSS - spatial decision support system
SEPA - State Environmental Protection Administration
SFA - State Forestry Administration (China)
SSMP - Sustainable Soil Management Project (of SDC)
TAR - Tibetan Autonomous Region
TERI - The Energy Research Institute
  (formerly Tata Energy Research Institute)
TMI - The Mountain Institute
TRIPS - trade related Intellectual property rights
TU - Tribhuvan University
UBC - University of British Columbia
UNEP - United Nations Environment Programme
UoB - University of Bern
UoZ - University of Zurich
WHEM - Water, Hazards, and Environmental Management
WMO - World Meteorological Organisation
WOCAT - World Overview of Conservation Approaches and Technologies
WSSD - World Summit for Sustainable Development, Johannesburg 2002
WTO - World Trade Organisation
WWF - World Wildlife Fund
Executive Summary

This overall strategy of ICIMOD’s future work represents a refinement of the draft Strategic Plan for 2003 – 2007, entitled, ‘Partnerships in Mountain Development: Securing the Future of the Hindu Kush-Himalayas’ (HKH). The ideas generated are a culmination of a number of processes: the Quinquennial Review and other evaluations, country consultations with partner organisations, background analyses of mountain poverty and policies in the HKH region, and the Board of Governors and ICIMOD Support Group meetings held in July 2002. As a summary document of work in progress, it has now been approved by ICIMOD’s Board of Governors as a strategic framework for the Medium Term Action Plan (MTAP) (2003 – 2007) (prepared for the Board's review) It presents the charted course for the on-going, reiterative annual planning process ICIMOD is undertaking to refine and operationalise this strategy with its partners.

Vision

Together with its partners and regional member countries, ICIMOD is committed to a shared vision of prosperous and secure mountain communities committed to peace, equity, and environmental sustainability.

This vision statement defines ICIMOD’s overall goal: secure and sustainable livelihoods for mountain peoples. This vision has been translated into specific, strategic longer-term outcomes that directly relate to the recommendations emerging from the International Year of Mountains, 2002, culminating in the Bishkek Global Mountain Summit. These outcomes also relate to the Millennium Development Goals to which the countries of the HKH are signatories (see Chapter 1), reaffirmed by the World Summit on Sustainable Development, particularly the goals of halving poverty by 2015, promoting gender equity, ensuring environmental sustainability, and promoting development partnerships.

ICIMOD has a modest, but important, role in contributing to the achievement of these goals. Building on achievements, competencies, and lessons that the Centre and its partners have learned over the two preceding decades, ICIMOD’s contribution is based on its role as a regionally based Mountain Learning and Knowledge Centre.

Mission

ICIMOD’s mission is to develop and provide integrated and innovative solutions, in cooperation with national, regional, and international partners, which foster action and change for overcoming mountain peoples’ economic, social, and physical vulnerability.

Solutions will be created by identifying, testing, and disseminating options.
Outcomes

This mission is translated into outcomes by analysis of the particularities of poverty and vulnerabilities in the mountains. These differ in significant ways from those found in the plains surrounding the HKH. They are also based on experience with mountain development to date, and especially in the areas of greatest opportunity for achieving measurable impact. In overall congruence with the relevant portion of the World Summit on Sustainable Development and the Bishkek Global Mountain Summit Declaration, this strategy has identified five long-term outcomes that ICIMOD is committed to help achieve.

- Productive and sustainable community-based management of vulnerable mountain natural resources
- Decreased physical vulnerability within watershed and regional river basins
- Improved and diversified incomes for vulnerable rural and marginalised mountain peoples
- Increased regional and local conservation of mountain biological and cultural heritage.
- Greater voice, influence, social security, and equitability for mountain people.

Integrated programmes

A results based framework has been developed to link all programme initiatives to these strategic outcomes in a systematic manner that addresses the key vulnerabilities facing mountain peoples in their struggle for sustainable livelihoods. This framework provides a mechanism for identifying outputs, short-term outcomes, and intermediate indicators to enable the Centre to monitor its impacts and make needed corrections in due time.

Previous evaluations and feedback from ICIMOD’s Board and partners have underlined the need to develop focused integrated programmes that (i) contribute directly to these outcomes, (ii) are based on regional demands and needs, (iii) build on previous achievements, (iv) fill gaps not covered by other organisations, (v) have the potential for large-scale impact, and (vi) incorporate effective policy and communication strategies.

The integrated programmes presented in the strategy reflect these criteria. These criteria also help prioritise the choice of action initiatives planned within each programme — an ongoing process that will be carried out with partners throughout the coming years.

The integrated programmes include the following three inter-related sectoral programmes.

- Natural Resource Management (NRM)
- Agricultural and Rural Income Diversification (ARID)
- Water, Hazards, and Environmental Management (WHEM)

The plan also has three cross-cutting programmes.
The cross-cutting programmes draw on ICIMOD’s comparative strengths in sharing knowledge and building networks, fostering regional cooperation, facilitating policy development and advocacy, promoting equity and community institutions, and strengthening the capacity of partners. As all the Centre’s programmes and action initiatives are designed to build on these strengths, they are integrated into all programme action initiatives as well as carrying out their own initiatives.

**On-going planning and institutional development**

In implementing this strategy, ICIMOD will adopt a flexible, process-oriented and demand driven approach. As new challenges and opportunities emerge, action initiatives will continue to evolve through joint planning with partners to achieve the outcomes identified. While a core set of action initiatives have been identifiable at the outset in the Medium Term Action Plan for 2003 - 2007, others will be developed in the course of implementation and presented in the annual work plan that is reviewed and approved each year by the Board of Governors.

Mutually beneficial and respectful partnerships will increase the effectiveness and ownership of the planning, implementation, and monitoring of ICIMOD’s joint programmes.

The strategy includes plans for development of the Centre’s current human resources and recruiting new talent to build a staff with the requisite skills to attain the highest standards of professional excellence. Organisational development will be undertaken to build effective matrix management, teamwork, and communication skills.

**Financial strategy**

The proposed financial strategy seeks to fund modest increases in outlays and to foster greater long-term institutional sustainability through continued and enhanced core programme support, better integration of projects into the strategic plan programmes, modest increases in cost recovery and co-financing, increased efficiency, and capitalisation of the newly established ICIMOD Foundation trust fund.
1. Introduction

ICIMOD was established:

“to help promote the development of an economically and environmentally sound mountain ecosystem and to improve the living standards of mountain populations in the Hindu Kush-Himalayan Region.”

The Hindu Kush-Himalayan region sustains approximately 140-150 million people and has an impact on the lives of three times as many people living on the plains and in the river basins below the mountains themselves. Not only the world’s highest mountain region, it is its poorest and most complex. It extends over 3,500 kilometres from Afghanistan in the west to Myanmar in the east, and ranges from the plateau regions of Tibet and other mountain areas of China in the north to the Ganges Basin of India in the south. As a macro-region, it contains the upland watersheds of major river systems: the Indus, the Ganges, the Brahmaputra, the Nu-Salween, the Lacang-Mekong, and the Yangtze (Jinsha). The wealth of the HKH lies in an immense diversity of flora and fauna and ethnic groups and languages. There are approximately 55 different mountain ethnic groups in the mountains of China alone. Yet, despite this rich diversity, the people of this vast mountain region are, in the majority, abysmally poor. Some pockets experience eight months of hunger or food deficit in a year. A variety of pressures both natural and human has led to conflict, and sometimes this conflict erupts in violence.

For all these reasons, regional cooperation and knowledge sharing — bringing together regional policy-makers and planners on a non-political platform — is critical to effectively addressing the poverty and environmental priorities of the region. These were among the overwhelming reasons for ICIMOD’s establishment.

ICIMOD is the first International Centre for Integrated Mountain Development. As such, at its inception, it steered an uncharted path. Established to serve the Hindu Kush-Himalayan region through an ambitious mandate that gave it the responsibility to mobilise knowledge and disseminate it along with skills commensurate to its use, the acquisition and dissemination of relevant knowledge concerning mountain development in the Hindu Kush-Himalayas was ICIMOD’s most important activity. The statutes of ICIMOD guided the Centre concerning the handling of knowledge and its role as a knowledge bank, as a trainer, as an advisor, and as an advocate for mountain areas and the populations inhabiting them.

The focus of ICIMOD’s interest is the mountain people themselves and the landscape that provides them with the products that are essential for their survival: natural resources (e.g. water, soil, forest products, and rangelands), in the form of either common property resources or household managed agricultural or land-use systems that have been established through centuries of human ingenuity.
Survival has depended also on developing entrepreneurship skills and barter trade that provide off-farm and non-farm activities. The cultural and spiritual significance of mountains has also shaped these unique resources in ways that continue to draw pilgrims, tourists, and adventurers to them time after time.

During the first decade of its existence ICIMOD pioneered studies on a variety of mountain issues: agriculture, forestry, livestock, energy, tourism, rural development, risk engineering, urbanisation and livelihoods, and biodiversity. A network of development scientists evolved and increasing support from the region and donors provided for the further growth of the organisation. It is during this period also that seminal work on mountain characteristics, best and replicable agricultural practices, concentration on niche products, water resources and supplies, hazard management, land use and ownership, and the nature of mountain poverty itself was undertaken (Annex 4).

The next period of the regional collaborative programmes saw a shift in ICIMOD’s work. Although its mandated responsibilities necessarily remained the same, ICIMOD began to take stock of what it had achieved and learned, of its successes and failures, and to examine what it really knows and does best in working for mountain areas. It is out of these exercises that the concept of the Strategic Plan for 2003 - 2007 emerged: a concept that envisages the Centre not as the centre of all knowledge on the HKH, but as a place of learning and knowledge that receives from partners as well as giving to them. ICIMOD then is not a centre alone, but rather a group of partners in integrated mountain development charged with maintaining and strengthening multiple linkages to promote the alleviation of poverty in this vast mountain region.

The central role of partnerships in all of ICIMOD’s work became increasingly the basis for all programming and implementation strategies. Recognition that real implementation of ICIMOD’s work takes place through partners in the region through a concerted outreach strategy, backed up by proactive information/knowledge management and delivery and with capacity building of individuals and institutions, was at the heart of this approach. This was demonstrated particularly effectively through ICIMOD’s role in building capacity and applications in emerging information and GIS technologies. ICIMOD also looks to its partners for feedback during Quinquennial reviews and the planning process. By providing publications, training, and networking; and also by providing an avenue to publication for many scholars and development workers from partner organisations, ICIMOD sees these valuable intermediaries to the mountain people as a means of giving mountain people themselves a voice. Concomitantly, partners generate information, give valuable feedback, not only on best practices, training, and replicable technologies, but also on the impact of policies; and in turn this information can be channelled to policy-making level, giving an impetus to ICIMOD’s advocacy role.

An example of making partnerships work is the Regional Flood Initiative. In this initiative the other collaborative partners are the World Meteorological Organisation (WMO) and the national institutions...
in the region involved in flood forecasting and mitigation — hydrological, meteorological institutions, and disaster preparedness organisations. In terms of data sharing and information exchange, where data are often sensitive issues and where water can be a source of conflict in the region, this endeavour seeks to promote cooperation to the advantage of all regional inhabitants.

It is ICIMOD’s challenge now to use its knowledge to move wisdom gained from project to policy, to encourage best practices, to identify methods of good governance, to examine and promote pro-poor policies, and empowerment of the people through knowledge. ICIMOD has a comparative advantage for this kind of work because it provides a neutral ground on which people of various levels from across this region can discuss aspects of environmental sustainability, use of natural resources, innovative changes in livelihood endeavours, access and transparency, good decentralised governance, and regional cooperation.

Improved and more equitable and sustainable livelihoods for mountain peoples are critical for both the region and the world. ICIMOD seeks support of governments and organisations who aim to improve the living standards and ensure that fair policies govern the lives of the mountain poor to join it in this endeavour. The last decade has shown that, although seemingly isolated, events in mountain areas and the increasing deterioration of living standards there do, indeed, have an important global impact. The need to address this in a focused and concerted manner has led to the current strategy for 2003 - 2007 and the reorganisation of the Centre into six integrated and interlinked programmes.

The integrated programmes (IPs) include the following three sectoral inter-related programmes.

IP1 Natural Resource Management (NRM)
IP2 Agricultural and Rural Income Diversification (ARID)
IP3 Water, Hazards, and Environmental Management (WHEM)

The plan also has three cross-cutting programmes.

IP4 Culture, Equity, Gender, and Governance (CEGG)
IP5 Policy and Partnership Development (PPD)
IP6 Information and Knowledge Management (IKM)

The cross-cutting programmes draw on ICIMOD’s comparative strengths in sharing knowledge and building networks, fostering regional cooperation, facilitating policy development and advocacy, promoting equity and community institutions, and strengthening the capacity of partners. As all the Centre’s programmes and action initiatives are designed to build on these strengths, they are integrated into all programme action initiatives as well as carrying out their own initiatives.
ICIMOD’s programmes on natural resource management, policy and partnership, and information and knowledge management carry the main interlinkages. In one way or another, the programme on Agriculture and Rural Income Diversification and the programme on Water, Hazards and Environmental Management have a strong claim to be working with the programme on Natural Resource Management, only the approach and end uses have different focuses. It is the policies coming out of these programmes, and the programme on Culture, Equity, Gender, and Governance (which deals with the empowerment or social issues) that are channelled through the programme on Policy and Partnership Development which constitute the information and knowledge gateway then processed, packaged, and delivered by the programme on Information and Knowledge Management in a variety of ways throughout the vast region and beyond. The programme on Information and Knowledge Management is the doorway through which the information/knowledge both exits and enters ICIMOD.

ICIMOD's vision contained in this Strategic plan states that:

“together with its partners and regional member countries, ICIMOD is committed to a shared vision of prosperous and secure mountain communities committed to peace, equity and environmental sustainability”

ICIMOD has a modest, but important, role in contributing to the achievement of these goals by building on achievements, competencies, and lessons that the Centre and its partners have learned over the two preceding decades. In the current plan, IP1 and IP2 have a more visible linkage to the MDG on eradicating hunger, but work on governance and equity (IP4) surely enable this goal while IP3 works towards mitigating the hazards that delay its achievement and IP5 and IP6 field the policies from all other programmes and provide the information and knowledge so essential for achievement of all the MDGs. IP4 links logically with the MDG on gender equity and hence the support this programme receives from ICIMOD’s integrated programmes link through to it. IP3 is the logical avenue to the MDG on environmental sustainability, but also receives support work from all other programmes of ICIMOD, and IP6 directly promotes the MDG on global partnerships, but draws on networks and knowledge from other programmes to do so. Just as the MDGs themselves are interlinked and mutually reinforcing, so are the connections of each ICIMOD programme one with the
other and their support to each other to fulfil the MDGs which are very really connected to ICIMOD’s own goals, briefly encapsulated in its mission statement.

The Centre’s particular mission is to develop and provide integrated and innovative solutions for sustainable development in cooperation with regional and international partners, and through them to foster action and change for overcoming mountain people’s economic, social, and physical vulnerabilities. The way ICIMOD will help create solution is by identifying, testing, and disseminating options.

This mission is translated into outcomes by analysis of the particularities of poverty and vulnerabilities in the mountains; and these differ in significant ways from those found in the plains surrounding the HKH. They are also based on experience with mountain development to date, and especially in the areas of greatest opportunity for achieving measurable impact. In overall congruence with the relevant portion of the World Summit on Sustainable Development (WSSD) and the Bishkek Global Mountain Summit Declaration (BGMSD), this strategy has identified five long-term outcomes that ICIMOD is committed to help achieve.

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- Increased regional and local conservation of mountain biological and cultural heritage.
- Greater voice, influence, social security, and equitability for mountain people.

ICIMOD has arrived at this strategic plan for 2003 - 2007 by examining closely the policies of governments in the region as they relate to mountain areas and by thorough examination of the issue of poverty in the region. A summary document of the former can be found in Annex 3 to this Overview and a summary brief that invites discussion on poverty in mountain areas can be found in Annex 4. More intense discussions on the issues and indicators of mountain poverty in which ICIMOD has been engaged with partners can be found in the Deutsche Stiftung für Internationale Entwicklung (DSE), ICIMOD, and Zentralstelle für Ernährung und Landwirtschaft (ZEL) joint publication based on an international conference held in early 2000 entitled, ‘Growth, Poverty Alleviation and Sustainable Resource Management in the Mountains of South Asia’ (Mahesh Banskota, Trilok S. Papola, Jurgen Richter [eds]).

The new strategy of ICIMOD appears ambitious. However, each programme has been carefully focused on areas of specific opportunity to achieve impact in accordance with the criteria adopted. In addition, as described above in relation to the Millenium Development Goals, each programme is interconnected with the others, the achievements of one build on those of the others in a mutually reinforcing and dynamic synergy. The new strategic plan is based on the building blocks of ICIMOD’s
past achievements and failures and the very real lessons learned, some of which are summarised briefly in section 3 of this document. The central thread is one of mountain knowledge and learning. ICIMOD is building upon its incomplete but extremely valuable knowledge to help fill in the gaps in mountain development. The jigsaw puzzle of integrated mountain development and all that it means for this Centre lies in the resources, archives, techniques, successes, and failures that have been accumulated, and based upon this store, ICIMOD will continue to work on the missing pieces until the picture is complete.
2. What is ICIMOD?

Mandate

The International Centre for Integrated Mountain Development (ICIMOD) was founded in December 1983 in Kathmandu, Nepal, with the statutory mandate to help promote the development of an economically and environmentally sound mountain ecosystem and to improve the living standards of mountain populations of the Hindu Kush-Himalayan Region (ICIMOD’s Statutes, Article 1, 1983). The first international centre of its kind, ICIMOD was established to address the growing concern of its founders for the deep human poverty and alarming degradation of the natural resource base of neglected mountain areas – as well as on the premise that mountain areas have much to learn from working with each other across national boundaries.

The founding members were the Centre’s eight regional member countries: Afghanistan, Bangladesh, Bhutan, Myanmar, China, India, Nepal, and Pakistan; the initial core sponsors: Germany and Switzerland; and the facilitating agency: UNESCO. Today, ICIMOD’s Board of Governors consists of representatives of the eight regional member countries and seven independent members recommended by the ICIMOD Support Group — consisting of major donors, including additional core programme donors Austria, Finland, The Netherlands, Norway, and Sweden — and approved by the Board.

Role

Over the past two decades, ICIMOD has carried out its work with and through national, regional, and international partners. It has served as a Mountain Learning and Knowledge Centre, with a focus on improving the livelihoods of the 150 million people living in the Hindu Kush-Himalayas and assisting them in safeguarding the ecosystems upon which they – and millions of downstream and global peoples – depend. Currently ICIMOD has a network of 60 key partners and over 200 regional and 50 global cooperating institutions. Through this network, ICIMOD has helped to:

- generate, test, and disseminate knowledge on a diverse set of integrated mountain issues;
- improve capacities of mountain agencies and organisations;
- facilitate regional cooperation in knowledge sharing and natural resource management; and
- support the development of new policies for mountain areas.

At the global level, ICIMOD has been a key player in promoting the ‘Mountain Agenda’ arising out of the 1992 UN Conference on Environment and Development (Agenda 21), in supporting the establishment of the ‘Global Partnership for Sustainable Mountain Development’ launched at the WSSD, Johannesburg, in 2002, and developing the Bishkek Platform at the 2002 Bishkek Global Mountain Summit. The Centre has been instrumental in planning and carrying out regional and global activities during the International Year of Mountains (2002) and in building alliances for follow-on partnerships. The Centre hosts the Global Secretariat of the Mountain Forum as well as the regional
Asia Pacific Mountain Network. ICIMOD remains the only international research and development institution exclusively devoted to the issues of mountain poverty and sustainable development.

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<th>Vision, Mission and Values</th>
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<td><strong>ICIMOD’s vision</strong> is to attain <strong>prosperous and secure mountain communities committed to a shared vision of peace, equity, and environmental sustainability</strong> by working together with regional member countries, international, regional, national and local bodies.</td>
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<td>ICIMOD commits itself to pursuing its vision and mission, in support of the following <strong>values</strong>.</td>
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<tr>
<td>• Well-being and dignity of all mountain people</td>
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<td>• Conservation of the natural and cultural inheritance of the mountains</td>
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<td>• Primacy of the interests and voices of poor and marginalised mountain people, with emphasis on women</td>
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<td>• Equity, inclusion, and respect for diversity</td>
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<td>• Peace for mountain peoples and communities</td>
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<td>• Regional understanding and cooperation</td>
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3. What has ICIMOD done and what has it learned?

From its establishment in 1983, ICIMOD’s strength has been derived from its consistent commitment to its mandate to identify and address the problems of mountain communities that relate to their location and the specificities, or characteristics, of mountain areas that distinguish them from the plains and which are often not addressed in the mainstream plans and policies of central governments. The Centre built the conceptual and empirical basis for understanding and addressing mountain issues and demonstrated the value of the mountain perspective for the mountain regions of the HKH as well as the wider mountain world.

During the first decade of its existence ICIMOD pioneered studies on a variety of mountain issues: agriculture, forestry, livestock, energy, tourism, rural development, risk engineering, urbanisation and livelihoods, and biodiversity. A network of development scientists evolved and increasing support from the region and donors provided for the further growth of the organisation. Highlights that have a bearing on the work of the Centre today were the mountain risk engineering handbook, appearing at the end of the first decade, which first became a text book for engineering colleges and then, in three countries, found a place as the foundation of mountain risk engineering courses; the work on mountain urbanisation and market towns which became a flagship piece on the growth of urban centres in mountain environments; and again from risk engineering came the study of and interest and training in hazard mitigation - particularly landslides - and which attracted trainees from across the HKH region.

The First Quinquennial Review (1990) noted that, since the time of ICIMOD’s establishment, international concern for integrated mountain development had increased. ICIMOD learned some lessons during that period that are still valid. The Centre realised that it needed to work more closely with regional partners, provide support and services that responded to their needs for useful knowledge and capacity building, and develop a more coherent framework to define and link its programmes and activities to its overall objectives.

Work in the first decade had focused very much on the mountain household farm and factors - environmental, social, and economic - that impinged upon its livelihood security. The Centre’s work in this field was marked by an international conference on mountain farming, and three years later, for its first decade, by an international conference on the constraints and opportunities of mountain development. It was attended by many of the mountain researchers who had attended the first conference, people whose names are familiar to all those involved in mountain research and development. ICIMOD had begun to better identify and fill a gap in the mountain development world.

In the second decade, work began to move away from the single case study approach to that of knowledge networking and interest in facilitating social mobilisation. ICIMOD began to provide a welcome platform for different people and groups throughout the HKH to come together and discuss
common concerns of integrated mountain development. ICIMOD moved away from a project-driven approach in the first decade to a demand driven one in the second and developed the **Regional Collaborative Programmes (RCP)**. During RCP I and II, activities were designed to integrate disciplines and themes through programme teams and a network of partners in the region, along with strategic alliances with organisations from outside the region. Various types of alliances and partnerships were established through which institution building, training, and other collaborative activities were expanded.

The end of the first decade had seen ICIMOD begin to have greater global impact in mountain development thinking and science. The Centre was instrumental in the preparation of Chapter 13 of Agenda 21 and in the preparation of a volume about the world's mountains in preparation for the Rio Summit. In 1994, at the beginning of its second decade, the Centre co-sponsored the conference on Sustainable Development of the Mountain Areas of Asia (SUDEMAA) and out of the declaration emerged the Asia Pacific Mountain Network, which was to be a forerunner in networking by not only using new Internet technologies but by networking off-line to include important players who had no access to Internet. By the time of the **second Quinquennial Review (1995)**, the key statement of the review team was, "**If ICIMOD did not exist, it would have to be invented.**"

Evolution of innovative technologies and institutional options was perhaps most significant in ICIMOD's work on agricultural technologies. ICIMOD played an important role in identifying and promoting new technologies (development, dissemination, diffusion) along with and among partner institutions. For example, ICIMOD's regional testing of sloping agricultural land technologies and other applied research has identified agroforestry methods that in sustainable conditions can reduce soil erosion by 80 to 95 per cent, increase moisture retention by 40 to 55 per cent, and result in increases in net productivity in selected conditions. Regional methodologies for watershed management and monitoring developed through the People and Resource Dynamics in Mountain Watersheds of the Hindu Kush-Himalayas Project (PARDYP), with research watersheds in Pakistan, India, China and Nepal, have shown increased potential for more productive and sustainable integrated resource management.

Assessment studies of rangeland use and management regimes have led to a clearer understanding of this complex ecosystem that supports the livelihood of the herders as well as the plants and animals occupying some of the highest and harshest environments on earth. The programme focusing on rangeland ecosystems helped to elevate the awareness of pastoral development and rangeland conservation issues in the region and stimulated some vigorous policy debates. The **Regional Rangeland Programme** has helped in understanding a process of collaborative management of common pool resources, planting the seed for further organisational change to facilitate participatory rangeland management and pastoral development. ICIMOD's interest in rangelands dates back to its very inception, and one of its very first publications is on rangeland management in Pakistan.
The Participatory Forestry Management programme contributed to the process of a paradigm shift in the forest policies and perspectives of the HKH region and highlighted the need for participatory perspectives within the policy frameworks of all the regional countries. It is gradually being recognised for its work in sustainable management of mountain natural resources and issues of equity, tenure, and property rights. It is work in this sector that led to the establishment of FECOFUN and HIMAWANTI - regional networks of community user groups and women resource managers, coming together on a common platform to discuss issues of concern across the region.

The work on globalisation revealed that options to minimise risks in the mountain context are closely linked to: (a) focus on high-value exportable niche products and services, (b) enhanced skills and entrepreneurial capacities in communities, and (c) effective support systems through equitable and dependable external marketing links. Past ICIMOD results and analyses provide useful insights and implications for policies and programmes for micro-enterprise development in mountain areas, pointing out the importance of a specific focus on niche-based product development and the dramatic effect that accessibility to markets can have. Past work has shown that specific policies favouring the poor and vulnerable groups to attain food self-sufficiency or enhance their incomes are rare and thus need to be a focus in coming work.

**Building capacity and enabling partner institutions:** Over the last decade, ICIMOD has facilitated institutional building processes in the Hindu Kush-Himalayan region. For example, impacts include ICIMOD’s work under the energy programme, which has helped donor agencies in planning and formulating appropriate sustainable interventions and funding policies and priorities on the renewable energy sector in the Hindu Kush-Himalayas. In its efforts towards beekeeping development, training courses on different aspects of beekeeping were organised by the ICIMOD beekeeping programme targeted at trainers, farmers, and NGOs.

Through its participatory natural resource management programme, and the several new community-based institutions, ICIMOD facilitated debate to address strategic issues related to natural resource management and poverty alleviation on a common platform. These institutions have demonstrated their ability to provide a broad forum for debate on policies that are directly or indirectly, affecting the livelihoods of mountain people. Various forms of community and household-based forestry programmes introduced in Nepal, India, China, and Bhutan are examples of innovations in local tenurial regimes that are demonstrating the potential for increasing forest resource conservation and productivity through appropriate policy and programme support.

An important lesson learned is that community institutions are powerful mechanisms of change in the mountain regions. The basic problem is that national policy frameworks do not adequately empower or integrate the needs and aspirations of the communities who are the main users of natural resources. Furthermore, natural resources cannot be managed in isolation without due consideration being given to issues related to governance, decentralisation, and democratisation. There is a need to
build the capacity of local bodies to actively engage in policy development and planning. ICIMOD needs to encourage a higher priority to the social dimensions of mountain development; and this should be reflected in all its integrated programmes.

**Impact on gender mainstreaming.** Gender issues were first seriously addressed in 1988 when the Centre conducted a research programme on women’s entrepreneurship. This work, which looks at the feminisation of poverty, by considering the mountain farmer as a ‘her’ rather than a ‘him’, pre-dated much of the current interest in gender in development agencies. Perhaps the fact that ICIMOD was ahead of the times led to a gap in gender work until the late 1990s. Since then, there have been attempts to put mountain women and their issues on the international agenda and provide a platform to the unheard voices of mountain women. ICIMOD has attempted to understand the perspective of women from a diversity of mountain areas extending from Western China to Afghanistan in a collection of eleven case studies, ‘Searching for Women’s Voices in the Hindu Kush-Himalayas’, carried out by women who shared a cultural background with the places they studied. This work has contributed towards building the recognition that gender mainstreaming remains an urgent area of work.

One commendable piece of work in capacity building was that of gender training. A ‘Training for Trainers and Change Agents’ course was conducted to provide greater in-depth understanding of how to effectively promote change and offer gender training, for individuals working within partner organisations. The ICIMOD approach has had impacts on various individuals and international development organisations through presentations in the USA, Canada, and the UK. CGIAR has adopted the ICIMOD approach to organisational analysis, training, and support to change agents, in order to institutionalise participatory and gender approaches within national agricultural research institutes and their own branches around the world.

ICIMOD carried out a one-year project on the ‘Development of Women Entrepreneurs and Entrepreneurship in Bhutan’, involving all the relevant bodies and stakeholders as partners. A strategy document ‘Enterprise Development in Bhutan with Special Focus on Women Entrepreneurs’, was prepared jointly by ICIMOD and the Entrepreneurship Promotion Centre, Bhutan. Incorporating recommendations for sectoral priorities, regional specialisation, policies and procedures, infrastructure and services, technologies, entrepreneurship training, credit support, and institutional strengthening evoked a high degree of ‘ownership’ on the part of Bhutanese authorities and agencies. One major impact was that gender-related activities for women entrepreneurs, including budget reservations, have been entered into the Ninth Five-Year plan. This one-year project had a very similar focus to the one that took place in 1988, but which in its attempt to cover more countries of the region may well have had too thin a spread.

**Influencing policy and regulatory frameworks:** ICIMOD’s long-standing concern has been to collect material on the means to secure and safeguard the livelihoods of mountain people. The
ongoing ICIMOD programme on glacial lake outburst floods (GLOF) providing a detailed inventory of glaciers and glacial lakes, GLOF events, or potential GLOF sites in the Hindu Kush-Himalayan region is a logical continuation of interest awakened by the first study made on GLOF for ICIMOD in 1986 (Occasional Paper No.5). GLOF events in the HKH region have caused loss of life and property and the destruction of valuable forest and pasture resources, farmlands, and costly mountain infrastructure. Accurate knowledge of GLOFs will enhance each nation's abilities to deal with them by providing a digital repository of valuable knowledge to provide information that will facilitate policies on vulnerability and risk mitigation and on action and adaptation.

In joint collaboration with the World Meteorological Organization, ICIMOD conducted a high-level meeting which brought together delegates involved in flood forecasting from the participating countries. During the meeting, an action plan for the implementation of a regional flood information system, which incorporates identification of the hydrological and meteorological network as well as observations and transmission systems within each country and how they can be upgraded to achieve near real-time availability for regional flood data and information, was developed.

Nepal-Tibet Autonomous Region transboundary cooperation for conservation of the Mt Everest Ecosystem increased in the past five years with the joint efforts of ICIMOD and The Mountain Institute (TMI). ICIMOD’s Regional Consultation on Kanchenjunga Mountain Ecosystem (KME) between India, Nepal, and TAR (China) was initiated in 1997 by ICIMOD. Its location alongside international borders necessitates regional cooperation between Bhutan, India, and Nepal. Here, ICIMOD can play a major role in forming partnerships in and around the protected areas and corridors along the international borders and provide policy inputs to participating member countries.

**Policy development and support:** During the twenty years since its establishment, ICIMOD has pioneered the shaping of mountain policies and advocated the parameters of vulnerability, marginality, fragility, and inaccessibility as specific mountain conditions upon which policies should be based. ICIMOD has developed policy tools, such as the ‘mountain perspective framework’, to guide the efforts in mountain development towards taking mountain specificities into consideration in development planning. The framework has been disseminated through publications, interaction meetings and training, and dialogue directed at diverse stakeholders.

ICIMOD has provided advisory support to different state and national governments on efficient and effective use of the framework for resource mobilisation and its adaptation to local requirements. Development agencies in different countries, NGOs, and donor agencies were exposed to the concept and application of the mountain perspective. Regional member countries used the concept to varying degrees and development interventions were designed to match the imperatives of specific mountain conditions; and they proved to be quite effective and relevant to mountain areas.
One venture in policy encouragement was the assistance given to the formulation and passing into law of a policy for Information Technology in Nepal. With funding from IDRC, ICIMOD was able to facilitate research, a platform discussion bringing together the public and private sectors, and actual finalisation and publication of an IT policy. This mountain IT policy has been widely shared throughout the HKH and in neighbouring mountain countries.

ICIMOD has played an instrumental and important role in cross-fertilisation of experiences, providing an interface between policy-makers and development practitioners and contributing to the development of appropriate policies. It has pursued advocacy work using thematic windows and identification of cross-cutting issues with respect to food security and mountain agriculture, highland-lowland economic links, and effectiveness of participatory natural resource management (NRM). It has produced publications on policies adopted by regional member countries on land, water, biodiversity, agriculture and livestock, and conflict resolution. These efforts have resulted in an increasing awareness about the specific needs of mountain areas and have, in notable instances, had a positive influence on national policies and strategies and have led to allocation of resources in favour of mountain peoples and areas.

ICIMOD seeks to see mountains placed higher on the development agenda by raising the awareness of policy-makers, identifying replicable components of successful cases of transformed mountain areas, and identifying and advocating on behalf of improved technologies for sustainable mountain development.

**Strategic partnerships and networking:** ICIMOD is working at different levels of involvement with 60 major regional partners and 200 collaborating organisations inside and outside the region. These include action and knowledge networks such as those (i) devoted to specific issues and concerns (e.g. HIMAWANTI for women’s resource management, SAWTEE for environmental rights, APINET for beekeeping, etc.); (ii) general outreach networks (e.g. publications exchange partners, newsletter and publications’ recipients, ICIMOD web page and GIS portal users), (iii) the interactive mountain knowledge community (e.g. Asia Pacific Mountain Network, Global Mountain Forum); and the Asia Pacific Mountain Network (APMN) was instrumental in taking ICIMOD to the outer edges of the region by helping the Kyrgyz Republic promote the idea of an International Mountain Year, as recorded in the articles to the IYM Resolution by the Secretary General of the UN, Mr. Kofi Annan. ICIMOD, in this period also, played an instrumental role in establishing and facilitating networks nationally (NepalNET and COMSATS).

These networks have been instrumental in the spread of successful activities/ventures in other regions of the HKH offering favourable conditions for replication. ICIMOD can build upon its huge partnership network to collate information to develop appropriate strategies / technologies for scaling up potential ventures across the HKH.
In most cases, ICIMOD’s collaborative arrangements were arrived at on a mutual understanding basis and criteria were not rigorously applied to the selection of partners. In order to increase ownership and bind partners to share responsibilities for implementation of programmes, there is recognition of the need to develop a standard protocol for entering into partnership clearly outlining the obligations of the partner institutions vis-à-vis ICIMOD.

**Information and knowledge management (IKM):** ICIMOD has accumulated a wealth of experience in information archiving and exchange and filled an important gap in IKM in the region. It has processed and distributed over 500 technical and general publications within a decade, developed and maintained a large open access library, introduced regional networking through the Asia Pacific Mountain Network and later worldwide through its linkages to Mountain Forum, and introduced ICIMOD’s webpage, among diverse other IKM activities. ICIMOD has a proven track record in terms of development and distribution of high quality information materials and a long history of continual updating and improvement in its approach. It has a strong comparative advantage in terms of the broad-scale access to information from across the region, distribution mechanisms across the region, ability to recognise and respond to needs from a wide range of users, and, not least, in its existing skills’ base and experience.

The Board of Governors and the **third Quinquennial Review (2000)** have given clear directions on knowledge management, stressing the role that ICIMOD should play in diminishing the gap of the ‘digital divide’ through information technology and information and knowledge management expertise already developed within the Centre. ICIMOD will strive to maintain its edge in on-going learning and promotion of openness to learning from mountain communities and each other. ICIMOD will work to ensure that the information required by its partners and networks meets basic information standards such as (i) availability, (ii) understandability, (iii) usability, (iv) completeness, (v) accuracy, and (vi) timeliness (not necessarily placed in order of precedence). Efforts will be strengthened to provide information and support development of knowledge that is usable by grass roots’ level organisations in their own languages and media.

ICIMOD has played an instrumental role in promoting GIS technology and applications in the region and developing information systems for data archiving and exchange. ICIMOD has a strong comparative advantage in the development and use of spatial and non-spatial information through its established networks at the local, national, and regional levels and especially for addressing transboundary problems such as issues relating to water resources, biodiversity, and others of a regional nature. ICIMOD has built up a comparative advantage in spatial information systems and has clearly established a strong reputation in the region. The Centre seeks to capitalise on this to increase and improve the use of and access to information for sustainable decision-making. Despite the many successes, past experience shows that the wealth of knowledge and information available within ICIMOD and with its partners is not always readily accessible and not always used in the most effective way to improve the situation of the mountain poor.
The second decade is one in which, in information management terms, ICIMOD began to be not only interested in publishing technical work (an activity that had grown considerably in the first half of the second decade) but also in reaching out and communicating in diverse ways, in building up expertise in the nascent ICT, and in imparting the know-how to partners through establishment of a training facility in GIS (MENRIS). ICIMOD learned too that information and knowledge has to be useful and needed to find an audience that can and will translate it into the best practices of integrated mountain development.

The period of the regional collaborative programmes saw a shift in ICIMOD’s work. Although the focus of its mandated responsibilities necessarily remained the same, ICIMOD began to take stock of what it had achieved and learned, of its successes and failures, and to examine what it really knows and does best in working for mountain areas. It is out of this exercise that the concept of the Strategic Plan for 2003 - 2007 has emerged: a concept that envisages the Centre not as the centre of all knowledge on the HKH, but as a place of learning and knowledge that receives from partners as well as giving to them and enabling them to work together better. ICIMOD then is not a centre alone, but rather a hub for partners in integrated mountain development charged with maintaining and strengthening multiple linkages to promote the alleviation of poverty in this vast mountain region.
4. How can ICIMOD contribute?

ICIMOD will assist regional member countries to work towards achieving the Millennium Development Goals of halving poverty and reducing hunger, promoting gender equality and empowerment of women, increasing environmental sustainability, and building a global partnership for development. Opportunities for ICIMOD to make a modest, yet meaningful, contribution lie in its comparative advantage as the only international Mountain Learning and Knowledge Centre in the HKH region. The centre can contribute through its areas of comparative strength: making knowledge useful, building partnerships, fostering regional cooperation, and facilitating policy development and advocacy.

Making knowledge useful
As a regionally based Mountain Learning and Knowledge Centre, ICIMOD is a catalyst for technological and policy innovations. The Centre and its partners build and test mountain knowledge databases, facilitate the widest possible exchange and sharing of mountain information and knowledge, provide the structure to allow those who need information and knowledge to find those who possess it, and build the skills needed for knowledge application. ICIMOD plays a pivotal role in HKH knowledge management, i.e. acquisition, modification, packaging, and sharing.

Partnership and network building
ICIMOD presents a unique opportunity to bring together different regional member countries on to a common platform where discussion, debate, and solutions to issues of mutual concern and cross-fertilisation of ideas for sustainable mountain development are made possible. ICIMOD has been fostering and building partnerships and networks in mountain development at the local, national, regional, and global levels that would otherwise not be possible.

Strategic enhancement of partnerships among agencies and institutions engaged in mountain development both within and beyond the region are extremely important; and this includes fostering private and public sector collaboration, currently a rare phenomenon. Capitalising on the initiative taken at the World Summit on Sustainable Development (WSSD) to establish the International Partnership for Sustainable Development of Mountain Regions (IPSDMR). ICIMOD will actively represent the interests and concerns of the HKH region in international fora and serve to link more specific thematic and local partnerships with this global network as well as hosting the Global Mountain Forum Secretariat which will provide communications support to this network.

As the voice and influence of a diverse civil society, especially of grass roots’ networks and associations, are growing in policy and public action choices, ICIMOD will continue to assist in providing regional linkages. ICIMOD will play a proactive role in nurturing local, national, and global partnerships by linking micro and macro-level knowledge, facilitating networking, and sharing of experiences.
Regional cooperation

ICIMOD addresses issues of a transboundary nature where solutions lie in the interdependence between countries. It remains the only forum where countries of the HKH meet as a group for technical cooperation. Regional cooperation is increasingly important for sharing information and coordinating policies on a wide spectrum of issues directly affecting mountain people and those living downstream. ICIMOD’s emphasis will be on areas that require countries to work together to streamline policies, procedures, and regulations; e.g. management of landscape corridors for ongoing movement of animals and genetic traits, preventive measures to mitigate effects of droughts and floods and glacial lake outburst floods, exchange of technical information and databases for regional planning, and market opportunities that lie across national borders or require a joint strategy such as tourism or medicinal plants, to name just a few.

Global warming and climate change are being increasingly accepted as phenomena with far-reaching implications on mountain ecosystems and mountain peoples. Increasingly rapid glacial melting, unpredictable and erratic climatic conditions, more frequent incidences of droughts and floods, and glacial lake outbursts that are attributed to climate change are already being experienced in many parts of the Hindu Kush-Himalayas. Unless preventive steps are taken to mitigate the impacts from such natural disasters, whole ecosystems and communities are likely to suffer irrevocable consequences. ICIMOD has already started working to address some of these challenges, the study on Glacial Lake Outburst Floods (GLOF) in Nepal and Bhutan being one such initiative. There is increasing demand and opportunity to build on this initiative and develop new programmes to combat climate-induced disasters.

The alarming increase in violent conflicts in upland areas of the HKH, fuelled by persistent poverty and various forms of exploitation and social injustice, is of growing concern. While ICIMOD does not have a mandate to engage with the political and security issues involved, it can foster regional cooperation in natural resource management and provide venues for the rights and equity of marginalised mountain peoples to be supported through strengthening policies of decentralisation – as well as supporting women-led institutions. For example, in pockets of the HKH, there have been experiences where mothers’ groups have come together to take a stand against violence and insurgency. ICIMOD, being an apolitical organisation, will work on building coalitions for providing hope and reducing conflict in upland and mountain areas.

Policy development and advocacy

Regional member countries were party to setting the Millennium Development Goals and are increasingly committed to working towards fulfilling the targets set for the year 2015. ICIMOD will work closely with regional member countries to identify the innovative practices, policies, technologies, and approaches that are emerging as successful in the mountain context for alleviating poverty, ensuring equity, and protecting the fragile environment in the HKH region.
Throughout the HKH region, awareness is growing of the need for equal social rights and opportunities for social mobilisation and participation in governance by women and marginalised groups in mountain areas. The voice and influence of a diverse range of civil society organisations, especially grass roots' networks and associations, is growing in policy and public action choices. ICIMOD can play a proactive role in nurturing such movements by providing the necessary knowledge and information support and by facilitating networking and sharing of experiences.

Assisting governments to address emerging conflicts in the use of vital resources like land, water, and forests through identification of alternative policy options; livelihood opportunities; and creating mountain sensitive support infrastructure are some of the key areas where ICIMOD can intervene to alleviate poverty in mountain areas. Success stories in livelihood enhancement capitalise on opportunities provided by mountain environments and cultures for specialised crops and products as well as sustainable and locally beneficial tourism and pilgrimage.

ICIMOD will facilitate policy dialogue around these options through its formal and informal networks of public institutions, international and bilateral donor agencies, NGOs, INGOs, universities and training institutions, and relevant private entities so that regional member countries can use ICIMOD actively in pursuance of their development agenda. Support for informed policy advocacy and change will be the culmination of ICIMOD’s catalytic role in knowledge sharing. Improved documentation of the impact of various options will be used to provide empirical grounding for governments and advocacy groups to make policies more relevant and supportive of mountain peoples.

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5. Mountain poverty and vulnerability: what is the context for ICIMOD’s programmes?

At the World Summit for Social Development, 1995, a broad consensus emerged that development aid should focus on reducing poverty. Five years later, at the Millennium Summit, the international community renewed its commitment to this goal and set themselves a target of halving the proportion of people living in extreme poverty by 2015. Johannesburg WSSD 2002 reaffirmed sustainable development as a central element of the international agenda and gave new impetus to global action to fight poverty and protect the environment.

Dimensions of mountain poverty

While the importance of poverty reduction has now been overwhelmingly acknowledged, inadequate attention is being given to mountain poverty. The incidence of poverty is often higher in mountain areas; as can be seen in many HKH countries, where the poverty of people living in mountain areas is from 20 to 50 per cent higher than the national average.

ICIMOD and its partners in the region have devoted considerable attention to understanding, analysing, documenting, and disseminating information about the complex problems faced by poor mountain peoples and the dynamics of the ecosystems in which they live. Mountain poverty is quantitatively and qualitatively different from poverty in the plains. Unlike the poor in the plains, rural farmers, herders, and artisans living on steep slopes or in high cold valleys require a higher calorie intake to work, have greater non-food needs for clothing and shelter to survive, and have to pay more for any food or other items. Thus, traditional income and consumption measures of poverty are not suited to mountain peoples, and the real measure of mountain poverty in adjusted terms is anywhere from 14 to 25 per cent higher than recorded in official statistics (Papola 2002).

The picture is worse when mountain poverty is examined by the multi-dimensional measures of ‘pronounced deprivation in well-being’, which includes material deprivation (income and consumption), low education and health, high vulnerability and exposure to risk, and powerlessness (World Bank 2001\(^2\), p15). In each of these dimensions, though difficult to measure, mountain areas in the HKH generally score significantly lower than in the adjoining plains (IFAD 2001, Banskota et al. 2000\(^3\)). Furthermore, the specific conditions imposed by living in the mountains changes the nature of each of these additional dimensions of poverty to make them often more severe – especially for women and socially marginalised groups.

Among the various dimensions of poverty, the one that best captures the specific nature of mountain poverty is the vulnerability dimension. The women, men, and children of the Hindu Kush-Himalayas


\(^3\) IFAD 2000, Banskota et al. 2000, IFAD’s Poverty Assessment
live in an environment of intense economic, physical, and social vulnerability which is both a cause of poverty and a barrier to its removal.

**Economic vulnerability**

The inaccessibility and marginality (Jodha 2002, see Annex 3) of mountain areas mean that communities are largely cut off from the pathways of economic growth. Mountain areas lack the productive assets - natural, technical, capital, infrastructural or human – to climb out of poverty. Mountain households do not have access to information, technology, and markets to help them overcome economic vulnerability.

Poor mountain households pursue a diverse set of livelihood strategies to make ends meet; a combination of low productivity agriculture and livestock rearing; exploitation of common rangelands, pastures, forests, and water resources; informal crafts and cottage industries; and seasonal or long-term low-wage labour migration. In today’s rapidly globalising economy, mountain peoples are ill-equipped to cope with changing market demands and the competition facing their traditional products and skills. Public and private investments, infrastructure, education, and other social services in mountain areas often lag behind those in the neighbouring plains. At the same time, the environmental services provided by upland watershed farmers are rarely recognised – leaving little incentive for them to improve their conservation practices.

**Physical vulnerability**

The Hindu Kush-Himalayan range is a young and dynamic mountain region, still growing while glaciers and rivers continue to scour the land and landslides transform the landscape, creating temporary dams and flash floods that destroy nature and human lives. At the juncture of two great tectonic plates, the whole region is subject to recurring earthquakes of devastating ferocity. Most of these natural processes have been accelerated by human action, as people are pushed on to marginal lands and into the valleys, and the ecosystem further deteriorates in ways that increase the loss of life and property. High rates of soil erosion and deforestation have resulted from inappropriate land use and over-exploitation of natural resources. Some of the richest biological diversity in the world is in danger of being lost to future generations.

Physical vulnerability extends far beyond the HKH region itself to the giant river basins downstream. With inadequate planning for warning and mitigation, countless millions of people living downstream in Bangladesh, China, India, Nepal, Myanmar, and Pakistan are vulnerable to the events that take place in watersheds far above them.

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3 Deutsche Stiftung für Internationale Entwicklung (DSE), ICIMOD, and Zentralstelle für Ernährung und Landwirtschaft (ZEL) joint publication based on an international conference held in early 2000 entitled, ‘Growth, Poverty Alleviation and Sustainable Resource Management in the Mountains of South Asia’ (Mahesh Banskota, Trilok S. Papola, Jurgen Richter [eds]).
Social vulnerability

The HKH region has various levels of entrenched social hierarchy
(a) within the household, a pervasive gender hierarchy, placing women at a disadvantage with respect to voice, opportunity, and control over livelihood resources;
(b) within communities, hierarchies based on social status, caste, or class, reinforced by disparities in access to livelihood resources, services, dignity, and voice;
(c) between communities, intolerance for cultural and religious diversity, magnified by the substantial lack of trust between groups, stifling openness to new ideas and preventing collective solutions to common problems; and
(d) at the level of the nation state and globally, there is an unequal relationship between mountain peoples and people in the plains, historically marginalising mountain regions.

Prevailing governance systems provide little scope for local initiatives and decision-making, and too often are perceived as self-serving and corrupt. Regional and global changes are rapidly eroding the rich diversity of cultural heritage, indigenous knowledge, languages, rights and self respect of the majority of mountain populations belonging to a variety of ethnic groups.

Dynamics of poverty in the mountains

The ‘Mountain Vulnerability Triangle’ below depicts how economic, physical, and social vulnerabilities, result in the insecure and unsustainable livelihoods of poor mountain peoples. Physical and economic vulnerability are intimately linked to mismanagement and degradation of natural resources. Lack of access to infrastructure, markets, services, and information leave mountain people marginalised. Mountain peoples experience these conditions as an inability to negotiate better terms of trade and barter, earn enough to meet their basic needs, and protect the environment in which they live. Powerlessness, alienation, and conflict are clearly a combined effect of economic and social vulnerabilities. The mountain peoples of the HKH suffer from a high degree of violent conflict in the region, whilst pervasive feelings of powerlessness and alienation come from lack of hope in being able to create long-term institutional change or influence decisions affecting their lives.
The Transformation / Future Opportunities

This picture of depressing vulnerabilities, and their combined negative impacts in the livelihoods of poor and marginalised mountain peoples and the ecosystems that sustain them has a countervailing bright side that underpins ICIMOD's strategy for the future. Drawing upon the analysis of mountain poverty and identification of vulnerabilities, ICIMOD envisions a transformation of the 'Mountain Vulnerabilities Triangle' into the 'Mountain Security Triangle'. The vulnerabilities underlying mountain poverty and ecosystem degradation are replaced by physical (reduction of hazards), economic, and social security. ICIMOD's role in this transformation process is to help identify and refine creative solutions to support a halt to resource degradation, empowerment, dignity and a conflict-free environment in the HKH so that the region can grow towards the vision of secure and sustainable livelihoods for mountain peoples.

![Mountain Security Triangle: Transformation of Vulnerabilities into Securities](image)

Focus on Opportunities

Examples of successful practices show that it is possible to make good use of the learning from past development experiences and research to create more enabling environments and innovative
solutions that respond to mountain vulnerabilities and transform them into opportunities and solutions. Each of the integrated programmes and action initiatives developed out of this strategy focus on identifying these emerging options, analysing the factors underlying their success, testing their suitability for wider adaptation and replication, and communicating the information and knowledge generated to a wide spectrum of end users – whether they are policy-makers, policy advocates, development practitioners or grass roots’ groups.

Analysis of existing new policies within the region confirms strong governmental commitment to support the development of these new opportunities. Poverty alleviation combined with increased equity is at the core of regional policies for mountain areas. Most countries in the region are pursuing decentralisation policies that include devolution of more natural resource management to local communities. Increased concern for resource conservation and sustainability is evident in new policies for biodiversity protection, steep slope agriculture, and protected area management. Support for specialised mountain crops and services, such as eco-tourism, are increasing. The idea of reimbursement for hydroelectric resources used downstream has started to emerge in some countries. Central governments are increasing fiscal transfers to mountain states to encourage their economic development on a par with other areas. Recognition and encouragement of diverse civil society organisations have increased along with greater concern for gender and social equity and greater awareness of the importance of supporting and integrating cultural diversity.
6. What criteria will ICIMOD use for making strategic choices?

ICIMOD has learned that its mandate is not an easy one to fulfil. Addressing the complex and inter-related issue of mountain poverty and sustainability, within the diverse ecological and socio-economic environment of the HKH, in a focused and integrated manner that will have real impact, is a challenge of truly Himalayan dimensions.

Outcome priorities

Based on the analysis of mountain poverty and vulnerability, regional policies and consultations, and the criteria and feedback provided by the Board of Governors, five long-term strategic outcomes have been identified as priorities. These are consistent with the priorities for sustainable mountain development distilled during the international year of mountains; the WSSD, Johannesburg; and the Bishkek Global Mountain Summit, Kyrgyzstan. All programme activities will be focused on contributing to achieving the following strategic outcomes for 2003 – 2007 and beyond.

A. Productive and sustainable community-based management of vulnerable mountain natural resources
B. Decreased physical vulnerability within watersheds and regional river basins
C. Improved and diversified incomes for vulnerable rural and marginalised mountain peoples
D. Increased regional and local conservation of mountain biological and cultural heritage
E. Greater voice and influence, dignity, social security, and equity for all mountain peoples

Criteria for programme choice

Taking into account the enormity of the challenge represented by these strategic outcomes and the limited resources available, ICIMOD must focus its programmes and promote and facilitate the synergies between them to have meaningful impact. For this purpose, criteria have been developed with the Board of Governors for the selection of integrated programmes, the focus within each programme, and the action initiatives that will be taken up for programme implementation.

These criteria include the following.

Strategic Relevance: based on alignment with ICIMOD’s mandate, vision, mission, and strategic outcomes; meets the demonstrated demands and needs of mountain peoples and partners

Comparative advantage: based on ICIMOD’s track record, previous achievements, and comparative advantages; and also comprises a niche or area that is not being covered by others

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Potential for impact: based on the potential for poverty alleviation, potential for going to scale, potential for incorporating effective policy and communication strategies, and synergy with existing projects and programmes

Feasibility: building on existing human, institutional, and financial resources and has the commitment and ownership of partners

Sensitivity: to the rich cultural diversity, political, and fragile environments of the region
7. Strategic programmes: What will ICIMOD do?

Based on the analysis of mountain poverty and vulnerability, ICIMOD’s previous experience, demand and opportunities within the region, and the criteria outlined above, the following Integrated Programmes have been selected and approved by the Board of Governors as having the greatest potential for fulfilling ICIMOD’s mandate.

IP1 Natural Resource Management (NRM)
IP2 Agricultural and Rural Income Diversification (ARID)
IP3 Water, Hazards, and Environmental Management (WHEM)
IP4 Culture, Equity, Gender, and Governance (CEGG)
IP5 Policy and Partnership Development (PPD)
IP6 Information and Knowledge Management (IKM)

There is a logical sequence of cause and effect relationships between the investment of resources in the integrated programmes, subsequent production of outputs, and achievement of strategic outcomes that is a consequence of output use by partners. Table I below shows how the integrated programmes link to the strategic outcomes and how they address key vulnerabilities.

<table>
<thead>
<tr>
<th>Integrated Programme</th>
<th>Key Strategic Outcome</th>
<th>Key vulnerability</th>
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<tbody>
<tr>
<td>Natural Resource Management</td>
<td>- Productive and sustainable community-based management of natural resources</td>
<td>Economic</td>
</tr>
<tr>
<td></td>
<td>- Regional and local conservation of biological and cultural heritage</td>
<td>Physical, Social</td>
</tr>
<tr>
<td>Agricultural and Rural Income Diversification</td>
<td>- Improved and diversified incomes for rural and marginalised mountain people</td>
<td>Economic</td>
</tr>
<tr>
<td>Water, Hazards, and Environmental Management</td>
<td>- Decreased physical vulnerability within watersheds and regional river basins</td>
<td>Physical</td>
</tr>
</tbody>
</table>

### Cross-cutting Integrated Programmes

- Culture, Equity, Gender, and Governance - Greater voice and influence, dignity, security and social equity for all mountain peoples - Social
- Policy and Partnership Development - These programmes provide the knowledge management and capacity development means that enable the Integrated Programmes to translate their activities effectively into all the strategic outcomes to address the vulnerabilities that they are designed to overcome.
- Information and Knowledge Management

The following section outlines the integrated programmes that are elaborated upon in the Medium Term Action Plan for 2003 – 2007 and indicates the overall basis upon which they have been selected.
1. Natural Resource Management (NRM)

Natural Resource Management focuses on institutional, technological, and policy innovations for community based management to increase productivity of mountain resources to reduce poverty, enhance food security, and ensure biological conservation. The NRM programme has prioritised three action initiatives: (a) Watershed management, (b) Rangeland, Pasture, and Livestock Management, and (c) Transboundary Biodiversity Management.

The integrated use of mountain natural resources by mountain households provides food, water, fibre, implements, medicines, energy, housing, and cash-generating products upon which mountain people depend for their survival. The HKH is rich in biological diversity. Six major river basins and hundreds of smaller rivers and streams originate within the HKH. The environmental services provided by these natural assets are the basis for the physical security of mountain people living in these areas and ensure the sustainability of their production systems into the future – as well as the security of the people living downstream.

ICIMOD’s past work in watershed management, mountain commons, sloping land agricultural technologies, marginal farm strategies, and rangeland management has identified promising opportunities to reduce the degradation of commonly-used mountain natural resources. Various forms of community and household-based forestry programmes introduced in Nepal, India, China, and Bhutan are examples of innovations in local tenurial regimes that are demonstrating the potential for increasing forest resource conservation and productivity through appropriate policy and programme support. Regional methodologies for watershed management and monitoring have also shown increased potential for more productive, integrated resource management. New technologies and policies for sloping land agriculture such as contour hedgerow technology and alternative crops, have demonstrated the potential to reduce soil and moisture loss and increase sustainable productivity. Assessment studies of rangeland use and management regimes have led to a clearer understanding of this complex ecosystem that supports the livelihood of the herders as well as the plants and animals occupying some of the highest and harshest environments on earth.

In the new strategy ICIMOD will focus on community-based approaches for watershed, rangeland, pasture, and livestock management and capacity building for promoting institutional, technological, and policy innovations. The ICIMOD trial and demonstration site at Godavari now has a wide range of tested methods on site that can potentially make a significant contribution to rural development. In particular, several innovations have been pioneered in the area of integrated mountain natural resource management, including various income-generating activities. In the new strategy the Godavari Trial and Demonstration Site will continue to focus on information sharing, demonstration, training, and promoting networking between lead farmers and development practitioners in the HKH region.
In the past five years ICIMOD has implemented transboundary exchanges on the Mount Everest Ecosystem (this ecosystem comprises the Qomolangma Nature Preserve in the Tibetan Autonomous Region (TAR) of China and three adjoining mountain parks in Nepal). Earlier, in 1997, ICIMOD had collaborated with WWF-Nepal to initiate regional consultations on transboundary conservation of the Kanchenjunga Mountain Ecosystem (between India, Nepal, and the TAR, China). Building on ICIMOD's previous experience this programme will continue to focus on developing participatory approaches for natural resource management which will include regional strategies and cooperation on transboundary issues. The new strategy for integrated natural resource management is designed to build on institutional, technological, and policy initiatives that have shown promise for the more productive and sustainable management of natural resources.

By addressing community-based integrated natural resource management, ICIMOD will deal with issues that are at the heart of the poorest mountain households' livelihoods. It is by intervening at this level that ICIMOD plans to bring - in a very tangible way - the benefits of the shared aspirations expressed in the Millennium Development Goals to the mountain people of the HKH region. Growing human populations and indiscriminate exploitation of resources have left most rural mountain households struggling with poverty. This poverty threatens the long-term sustainability of their livelihoods and erodes cultural resources. Tenurial rights to common resources are often ambiguous and insecure, which leads to the degradation of biological, land, and water resources and reduces food security. Indigenous systems of resource management are overlaid by de jure laws and regulations that do not adequately take into consideration local systems and lead to the further marginalisation and impoverishment of these mountain communities.

ICIMOD has built a large body of knowledge in integrated natural resource management as it relates to the livelihoods of poor mountain people, and it has developed a number of active networks at both the professional and grass roots’ level. All of the Centre's major regional countries and partners place high priority on this programme and have expressed their desire for ICIMOD’s continuing collaboration in this field. ICIMOD has developed its own demonstration site where options for the integrated management of natural resources are tested. The tools and technologies developed at ICIMOD’s Godavari Trial and Demonstration Site have a real potential for significant dissemination among lead farmers in the region. Within the broad area of natural resource management, ICIMOD’s new strategy focuses on expanding documented opportunities for community-based systems. The focus will continue to be on community-based systems since it is here that ICIMOD’s programmes have the greatest chance to bring about changes that can have a large-scale impact on the lives of poor mountain households.

As a regional institution, ICIMOD will address issues where regional cooperation is needed. As ICIMOD is not able to cover the entire geographic area of the HKH, an ecoregional approach of clustering similar areas together to increase the relevance of the shared knowledge will be most effective. Three broad eco-regions; namely, the wet eastern Himalayas, the arid western Hindu Kush-
Himalayas and Tibetan Plateau, and the seasonally moist central Himalayas will serve as broad areas for programme focus and integration. ICIMOD will continue to develop its integrated and detailed eco-regional database that will allow for more precise delineation of ecologically similar areas. This database will allow planners and developers to identify areas that can all benefit from similar technological and institutional solutions.

The natural resource management (NRM) programme has a strong alignment with ICIMOD’s goal, vision, and mission. NRM emerged as a priority in the Strategic Plan consultations with partners in the regional member countries (RMC)s. The regional dimensions of NRM, particularly Watershed Management, Rangeland, Pasture and Livestock Management, and Transboundary Biodiversity Management are the three Action Initiatives (AIs) in ICIMOD’s new NRM plan. In terms of impact all these AIs have strong livelihood components for addressing poverty alleviation issues. These AIs are based on community approaches that have great potential for going to scale and having broad impact, and have been developed over the years from project to programme levels. All three AIs have strong synergies both among each other and with the past programmes of ICIMOD.

ICIMOD’s comparative advantage in NRM is that it has professionals with skills for handling participatory approaches and issues in a regional dimension. It has developed strong partnerships throughout the region in Watershed Management and Rangeland, Pasture, and Livestock Management. It has experience in transboundary biodiversity issues gained in the Mt Everest Ecosystem that it plans to expand to the Eastern Himalayas. Transboundary biodiversity management is a unique example of an issue that ICIMOD is better equipped to handle than any other institution in the region. ICIMOD has human, institutional, and financial resources in terms of project funding for all the three AIs. There are strong commitments of partners in Watershed Management and Rangeland, Pasture, and Livestock Management. All three action initiatives are holistic, community-based programmes that will incorporate traditional and indigenous practices. The NRM programme is highly sensitive to the rich cultural diversity, the complex political setting, and the fragile environment of the HKH region.

2. Agricultural and Rural Income Diversification (ARID)

The focus of this programme is on the economic security of mountain people and the promotion of high-value farm and non-farm products and services and reliable market linkages.

The livelihoods of the majority of people in the HKH depend primarily on subsistence agriculture and natural resources. Mountain households are neither able to generate economic surplus from subsistence activities nor are they able to find stable off-farm employment opportunities. With the exception of the time during the peak agricultural season, a large number of mountain people are under-employed and are forced to migrate seasonally to the plains in search of employment. The result is that for a good part of the year women (and mostly female children) are consequently burdened to manage the farm in addition to the tasks of fetching firewood and water and other
household chores. Unless employment and income opportunities are developed locally, the traditional reliance on subsistence activities is unlikely to alleviate this chronic and growing poverty in the mountain areas. The sustainable way to promote new employment and income opportunities is to exploit the resource endowments and comparative advantages of mountain niches.

The challenge is to transform the prevailing mode of subsistence agricultural production into one complimented by commercially viable agriculture. This will entail the transformation of subsistence agricultural communities to communities that can take advantage of commercial opportunities by taking advantage of the rich resource endowment and comparative advantages of mountain niches whether for specialised crops and medicinal plants or services such as ecotourism. Mountain regions offer immense scope for income enhancement through the development of mountain tourism, the harnessing of niche opportunities through rural enterprise, and the development of green agriculture. ICIMOD has created an integrated programme to facilitate this by systematically addressing these challenges as an integral part of its overall strategy; this is the programme on Agriculture and Rural Income Diversification (ARID). ARID will ensure access of the target mountain people to information, technology, markets, and capital and the corresponding enabling services using a community-based approach is crucial. Furthermore, in order to ensure the continued success of such initiatives part of ARID’s mandate will be to influence the adoption and implementation of supportive public policies. Such policies will ensure the sustained involvement of the private sector and include intermediary institutions that can establish a gainful mutual relationship with poor mountain households.

ICIMOD builds this integrated programme on its previous studies, findings, and experiences that clearly indicate that agricultural transformation is the most important pillar for diversifying the incomes and alleviating poverty on a large scale in the HKH region. Examples of successful interventions are found in Himachal Pradesh and Sikkim (India); Thimphu and Paro valleys (Bhutan); Ningnan County (China); Northern Areas (Pakistan); and Eastern (Ilam) Nepal. These studies have also shown that where topographical features, as in the high altitude areas, limit agricultural transformation, mountain tourism and off-farm enterprise development activities have potentials to generate employment and income. ICIMOD’s work on globalisation revealed that options to minimise risks in the mountain context are closely linked to: (a) focus on high-value exportable niche products and services, (b) enhanced skills and entrepreneurial capacities in communities, and (c) effective support systems through equitable and dependable external marketing links.

While past studies have concentrated on identifying problems and developing frameworks to address the problems, the envisioned work of ARID will build on this work to develop the framework and demonstrate how new opportunities to alleviate poverty can be adapted to the local situations within the HKH Region. In doing so ICIMOD will work with partner institutions to develop and strengthen their implementation capacities.
The Strategic Plan of ICIMOD recognises that the mutually reinforcing state of ‘mountain poverty and environmental degradation’ has been both the cause and consequence of multiple (physical, economic and social) vulnerabilities that adversely influence mountain communities and people. The principal strategy of the Centre is, therefore, to empower mountain communities so that they can successfully transform their vulnerable state into a secure one. ARID has been developed as an integral component of the overall strategy to specifically address the economic sphere of the set of vulnerabilities.

ARID initiatives will contribute directly to three strategic outcomes of ICIMOD namely: 1.) it relates directly to the improved and diversified incomes for vulnerable rural and marginalised mountain people, 2.) it works at the community level to secure the productive and sustainable community-based management of vulnerable mountain natural resources, and 3.) it strives to ensure increased regional and local conservation of mountain biological and cultural heritage.

The integrated programme on ARID will seek to promote new government, community, and private partnerships with a pro-poor, pro-social equity bias. ICIMOD will play a proactive role by providing policy feedback and recommendation, by nurturing partnerships from the micro to the macro and by providing the necessary knowledge, and by facilitating networking and sharing of experiences.

Economic poverty is a common issue in mountain areas and the phenomenon is not contained within national boundaries. Unless the regional dimensions of poverty are addressed together with the national ones, no individual regional member country (RMC) can effectively reduce escalating mountain economic poverty. It is in recognition of this reality that the WSSD recommended international partnerships be formed to balance national and international endeavours to reduce poverty and aim at achieving the Millennium Development Goals (MDGs). ICIMOD as a regional institution, with a mandate to deal with regional issues in the HKH, has a comparative advantage since it has the partnership network and the know-how needed to facilitate initiatives on a regional dimension.

Based on studies of the HKH mountain region, ICIMOD has established a set of ‘mountain perspectives’ without consideration of which a development initiative cannot be relevant, effective, and sustainable in mountain areas. The mountain perspective is defined in terms of inaccessibility, fragility, marginality, diversity, and niche potential in a regional context. These perspectives characterise the specific needs to be taken into consideration in the design and implementation of economic development initiatives in mountain areas; unfortunately, all too often these have been ignored. ICIMOD as a regional institution has a comparative advantage for promoting the mountain perspectives, and for sensitising and influencing relevant bodies in favour of development and effective implementation of mountain-specific, economic development policies in the RMCs.
3. Water, Hazards, and Environmental Management (WHEM)

The focus of this programme is improving knowledge and regional cooperation on environmental services and hazard mitigation to reduce the physical vulnerability of mountain people and the downstream poor.

The mountain environment of the HKH provides goods and services to the 150 million people in the region and to a much larger population downstream and eventually to the global environment. However, the mountain environment is also vulnerable and degrading rapidly due to increasing natural and anthropogenic pressures. The mountain poor and the downstream poor are the major victims of environmental hazards, such as floods, landslides, and snow disasters, which appear to be accelerating due to endogenous forces such as deforestation, and exogenous processes such as global warming. In spite of this, the upland people are also expected to be the agents for environmental improvement through more sustainable land use and watershed management activities in their upland areas. In order to bring about lasting changes, provisions for scientific, knowledge, and policy advocacy to improve the mountain environment are needed and both of these are integral parts of ICIMOD’s mandate.

In the past ICIMOD has made substantial contributions to capacity building of institutions at various levels by providing credible information and technical assistance aimed at prevention and mitigation of landslides and risk engineering, GLOFs, and monsoon floods as well as for watershed management in general. Now ICIMOD not only needs to address the related issues of highland-lowland linkages, environmental service assessments, and compensation mechanisms but also needs to continue responding to the continuing strong demand from regional governments and other partners for expansion and follow-up in knowledge generation, capacity building, and policy support.

Given the increasing linkage between environment and poverty in the context of MDGs, WSSD, BGMS, and other global initiatives, opportunities have expanded to find innovative solutions to address physical vulnerability and reduce its impact on poverty. Apart from providing more adequate scientific information and technical assistance, ICIMOD can support hazard-related policy reforms and institutional innovations through the capacity building of partner institutions engaged in hazard prevention and mitigation. This will help reduce poverty and support mountain people in their role to provide environmental services to the HKH region, the downstream, and beyond. In this respect the expected outcomes of this IP contribute directly to the strategic outcome of ‘reducing mountain physical vulnerability’. Increased valuation of these services will in future enable more sustainable financial and environmental linkages to be instituted between the upstream and downstream.

All of the expected outcomes from this integrated programme are closely linked to poverty alleviation on the regional scale. ICIMOD has a very strong comparative advantage in the hazard prevention and mitigation areas. It is consequently in a very good position to take on a regional leadership and
facilitating role. ICIMOD's past experience in the collection and sharing of hazards' data and information is widely recognised, as is its supporting expertise in capacity building and training. There is an urgent need to map out the region's vulnerabilities to landslide and flood hazards, and to mitigate flood and landslide disasters through information sharing and increased preparedness. In parallel with this there is a need to integrate poverty alleviation and environmental enhancement and a concomitant interest to do so expressed by ICIMOD's member countries, in particular, the leading partners. ICIMOD's efforts on regional environmental service assessment can take advantage of both ICIMOD's current and past projects and programmes such as the watershed management, flood forecasting network, GLOF and rangeland, forestry, and transboundary biodiversity studies.

4. Culture, Equity, Gender, and Governance (CEGG)

The focus of this programme is contributing to building sustainable mountain societies by promoting an enabling environment that enhances equity and empowers disadvantaged mountain people in the Hindu Kush-Himalayas.

Mountain societies in the Hindu Kush-Himalayas are facing rapid processes of change driven by a diversity of local, national, regional, and global forces. These processes are bringing new challenges to the adaptive ability of dosed mountain societies and economies leading to erosion of cultural identities, marginalisation and loss of indigenous knowledge. In many cases there are widening disparities and inequities and marginalised vulnerable groups are demanding new rights and access to the fruits of development. Conflict is rife in mountain area, and seemingly increasing. The role of mountain women is being transformed and new challenges are merging in relation to centralised governance. Accompanying challenges of increased pressure on natural resources, conflicts over contested resources, and assets critical for the livelihoods of mountain communities are exacerbating the quality of life of mountain people. The last decade has been witness to a dramatic increase in traditional conflicts, which are located in the mountain areas of the world. Mountain areas are likely to see increased conflicts over resources, especially in regions in which issues of deep inequity and notions of ethnicity and identity are embedded.

The CEGG integrated programme aims to contribute to building sustainable mountain societies as the foundation of sustainable mountain development by promoting processes and actions to enhance equity and empower disadvantaged mountain people.

Over the last decade ICIMOD has gained diverse experiences on programmes related to equity, gender mainstreaming, culture and natural resources, and local governance and community forestry management. The emergence of the CEGG programme aims to provide continuing and effective focus to social science dimensions. The CEGG has taken due cognisance of the following key lessons from ICIMOD's past experiences.
• Institutionally and programmatically ICIMOD needs to give greater priority to the social dimensions of mountain development, and these should be reflected in all its integrated programmes.

• Sustainable mountain natural resources cannot be managed in isolation and without due consideration to issues of equity, tenure, and property rights.

• Recognition that gender mainstreaming remains an urgent area of work and that a core contribution will be to enhance the participation of women in decision-making.

• Recognition that community institutions are powerful mechanisms of change in mountain regions.

The strategic relevance of the CEGG integrated programme is derived from an analysis of the internal institutional framework and from the vulnerability analysis elaborated in this strategy. The CEGG programme will aim to make a significant contribution to one of the strategic outcomes of ICIMOD’s Strategic Planning Framework

Giving centrality to women in decision-making and strengthened and equitable property rights; mainstreaming equity and poverty considerations and promotion of secure tenure and property rights for indigenous mountain communities; strengthening the advocacy capacity of community institutions and the promotion of right to information as an approach to improved governance will be among the strategically relevant programme areas over the next five years.

The CEGG programme has the distinction of performing the dual task of building a separate programme and to also play a critical role in mainstreaming programme learning and perspectives throughout ICIMOD’s other integrated programmes.

5. Policy and Partnership Development (PPD)

The focus of this programme is on developing policy, supporting advocacy, and strengthening partnerships in mountain development.

During its twenty years of existence, ICIMOD has pioneered the shaping of mountain policies and advocated the parameters of vulnerability, marginality, fragility, and inaccessibility as specific mountain conditions upon which policies should be based. While there is now general understanding and application of these parameters both within and beyond the HKH mountains, there is a need to forge greater alliances among development agencies and policy-making institutions at both the national and regional levels.

While the specific policies of individual member countries must be respected, there is a high degree of convergence among member countries concerning the challenges and issues facing mountain areas that often transcend national boundaries. Likewise, while there may not be much synergy between the national-level policies of the larger member countries and their smaller neighbours, the policy needs of the mountain states in both may be very similar. Such needs can be more effectively addressed
through a regional strategy so that the efforts of individual countries/states are complementary rather than conflicting. For example, a common conservation policy would greatly enhance the survival of rare, migratory biological species such as the Black-necked Crane or Bengal tiger.

There is thus a critical need for the development of a common strategy for policy development and advocacy as well as a need to build partnerships among stakeholders at various levels. Policy development processes as well as policy issues need to be better incorporated into ICIMOD’s own programmes as well as into the programmes of the member countries. Every positive change in policy, however minor it may be, has the potential to bring about major improvements. ICIMOD and RMCs need to continue to build partnerships around issues of common interest, so that the ownership and outreach of innovations can be enhanced through shared responsibility for implementation - and cost. It would also enable a more focused documentation of policy issues and development needs that can be addressed through ICIMOD’s programmes. Sustainable livelihoods in mountain areas are invariably linked to the sustainable use of natural resources that, in turn, ensure the integrity of the fragile environment. Technological solutions, without the back up of appropriate enabling policies, are at best only stop gap measures of limited scope for producing lasting results to either reduce poverty or environmental degradation.

In this context, ICIMOD represents a unique forum which can bring together regional member countries on to a common platform in order to discuss, debate, and work on options to address the challenges on issues of mutual concern. ICIMOD can draw on its resources and its 20 year history as a resource centre to facilitate the creation of a favourable policy environment. It can also help to foster collaboration among regional member countries in order to develop common policies for mountain development in the HKH Region. ICIMOD as an inter-governmental but non-political institution will re-position itself to accomplish two main tasks with respect to policy and partnership development. First, it will facilitate the development of and the advocacy for relevant mountain policy options by working with regional member countries (RMCs). Second, it will continue to explore the regional dimensions of policies that pertain to the vulnerabilities faced by mountain people by continuing to foster partnerships and encourage dialogue between member countries.

It is through this integrated and cross-cutting programme, which will bring the policy issues evolving form the other integrated programmes of ICIMOD to bear on the myriad of projects related to mountain natural resource management and rural income diversification, that ICIMOD can capture the opportunity to ensure that the work that it does links in a very real way into the Millennium Development Goals. The Millennium Development goals, agreed upon by all member nations of the U.N., summarise our collective hopes for humanity, but the challenge remains how to make these hopes come true. Here ICIMOD can play a role in helping the poor peoples of the HKH region by using its considerable expertise in mountain issues to help develop policies that will help to bring about a positive and lasting change.
The ability to integrate policy options exists in sectors like natural resource management (IP1), rural income diversification (IP2) and water hazard management (IP3). ICIMOD’s Board can help to facilitate high-level regional involvement on these issues and ICIMOD’s many linkages to regional networks and advocacy groups give it the desired credibility throughout the region. Capitalising on the initiative taken at the WSSD to establish the Global Partnership for Sustainable Mountain Development, ICIMOD can actively represent the interests and concerns of the HKH region in international fora and serve to link specific thematic and local partnerships with these global networks.

6. Information and Knowledge Management (IKM)

The focus of this programme is making mountain knowledge accessible to and usable for partners, policy-makers, advocates, and development practitioners for the benefit of mountain people.

The context that ties ICIMOD to information and knowledge management within the HKH can be found embedded firmly in the original concept and statutes of ICIMOD itself. Article 1 of the Statutes states that the centre will serve as:

(a) a multidisciplinary documentation centre;
(b) a focal point for training and applied research activities; and
(c) a consultative centre in scientific and technical matters for all the countries of the region upon their request.

All three of these can be placed under the umbrella of information and knowledge management.

Information and knowledge management (IKM) encompasses a wide range of activities that can be summarised under identifying, collecting, organising, archiving, providing access to, packaging, delivering, and receiving information; receiving user input and feedback on gaps and problems in content and delivery mechanisms and revising the appropriate elements in response; and enabling mechanisms for exchanging information and experiences. In other words, taken as a whole, IKM refers both to activities designed to ensure that an organisation gains knowledge and insight from its own experience and employees have maximum access to and use the knowledge that exists within the organisation, as well as to the skills to manage and use stored knowledge and information effectively and to deliver it to others. By their very nature, all information and knowledge management activities are closely interlinked and interdependent. Hence this programme is conceptualised as a cross-cutting one within ICIMOD itself.

ICIMOD has accumulated a wealth of experience in information archiving and exchange and carved a niche for itself in IKM in the region through the activities of its two major IKM groups. The Mountain Environment and Natural Resources Information Systems group (MENRIS) has played an instrumental role in promoting GIS technology and applications in the region and developing information systems for data archiving and exchange, and the Information, Communications and Outreach group has processed and distributed over 500 technical and general publications within a
decade, developed and maintained a large open access library, introduced regional networking through the Asia Pacific Mountain Network and later worldwide through its linkages to Mountain Forum, and introduced ICIMOD’s webpage, among diverse other IKM activities.

Despite the many successes, past experience shows that the wealth of knowledge and information available within ICIMOD and with its partners is not always readily accessible, or even known about, and not always used in the most effective way to improve the situation of the mountain poor. Lack of a proper framework for IKM activities has led to a piecemeal approach, which is no longer sufficient to fulfil the potential and needs of the present planning phase.

The IKM programme is an area of high priority for ICIMOD in terms of fulfilling its functions as a multidisciplinary documentation centre based on systematic exchange of knowledge and experience, and as a focal point for training. The activities provide an essential basis for the activities of all the programme areas within the Centre. In many cases they are an integral part of the programme activities themselves, and in all cases they represent the means by which information and knowledge produced within the programmes are made available and presented to a wider audience, and a route for information flow and needs expression to come into ICIMOD from outside. Information and Knowledge Management represents the main public interface of ICIMOD with its users in the HKH. Inasmuch as knowledge exchange provides the platform by which programme activities reach a broad group and have an impact, it will contribute considerably to poverty alleviation and the redressing of inequality in the region.

The major activities have been grouped under three principal Action Initiatives.

Information Management, Communications, and Outreach (IMCO)
Mountain Environment and Natural Resources Information Systems (MENRIS)
Global Mountain Forum (GMF)

MENRIS works through geographical information systems to train and build up the capabilities both inside and outside ICIMOD in digital mapping and data integration. IMCO processes the Centre’s technical and scientific information, runs internal and external networks, and promotes outreach activities and exchange mechanisms. The Global Mountain Forum Secretariat is a discrete entity, hosted by ICIMOD but independent and reporting to an international Board, and thus listed as a separate Action Initiative. However it links in and integrates through networking functions with many of the centre’s activities, especially with APMN (which is a voluntary node of Mountain Forum), and is a major vehicle for information exchange at both regional and global level.

Two action initiatives, the first of which focuses more on organisation and content, and the second of which focuses more on data management, application development, and technical support are together designed to provide a coordinated approach for raising ICIMOD’s IKM activities up to the state-of-the-art level required for ICIMOD to fulfil its function as a knowledge and information centre for the HKH region as laid down in the statutes. The activities under the two headings have been
separated in terms of functional components, but they are interlinked, and will be subject to an iterative process of change. Although the programme is ambitious, it is designed in the form of ‘building bricks’ to allow specific components to be implemented as and when funding becomes available. Implementation of all components will result in a synergy that will raise the value of the initiative considerably, but implementation of only a part of the programme will also do much to ensure that knowledge resources are better used for the benefit of the mountain people who are our ultimate beneficiaries.
8. How will ICIMOD work?

ICIMOD will adopt a flexible, process oriented, and demand driven approach, whereby integrated programmes will evolve through the cumulative build up of experience and impact, incorporating smaller, innovative shorter-term action initiatives, designed to deliver outputs with partner organisations and other governmental and non-governmental agencies. As new challenges and opportunities emerge, action initiatives will continue to be modified to improve achievement of the identified outcomes. It will be a process of ‘listening’ and learning, and action initiatives are developed in response to clearly identified needs and opportunities, and reviewed and approved each year by the Board of Governors. Improved partner communication and monitoring feedback will lead to ongoing modification.

The integrated programmes are strongly linked to each other for the achievement of the strategic outcomes. Agricultural and rural income diversification is intimately dependent on clear access and sustainable management of commonly-used natural resources. Water resources and mountain hazards are a part of integrated natural resource management, but due to their emerging importance as the primary source of physical vulnerability and their critical role in linking the uplands with the plains below, they are treated as a separate, yet closely linked, integrated programme. Culture, equity, gender, and governance concerns must be built into each of the programmes if equity and security goals are to be ultimately met. Policy relevance and strategic partnership development are crucial to making programmes effective. Information and knowledge management underpins all programme outputs and ensures that useful packages are disseminated and information exchanged with partners and through them to other relevant workers in mountain development.

Programme teams and matrix management

Due to the integrated nature of its programmes, ICIMOD will combine the use of integrated programme teams with more effective matrix management for individual action initiatives. Like the previous divisions they will provide collective administrative support and both professional and administrative supervision. Matrix management of action initiatives will provide the mechanism for integrating disciplines and perspectives with limited human resources.

Careful joint planning will be needed to identify the interrelationships between action initiatives, including the areas of potential synergy. Interface management and increased teamwork will be essential for integrating programmes and increasing their impact. As the new planning procedures are implemented to facilitate more logical planning of specific, short-term outcomes and associated inputs and outputs, it should be possible to identify convergences more readily.
Integrated programme manager

As the integrated programme is composed of related action initiatives, the programme manager will have a key role to play in orchestrating effective matrix management within and between the action initiatives. The integrated programme manager’s major responsibility is not only that the action initiatives are effectively implemented, but that they fit together as a functioning, integrated whole according to plan and within the budget. It is the job of the integrated programme manager to weld heterogeneous groups, pulled together from different parts of the organisation, into cohesive teams that can work closely together to meet programme goals. Depending on the specific expertise and work load of individual programme managers, some action initiatives from other programmes may be incorporated within their purview.

Action initiative coordinator

Action initiatives are time bound and have discrete outputs and short-term outcomes for which they are responsible. Having ultimate responsibility for success or failure, each action initiative will have a coordinator who will provide direction and be responsible for (i) planning and resource allocation; (ii) budgeting cost control; (iii) ensuring schedules showing distinct, measurable, identifiable milestones; (iv) monitoring and resources; networking and satisfaction of the Lead Partners. The action initiative coordinator plans the work with the action initiative team and takes responsibility for its implementation. In this, the coordinator is guided, mentored, and supported by the integrated programme manager who will be responsible for setting the standards for technical performance and evaluating the coordinator’s work.

ICIMOD’s partnerships

Developing strategic partnerships and enhancing the role of partners are critical to ICIMOD’s mission and to achieving strategic outcomes. A more effective and clear partnership strategy has been identified by external evaluations and the Board as a critical element for increasing the impact of ICIMOD’s work. Currently, ICIMOD works with and through 60 major regional partners, and an additional 200 collaborating organisations inside and outside the region, with which arrangements are somewhat ad hoc, and for whom support and follow up are not consistent. As ICIMOD grows into a more effective Mountain Learning and Knowledge Centre, its partnership strategy will be elaborated upon and clarified. Some elements of this new strategy are outlined in the following passages.

Lead partners

Lead Partners, who are expected to share ICIMOD’s vision and mission, will be identified for each of the integrated programmes and for major action initiatives. It is anticipated that most of these will be drawn from the approximately 60 key partners in the region. These Lead Partners will directly participate in programme planning, implementation, and monitoring. Agreements will be signed that explicitly recognise expectations for the partnership beyond the jointly decided action implementation. These partners will provide the basis for understanding the evolving situational context of the
programmes, help create networks for sharing and disseminating the findings, widen the scope of potential activities to link with their own programmes, and form coalitions around policy advocacy. Within the integrated programme framework, Lead Partners are expected to have regular communication and face-to-face meetings for cross pollination of ideas. By consistently backstopping Lead Partners, ICIMOD will strengthen relationships needed for effective innovation and application of the knowledge generated.

**Country partnership group**

Country-level coalitions of these Lead Partners will be formed as ICIMOD’s Country Partnership Groups for consultation and coordination within each regional country. Annual meetings or workshop sessions will be chaired by the regional member country’s Board member to plan activities, identify co-financing opportunities, share experience and disseminate findings, and report on progress. The Country Partnership Group in each of the regional member countries will be ICIMOD’s primary tier of partners. When possible, selected members of the groups will also meet on a regional basis to increase regional collaboration and provide consolidated feedback to ICIMOD.

**Other partners**

Part of ICIMOD’s effectiveness derives from its relationships with, and outreach to, a variety of regional and global organisations with which it may not have a continuing joint planning and implementation role. These include a number of government agencies, research and educational institutions, NGOs, CBOs, private organisations and associations, international centres of competence and individual mountain experts. ICIMOD will continue to identify and work with these collaborating and outreach partners to extend the value of the products and services it produces, to increase the reach of its impact and to enhance its own capacity by learning from others where needed. While more flexible arrangements tailored to each relationship will be required, ICIMOD will work to systematise these partnerships and build up a database of these mountain organisations.

**Networking and outreach**

ICIMOD will continue to facilitate the establishment and effective operation of regional and global knowledge networks. These include action and knowledge networks, including those (i) devoted to specific issues and concerns (e.g. HIMAWANTI for women’s resource management, SAWTEE for environmental rights, APINET for beekeeping, etc.); (ii) general outreach networks (e.g. publications exchange partners, newsletter and publications recipients, ICIMOD web page and GIS portal users), (iii) the interactive mountain knowledge community (e.g. Asia Pacific Mountain Forum, Global Mountain forum), etc. A cobweb of strategic networks, formal and informal, will be built based on functional significance for connecting skills and sourcing knowledge, sharing information and disseminating knowledge, upscaling possibilities, and (iv) policy advocacy.
Building coalitions for mountain policy

Lead Partners will play key roles in supporting policy formulation and change through their formal and informal networks with public institutions, development agencies, NGOs, INGOs, universities, and training institutions. ICIMOD will facilitate partners to find international expertise working in the same thematic area and assist in building capacity to translate the results of research and experience into forms relevant for policy-makers and advocates. Lead partners will work with ICIMOD to help develop policy agendas that fit their mandates and environments.

Operationalising partnerships

For entering into and maintaining partnerships, criteria are being developed for better identification, assessment of commitment and ownership, performance measurement (i.e. monitoring and evaluation), and shared accountability for achievement. A relationship of increasing trust will be built with partners through participatory planning, capacity building and training, implementation of participatory action research / paradigm testing (field projects and validation of theories), and process-oriented monitoring and evaluation.
9. How will ICIMOD plan and assess outcomes?

A systematic planning, monitoring and evaluation (PME) Strategy will be used during implementation of this strategy, and human resources will be recruited to ensure its operationalisation. Given the range of external factors that may affect the achievement of outcomes; e.g. the complex nature of regional mountain issues, diversity of ecosystems, livelihoods and national policy frameworks, presence of conflicts within the region, and the intermediary nature of ICIMOD’s work, the PME strategy will necessarily rely on intermediary indicators and the active participation of partners. It will be a process of learning while doing together. The strategy seeks to provide a framework for optimising delivery and performance, while maintaining the flexibility to respond to arising constraints and new opportunities.

Concrete steps for implementation of this strategy that have already been instituted include the development of a performance management framework, institutionalisation of logical results’ based planning, and engagement and recruitment of necessary in-house PME expertise. The strategy further calls for implementation of institutional policies and processes on PME, development of in-house and partner sensitivity and knowledge on PME, and shared monitoring and evaluation responsibility with partners.

Planning

Beginning in 2002, ICIMOD has initiated an iterative process of planning within the framework of this overall strategic plan. A rolling Medium Term Action Plan has been prepared for 2003 to 2007. This action plan defines outcomes, strategies, partnerships, and action initiatives, including necessary inputs and integration arrangements. Using a simple participatory and result-oriented process, annual action plans have been drawn up to implement the strategic plan systematically. A new budgeting process has been introduced to enable programme managers and action initiative coordinators to take more responsibility for budgeting and to integrate core and project budgeting more effectively within the programme strategy. Adequate flexibility for amendments in the annual work plans and a provision for incorporating findings of all relevant monitoring and review reports will be provided.

Performance measurement framework

The Performance Measurement Framework (PMF) represents a logical basis for programme planning as well as a structure for data collection and analysis of performance through a defined set of indicators. The Performance Measurement Framework lays out what is to be measured, the performance indicators to be used, how performance data should be collected, how frequently and by whom, in matrix format. Due to changing external and endogenous factors, the set of indicators and data collection methods are subject to modification on an annual basis, reflected in the annual management plans and budget. Programme performance is to be consistently assessed to serve as a basis for decision-making. (See Annex 1 for a tabular outline of the overall Performance Management Framework.)
**Indicative Indicators for ICIMOD’s Intermediate and Strategic Outcomes**

In the PMF, interim performance indicators for programme implementation and achievement of outcomes are set out. In generic terms, these include the following:

- Adaptation & application of mountain sustaining technologies & methodologies by mountain people
- Adoption of mountain supportive policies in RMCs
- Increased cooperative policies, agreements, and programmes among RMCs and the wider mountain world
- Community-based groups established, strengthened, and recognised
- Strengthened rights & access of disadvantaged groups to commonly-used mountain natural resources
- Increased mountain development programme activities from regional partners
- Self-sustaining viable networks & information sharing
- Increased use of information & knowledge for planning & action programmes by mountain practitioners
- Increased sustainable investment flows for mountain development
- Increased recognition and use of ICIMOD as a mountain learning and knowledge centre

These intermediate indicators will be further refined through partner consultations. Where possible, a combination of quantitative and qualitative indicators will be used to achieve necessary balance in terms of precision, consistency and reliability, and a holistic and in-depth understanding, especially of complex socioeconomic changes. Indications of intermediate and strategic outcomes will be collected, when available, on an annual basis. Systematic collection, storage, and analysis of data for each performance indicator will enable management to effectively steer the implementation process towards desired outcomes. The indicators will also be used for periodic and annual progress reports to provide an analysis of the aggregated results of individual initiatives in relation to the overall strategic outcomes.

**Outputs and short-term outcomes**

The Integrated Programmes will develop outputs and short-term outcomes and their indicators in the annual work plan. Programme and action initiative outputs will be specific versions of the following eight generic outputs listed in the performance management framework.

- Information Communications and Outreach Products
- Documented Policy Options
- Accessible Databases and Planning Platforms

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5 These tables will remain a draft document until confirmed through the creation and integration of the short-term outcomes and indicators by the Integrated Programmes into this framework and the confirmation of the indicators for the intermediate and strategic outcomes by the programmes.
- Capacity Building and Training
- Technology, Methodology, Pilots and Tests
- Dissemination and Replication Strategies
- Regional Coordination Strategies and Support
- Regional Networks

As a general rule, data on short-term outcome indicators will be collected on an annual basis and appraised by ICIMOD. Output progress reports will provide management and the main stakeholders, with early indications of progress, in terms of input deliveries, work schedules, and other required actions. These will provide the basis for taking appropriate actions, both substantive and operational, to improve the programme/action initiative design, manner of implementation, and quality of results.

Evaluation

In addition to regular monitoring exercises, internal and external evaluations will be undertaken. Through these evaluations ICIMOD will attempt to objectively measure, determine, and demonstrate the extent to which its strategic partnership programmes have been able to achieve the pre-determined outcomes (effectiveness) with an acceptable outlay of resources (efficiency); are relevant and sustainable; and are leading to the desired impacts. ICIMOD will undertake mainly two types of evaluation – the Quinquennial Review (QQR) and external donor evaluations, and internal and partner evaluations.

Quinquennial Review (QQR) and external evaluations

The Fourth QQR will be commissioned for the 2nd Quarter of 2006 when ICIMOD will have completed three and a half years of implementation and reporting on this Strategic Plan. Serving as an ongoing formative evaluation, this will help adjust the programme in the context of changes taking place in the programme environments that were not foreseen at the time of strategic planning. The Fifth QQR, in the year 2011, among others, will serve to give a summative evaluation and examine the contributions of the intermediate outcomes of the integrated interventions (2003 - 2007) to the strategic outcomes. Specially commissioned donor evaluations will supplement this process of external assessment.

Internal and partner evaluations: ICIMOD will regularly monitor and assess the changes taking place in the status of mountain poverty (social vulnerabilities) and the key aspects of mountain natural resource bases (natural vulnerabilities) and evaluate its performance in relationship to strategic outcomes. Working with its Lead Partners and Country Partnership Group, ICIMOD will also solicit partner evaluations of its programme accomplishments and overall performance.

Risks

6 All data will be analysed using appropriate trend analysis techniques; when applicable and possible, data will be disaggregated by gender, ethnicity, and caste.

ICIMOD Partnerships in Sustainable Mountain Development
Revised Overall Strategy, April 2003
There are uncertainties underlying the assumptions in the design of ICIMOD’s strategy and programmes. Some of these risks have been assessed should some of the underlying assumptions not hold true. Assumptions for the delivery of short-term outputs range from availability of funding, ownership and trust in ICIMOD’s mandate to the current state of political stability in the region and its effect on the ability to recruit and retain qualified professional staff. For the intermediate and strategic outcomes, assumptions include: willingness to share information and collaborate on regional initiatives; readiness to use ICIMOD’s outputs to inform policy decisions and development activities; support of policies to promote equity; decentralisation and community-based management of natural resources by mountain peoples; sustained private sector and donor investments in mountain development; and changes in the capacity of ICIMOD’s partners and mountain institutions. Most of these risks are assessed at the low to medium level; however given the potential volatility of the region, constant reassessment will be required. Risk mitigation strategies have been identified to lower the level of assessed risk, including greater decentralisation of activities such as conferences to different countries in the region.
10. Organisational and Financial Strategy

Human resources and staffing strategy

The new human resources and staffing strategy adopted by the Centre will enable programme activities to expand beyond the proportional budget expansion. ICIMOD will continue to promote the productivity of its human resources through equal opportunity, appropriate remuneration packages, recognition for achievement, and a decentralised organisational structure providing employees with the authority needed to work effectively and creatively. Transparency is safeguarded through mechanisms such as conflict of interest guidelines, code of ethics including institutional loyalty, gender equality norms, internal constructive communication, external organisational representation, redress and appeal procedures, and intellectual crediting and sharing.

ICIMOD will clarify the expectations of staff, provide constructive feedback on performance, continue the use and development of employee Performance Appraisal Reports, and continue improving the transparency of hiring and separation. ICIMOD will continue to reduce distinctions between staff, including between project staff and other employees, and work towards smaller salary differentials with adequate minimum wages for lowest paid staff and contract employees. In order to ensure rotation of international professionals and scientists, ICIMOD will limit terms to three years with a one-year probationary period, subject to funding, performance, and programme needs, and allow for renewal for an additional second term (additional renewal only in exceptional circumstances). In order to increase regional and international recruitment, ICIMOD will continue to support the following categories of expertise: (i) international professionals; (ii) regional officers; (iii) general service staff; (iv) associate scientists; (v) visiting scientists; (vi) associate experts / volunteers; (vii) internships and students, and (viii) short-term consultants (SSA). Proactive recruitment policies have been adopted to increase the proportion of women and staff from minority groups hired.

Financial strategy

During the 1999 – 2002 RCP-II period, ICIMOD's annual income and expenses averaged US$ 5.11 million. Approximately 48 per cent of ICIMOD's income was contributed by the core programme supporters; including all regional member countries and seven European countries: Austria, Finland, Germany, Netherlands, Norway, Sweden, and Switzerland. For the Partnerships in Mountain Development Strategic Plan period of 2003 – 2007, ICIMOD plans a modest growth in its income and expenses and is planning for an annual budget of approximately US $ 5.0 – 7.0 million. Annual budgets are prepared for and approved by the Board of Governors at its regular annual meeting in the late autumn of each year. An indicative annual budget is presented in Table II below.
Table II  Medium Term Action Plan 2003-2007
Preliminary Indicative Budget (US $)

<table>
<thead>
<tr>
<th>Integrated Programmes</th>
<th>Ave. Annual Cost</th>
<th>5-Year Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>(rounded with 5% annual increase)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Natural Resource Management</td>
<td>1,318,000</td>
<td>6,592,000</td>
</tr>
<tr>
<td>2 Agriculture and Rural Income Diversification</td>
<td>739,000</td>
<td>3,697,000</td>
</tr>
<tr>
<td>3 Water, Hazards, and Environmental Management</td>
<td>1,101,000</td>
<td>5,504,000</td>
</tr>
<tr>
<td>4 Culture, Equity, Gender, and Governance</td>
<td>1,090,000</td>
<td>5,448,000</td>
</tr>
<tr>
<td>5 Policy and Partnership Development</td>
<td>254,000</td>
<td>1,272,600</td>
</tr>
<tr>
<td>6 Information and Knowledge Management</td>
<td>1,846,000</td>
<td>9,229,000</td>
</tr>
<tr>
<td><strong>Programme Total</strong></td>
<td><strong>6,341,000</strong></td>
<td><strong>31,704,000</strong></td>
</tr>
<tr>
<td>7 Directorate and Governing Board</td>
<td>416,000</td>
<td>2,081,700</td>
</tr>
<tr>
<td>8 Facilities, Financial, and Administrative Support</td>
<td>766,000</td>
<td>3,833,604</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>7,532,000</strong></td>
<td><strong>37,659,000</strong></td>
</tr>
</tbody>
</table>

Budget sources

Income planned for this budget is derived from five main sources: (i) core programme support; (ii) project support; (iii) co-financing; (iv) cost recovery; and the (v) ICIMOD Foundation Trust Fund. Whilst regional member countries and core programme donors remain the sustaining source of funding, project (or action initiative) funding will be increased through partnerships with a wider range of multilateral, bilateral, and appropriate private foundations, companies, and individuals willing to fund specific programmes within the Strategic Plan. These projects will be integrated within ICIMOD's overall programme and be subject to the same criteria of relevance, impact, and feasibility as other integrated programmes. Co-financing opportunities will be developed through joint programmes and action initiatives with partners. ICIMOD will continue to modestly expand its income from cost recovery from sale of publications, training courses for development agencies, selective consultancy services integral to ICIMOD's mission, and membership fees. As authorised by the Board of Governors, an ICIMOD Foundation Trust Fund that will derive income from interest on endowment money is being established for capitalisation through direct contributions, no-interest loans, development fees, and cost-recovery mechanisms.

Ultimately, the success of ICIMOD's funding strategy will depend primarily on the quality and effectiveness of its programmes in achieving real results with its partners. Effective results' monitoring, by both ICIMOD and its partners, will be critical to documenting performance. Table III gives a breakdown of ICIMOD's planned budget by sources.
### Table III
Budget by Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>5-Year Total (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Programme Support</td>
<td>12,000,000</td>
</tr>
<tr>
<td>Project Support</td>
<td>25,000,000</td>
</tr>
<tr>
<td>Cost Recovery</td>
<td>650,000</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>37,650,000</strong></td>
</tr>
</tbody>
</table>

Notes: “Projectised” programme funding and potential Trust Fund income is included in Core. Co-financing by partners or additional trust funds are not shown.
Annex 1 Performance Management Framework

ICIMOD’s Mission: To develop and provide integrated and innovative solutions, in cooperation with regional and international partners, which foster action and change for overcoming mountain people’s economic, social, and physical vulnerability

<table>
<thead>
<tr>
<th>Integrated Programmes</th>
<th>Outputs</th>
<th>Short-term/Medium-term Action Plan Outcomes</th>
<th>Intermediate Outcomes</th>
<th>Strategic Outcomes</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Resource Management</td>
<td>Information, Communication &amp; Outreach Products, Documented Policy Options</td>
<td>As in MTAPs</td>
<td>Adaptation &amp; application of mountain sustaining technologies &amp; methodologies by mountain people</td>
<td>Productive &amp; sustainable community-based management of vulnerable mountain natural resources.</td>
<td>Secure and sustainable livelihoods for mountain people</td>
</tr>
<tr>
<td></td>
<td>Accessible Databases &amp; Planning Platforms, Capacity Building &amp; Training</td>
<td></td>
<td>Adoption of mountain supportive policies in RMCs</td>
<td>Increased regional &amp; local conservation of mountain biological &amp; cultural heritage.</td>
<td></td>
</tr>
<tr>
<td>Agricultural and Rural Income Diversification</td>
<td>Technology, Methodology, Pilots &amp; Tests</td>
<td></td>
<td>Increased cooperative policies, agreements and programmes among RMCs &amp; wider mountain world</td>
<td>Improved &amp; diversified incomes for vulnerable rural &amp; marginalised mountain people.</td>
<td></td>
</tr>
<tr>
<td>Water, Hazards, and Environmental Management</td>
<td>Dissemination &amp; Replication Strategies, Regional Coordination Strategies &amp; Support</td>
<td></td>
<td>Community-based groups established, strengthened &amp; recognised</td>
<td>Decreased physical vulnerability within watershed &amp; regional river basins.</td>
<td></td>
</tr>
<tr>
<td>Culture, Equity, Gender &amp; Governance (partially cross-cutting)</td>
<td>Regional Networks</td>
<td></td>
<td>Presence of an enabling environment for strengthened rights and access of disadvantaged people to mountain resources</td>
<td>Greater voice &amp; influence, dignity, security &amp; social equality for all mountain people.</td>
<td></td>
</tr>
<tr>
<td>Policy and Partnership Development (cross-cutting)</td>
<td></td>
<td></td>
<td>Increased mountain development programmes activities from regional partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information and Knowledge Management (cross-cutting)</td>
<td></td>
<td></td>
<td>Self-sustaining viable networks &amp; information sharing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increased use of information &amp; knowledge for planning &amp; action programmes by mountain practitioners</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increased sustainable investment flows for mountain development</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increased recognition and use of ICIMOD as a mountain learning and knowledge centre</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annex 2 Demand and Needs Analysis

All of the regional member countries (RMCs) and donor countries of ICIMOD have signed the WSSD conventions and have made commitments to Agenda 21, specifically the chapters 3, 13, 15, 24, 26, 32, 40 among others. Many of the issues addressed in these chapters have significant regional dimensions that may not be effectively addressed individually by member states included in the HKH Region. Since some of these regional issues define ICIMOD’s role to assist the RMCs under the Type-II model of partnership, the Centre undertook a series of country and regional consultations in order to formulate its strategic plan (2003 - 2007).

Partners’ needs and demands synthesised from the overwhelming number of suggestions, opinions and criticisms expressed during the consultations indicate that ICIMOD’s partnership should increase partner consultation and collaboration to ensure more mutual benefit. They agreed that the partnership arrangements should focus on ICIMOD’s four core institutional functions – (1) knowledge production (generation, acquisition and synthesis), (2) knowledge storage (data & information bases), (3) knowledge dissemination, (4) facilitation for application of knowledge by the practitioners and end users.

Partners demanded that ICIMOD’s partnerships should jointly produce more useful mountain knowledge, and store and disseminate it through proper packaging and appropriate media. Partners’ needs for knowledge varied widely, but generally converged on new ideas and insights, policy options, technologies, approaches, methodologies and tools, and databases to enable them and their local/CBO partners to educationally empower the target group: the mountain poor. Partners more concerned with the application of available mountain knowledge, suggested ICIMOD should act also as a regional training and capacity building institution where their staff members could be trained as trainers and leaders. This would enable them to co-work with ICIMOD experts, and then act as a link between the Centre and the mountain initiatives in various vulnerable parts of mountain areas within their respective countries.

To make the partnerships more result-oriented and mutually beneficial within respective organisational mandates, partners emphasised the need to focus knowledge management on effective ‘reduction of mountain poverty’. The strategies suggested to achieve this purpose could be broadly categorised into ICIMOD’s proposed programmes of (1) natural resource management (2) mountain agriculture and rural income diversification, (3) mountain culture, equity, governance, and gender mainstreaming, (4) policy development and advocacy support, (5) mountain information system management, (6) information sharing and (7) training and education (for facilitating application of mountain knowledge produced out of the partnership).

With regard to natural resources, partners stressed needs for conservation and development of water, land, forest, and biodiversity. However, natural resource management must adopt a livelihoods'
approach to enable the mountain people to gainfully and continuously participate. They further stressed need for concurrent initiatives on promotion of high-value and low-volume agriculture and enterprise development and renewable energy options, including conservation of endangered non-timber forest species by promoting their domestic production and commercialisation. These are essential to directly benefit the vulnerable mountain people, particularly the women, through diversifying their sources of income, reducing the human pressures on natural resource bases, and economically gainful conservation and protection of endangered plant species.

A significant number of partners commented that although these initiatives would address some key aspects of mountain poverty, aggravation of the existing problems of inequity and unsustainability of the results could not be ruled out. Appropriate strategies were therefore needed to study and address the cultural (e.g. local values, wisdom, indigenous knowledge, norms and symbols), social (e.g. gender), economic (e.g. inequity), and governance (e.g. local institutions and organisations) issues.
Annex 3 Policies for Sustainable Mountain Development: An Indicative Framework and Evidence

N.S. Jodha

Abstract
This paper presents an indicative framework for sustainable mountain development, understanding the latter as a process of positive change enhancing flows of products and services to society without depleting the resource base generating the flows. The paper looks at policy/programme interventions in Hindu Kush–Himalayan countries directed towards such change. The central focus is on mountain-specific conditions such as a high degree of inaccessibility, fragility, diversity, etc and the way they help or hinder application of conditions associated with sustainable development as a process; and how development interventions in the Hindu Kush–Himalayas recognise and respond to mountain conditions obstructing or facilitating the sustainable development process. A broad look at development interventions shows a mixed picture. In general, mountain development is attempted without a mountain perspective, i.e. disregard of imperatives of mountain conditions. However, in several contexts, new and more positive trends are emerging that may reorient development processes in the Hindu Kush–Himalayan region. They should be promoted and mainstreamed.

PREVIEWING THE ISSUES
The concept of sustainable development could be understood as a process of positive change ensuring undiminished and (if required) enhanced flows of usable goods and services to meet present and future needs without depleting the natural and social foundations that generate the flows. Sustainable development (or sustainability as a process) is not only a dynamic phenomenon but also a systemic attribute, i.e. a feature of an economy, country, region, sector, etc, viewed as a system with links to other systems, such as mountain economies connected to economies in the plains.

Historically, countries or communities — without using the term sustainable development — have tried to enhance or maintain flows of goods and services (often with changes in their composition and quality) on their own or through external links. The basic functional attributes of approaches to enhance or maintain these flows constitute an important context for assessing their sustainability. Historically emphasised attributes included resource-use intensification and increased input absorption by the productive resource base; creation or availability of required infrastructure to facilitate flows; enhanced levels and extent of involved activities to secure benefits of scale; ability to generate surplus for trade and reinvestment; effective external links for trading surpluses as well as learning and replicating relevant external experiences and, if needed, for inducing external participation in promoting local flows.

However, although these conditions are necessary, they are not sufficient for ensuring sustainability unless they are accompanied by undiminished potential and health of the resources generating the flows. Accordingly, unless managed carefully, conditions promoting flows may cease to exist (e.g. where resource-use intensification exceeds usage capacity of resources or where external links, owing to various reasons, become unequal and exploitative). Thus, the existence of flow-promoting
conditions and their continuity through the health and stability of underlying resources are key to sustainable development processes.

We use this simple but operationally useful formulation to look at issues of sustainable development and related policies in mountain areas. Firstly, we look at key biophysical features of mountain areas such as inaccessibility, fragility, marginality, diversity, etc as summarised in Table 1. These features or their interlinked imperatives shape the pace and pattern of change as well as influence the relevance and effectiveness of any intervention. Implications of mountain specificities compared to historical conditions associated with enhanced production flows in most parts of the world are summarised in Table 2. The key message is that the imperatives of mountain specificities obstruct the outright application of the generalised model of economic performance enhancement. Hence, development interventions in mountain areas to promote sustainable development have to be in keeping with mountain specificities. How far this approach has been followed is examined by relating development interventions in Hindu Kush–Himalayan countries to imperatives of specific mountain conditions.

ROLE OF MOUNTAIN CONDITIONS
Mountain specificities, their causes, implications and imperatives for interventions etc are summarised in Table 1. The indicative role of these mountain specificities in helping or hindering mountain development with or without chances of resource depletion is summarised in Table 2.

For example, resource-use intensification including increased use of productivity-raising inputs is crucial for enhanced product flows. However, fragility and marginality (implying a low pay off for input use) do not encourage such possibilities in mountain areas. Socioeconomic marginality (manifested through poverty) also restricts people's ability to acquire external inputs, generate and invest surplus, and to take risks associated with costly resource-intensive productive measures. Limited accessibility and high cost of mobility further restrict efforts for resource-use intensification by import of external inputs and technologies. Fragility also constrains the building of infrastructure to improve access. The consequent inaccessibility-imposed isolation or semi-closedness not only deprives mountain areas of gains from trade but makes infrastructure and development logistics extremely difficult and costly.

However, in contrast to these development-constraining features, other mountain specificities, namely, diversity and niche as well as human adaptation mechanisms (including indigenous knowledge systems), do have potential through which mountain areas can satisfy some conditions historically associated with higher economic performance. These mountain specificities, if properly understood and harnessed, can help to intensify resource-use (without degrading the resource), to generate surplus tradable products/services and to gainfully link the mountain economy with external systems. However, the development-promoting potential of these conditions largely remains untapped as a result of the overshadowing impact of constraint-generating mountain specificities. They make most opportunities and potentials (as well as problems) invisible to mainstream policy-makers. This ‘invisibility’ is not only responsible for policy-makers’ insensitivity and indifference towards mountain areas but also permits a number of activities that go beyond usage capacities of resources causing
their degradation. Thus, in mountain areas, chances of sustainable development implying enhanced flows of goods and services without depleting resources are limited unless development efforts are evolved in keeping with the imperatives of mountain specificities.

It would not be wrong to say that the essence of policies and programmes for sustainable mountain development would amount to the former’s sensitivity and consideration of mountain specificities and their imperatives while designing and implementing development interventions, ranging from norms for priority fixation and resource allocation to on-the-ground programmes dealing with various sectors and areas (Ives et al. 1997). To be relevant and effective, these policies/programmes will have to promote development processes based on two-way adaptation strategies, i.e. adapting interventions (their designs and implementation) to specific and diverse mountain conditions, and modifying and adapting mountain conditions to development needs and goals.

However, before we comment on development interventions and approaches in terms of mountain specificities in Hindu Kush–Himalayan countries, it will be helpful to elaborate on the rationale of two-way adaptation strategies for sustainable development. For this, we allude to traditional community-evolved approaches and processes to use mountain resources without depleting them. This may help in searching for appropriate indicative approaches and supportive policies for sustainable development of mountain areas.

**Table 1: Mountain specificities and their imperatives**

<table>
<thead>
<tr>
<th>Inaccessibility (limited accessibility)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product of</strong></td>
</tr>
<tr>
<td>Slope, altitude, terrain, seasonal hazards, etc. (lack of prior investment to overcome them)</td>
</tr>
<tr>
<td><strong>Manifestations and implications (i.e. circumstances limiting/obstructing flows of goods/services)</strong></td>
</tr>
<tr>
<td>Isolation, semi-closedness, poor mobility, high cost of mobility, infrastructural logistics, support systems, production/exchange activities</td>
</tr>
<tr>
<td>Limited access to, and dependability of, external support (products, inputs, resources, experiences)</td>
</tr>
<tr>
<td>Detrimental to harnessing niche and gains from trade</td>
</tr>
<tr>
<td>Invisibility of problems/potentials to outsiders</td>
</tr>
<tr>
<td><strong>Imperatives (i.e. appropriate responses, approaches to sustain/enhance flows of goods/services)</strong></td>
</tr>
<tr>
<td>Local resource-centred, diversified production/consumption activities fitting to spatial and temporal opportunities</td>
</tr>
<tr>
<td>Local resource regeneration, protection, regulated use; recycling</td>
</tr>
<tr>
<td>Focus on low-weight/volume and high-value products for trade</td>
</tr>
<tr>
<td>Nature and scale of operations as permitted by degree of mobility and local resource availability</td>
</tr>
<tr>
<td>Development interventions with a focus on decentralisation and local participation, inaccessibility reduction with sensitivity to other mountain conditions (e.g. fragility), and changed development norms and investment yardsticks</td>
</tr>
</tbody>
</table>

**Fragility and marginality**

| **Product of**                                                                                         |
| Combined operations of slope/altitude, and geologic, edaphic and biotic factors; biophysical constraints create socioeconomic marginality |
| Manifestations and implications (i.e. circumstances limiting/obstructing flows of goods/services) | Resources highly vulnerable to rapid degradation, unsuited to high-intensity/costly input uses; low carrying capacity  
Limited, low-productivity, high-risk production options; little surplus generation or reinvestment, subsistence orientation, preventing high-cost, high-productivity options; disregard by ‘mainstream’ societies  
High overhead cost of resource use, infrastructural development; under-investment  
People's low resource capacity preventing use of high-cost, high-productivity options; disregard by ‘mainstream’ societies |
| --- | --- |
| Imperatives (i.e. appropriate responses, approaches to sustain/enhance flows of goods/services) | Resource upgrading and usage regulation (e.g. terracing)  
Focus on low-intensity, high-stability land uses  
Diversification involving a mix of high- and low-intensity land uses, a mix of production and conservation measures with low cost  
Local resource regeneration, recycling, regulated use, dependence on nature’s regenerative processes, and collective measures  
Different norms for investment to take care of high overhead costs  
Focus on vulnerable areas and people, and their demarginalisation |

**Diversity and niche**

<table>
<thead>
<tr>
<th>Product of</th>
<th>Interactions between factors ranging from elevation and altitude to soils and climatic conditions, as well as biological and human adaptations to them, uniqueness of environment, resources and human responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manifestations and implications (i.e. potential for activities enhancing flows of goods/services)</td>
<td>A basis for spatially and temporally diversified and interlinked activities, strong location specificity of production and consumption activities often limited scope for large-scale operation</td>
</tr>
<tr>
<td>Imperatives (i.e. appropriate responses, approaches to harness opportunities enhancing flows of goods/services)</td>
<td>Small-scale, interlinked diversified production/consumption activities differentiated temporally and spatially for fuller use of environment</td>
</tr>
</tbody>
</table>

**Source:** Adapted from Jodha (1997) and based on evidence and inferences from over 60 studies referred to by Jodha and Shrestha (1994).
### Table 2: Mountain specificities and conditions associated with high economic performance of activities/sectors/regions

<table>
<thead>
<tr>
<th>Mountain specificities-generated constraints/opportunities</th>
<th>Conditions associated with high performance agriculture</th>
<th>Production-enhancing factors</th>
<th>Abilities to link with wider systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Limited accessibility:</strong> Distance, semi-closedness, high cost of mobility and operational logistics, low dependability of external support or supplies</td>
<td>(−) a</td>
<td>(−)</td>
<td>(−)</td>
</tr>
<tr>
<td><strong>Fragility:</strong> Vulnerable to degradation with intensity of use, limited low-productivity/pay-off options</td>
<td>(−)</td>
<td>(−)</td>
<td>(−)</td>
</tr>
<tr>
<td><strong>Marginality:</strong> Limited, low pay-off options; resources scarcities and uncertainties, cut off from ‘mainstream’</td>
<td>(−)</td>
<td>(−)</td>
<td>(−)</td>
</tr>
<tr>
<td><strong>Diversity:</strong> High location specificity, potential for temporally and spatially interlinked diversified products/activities</td>
<td>(+) b</td>
<td>(+)</td>
<td>(−)</td>
</tr>
<tr>
<td><strong>Niche:</strong> Potential for numerous, unique products/activities requiring capacities to harness them</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
</tr>
<tr>
<td><strong>Human adaptation mechanisms:</strong> Traditional resource management practices — folk agronomy, diversification, recycling, demand rationing, etc</td>
<td>(+)</td>
<td>(+)</td>
<td>(−)</td>
</tr>
</tbody>
</table>

**Source:** Table adapted from Jodha (1997)

**Note:** ‘a’ and ‘b’, respectively, indicate low and higher chances of high-performance conditions satisfied due to mountain specificities.
TWO-WAY ADAPTATION APPROACH TO ADDRESSING MOUNTAIN SPECIFICITIES

Neither production-constraining conditions of mountain areas nor their implications for resource use were unknown to mountain communities in the past. The only major difference between past and present situations relates to approaches to resource-use systems. In the past, owing to factors such as relative isolation, almost total dependence of communities on local resources, and firsthand experience of potential consequences of ignoring these limitations, communities, through trial and error, evolved two-way adaptation approaches, i.e. adapting demands to what natural resources could safely offer, and, wherever possible, amending and adapting resources (e.g. by terracing slopes, water-harvesting for irrigation or evolving conservation-oriented production practices, etc) to meet society’s needs. Owing to informally controlled, low demand on resources and limited capacities and means to extract resources, production systems (in subsistence-oriented, low-population contexts) were broadly sustainable, although without formal concepts and policies to guide the process.

However, in the present, with increased physical, administrative and economic integration of (hitherto isolated, semi-closed) mountain areas, the situation has gradually changed. Resource-use systems became demand-driven (rather than governed by supply limitations); internal and external demands as well as increased resource-extraction capacities and means exerted unprecedented pressure on mountain resources. Reduced dependence of communities on local resource led to disintegration of their collective stake in resource upkeep; replacement of their informal resource-related arrangements as well as autonomy by formal, external interventions further accentuated the decline of traditional informal approaches to sustainable resource-use systems (Bjonness 1983; Guillet 1983; Jochim 1981; Jodha 1998).

An important part of this integration has been the initiation and growth of formal arrangements, including policy/programme interventions, in mountain areas. These arrangements in terms of their orientation and design have not only been externally rooted but have marginalised or displaced traditional arrangements that were more directly focused on imperatives of mountain conditions. In other words, new interventions have rarely had sufficient operational understanding of and sensitivity to specific situations of mountain areas (Jodha et al. 1992).

The purpose of these comments is neither to romanticise traditional arrangements nor to minimise the importance and benefits of integration. Traditional arrangements evolved in a low-population/subsistence context; they have lost part of their efficacy in a changed situation but their rationale is still usable. Similarly increased integration of mountain areas with the external world has brought several gains to mountain areas, but it has largely failed to orient external links and interventions towards imperatives of mountain specificities. There are several historical and institutional reasons for this; many are products of mountain specificities themselves (e.g. marginality and inaccessibility reducing the voice of mountain communities in policy processes). Nevertheless, a major consequence has been mountain development without a mountain perspective. This has resulted in coexistence of increased development interventions, especially during recent decades, and persistent under-development (let alone, sustainable development) in most of the Hindu Kush–
Himalayan region. In fact, a glance through changes during the last 50 years suggests the emergence of several indicators of unsustainability in the Hindu Kush–Himalayan region (Table 3).

**Table 3: Negative changes as indicators of emerging unsustainability of agriculture/ current resource-use systems in mountain areas**

<table>
<thead>
<tr>
<th>Visibility aspects of change</th>
<th>Change related to a</th>
<th>Production flows</th>
<th>Resource-use management practices/options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directly visible changes</td>
<td>Increased landslides and other forms of land degradation; abandoned terraces; reduced per capita availability and fragmentation of land; changed botanical composition of forest/pasture, reduced biodiversity, reduced water flows for irrigation, domestic uses and grinding mills</td>
<td>Prolonged negative trend in crop/livestock yields, etc.; increased input need per unit of production; increased time and distance involved in food-, fodder-, fuel-gathering; reduced capacity and period of grinding/sawmills operated on water flow; lower per capita availability of biomass and range of agricultural products</td>
<td>Reduced extent of fallowing, crop rotation, intercropping, diversified resource-management practices; extension of cropping to steep slopes; replacement of social sanctions on resource use by legal measures; unbalanced and high intensity of input use; dependence on subsidies and external inputs</td>
</tr>
<tr>
<td>Changes concealed by responses to change</td>
<td>Substitution of cattle by sheep/goat, deep-rooted crops by shallow-rooted crops; shift to non-local inputs, inferior options; substitution of water flow by fossil fuel in grinding mills, or manure by chemical fertilisers</td>
<td>Increased seasonal migration; introduction of externally supported public distribution systems (food, inputs); intensive cash-cropping on limited areas; additional production by using marginal areas</td>
<td>Shifts in cropping pattern and composition of livestock; reduced diversity, increased specialisation in mono-cropping; promotion of policies/programmes with successful record outside, without required adaptation</td>
</tr>
<tr>
<td>Development interventions, i.e. processes with potentially negative consequences b</td>
<td>New systems without linkages to diversified activities and regenerative processes; generating excessive dependence on external resource (fertiliser/pesticide-based technologies, subsidies); ignoring traditional adaptation experiences (new irrigation structures); programmes focused mainly on resource extraction</td>
<td>Agricultural measures directed to short-term results; primarily product-centred as against resource-centred approaches to development, service-centred activities (e.g. tourism) with negative side effects; focus on food self-sufficiency ignoring environmental stability/carrying capacity</td>
<td>Indifference of programme and policies to mountain specificities; focus on short-term gains; top-down, centralised focus; excessive and crucial dependence on external resources and advice ignoring self-help and traditional knowledge; generating permanent dependence on subsidies and charity</td>
</tr>
</tbody>
</table>

a. Most changes are interrelated and could fit into more than one column.

b. Changes under this category differ from the previous two in the sense that they are yet to take place, and their potential emergence could be understood by examining resource-use processes in relation to specific mountain characteristics. Thus, they represent the ‘process’ dimension rather than the ‘consequence’ dimension of unsustainability.

**Source:** Table adapted from Jodha and Shrestha (1994) and based on data or description from over 50 studies.

**INDICATIVE FRAMEWORK TO IDENTIFY AND ASSESS POLICIES**

The above discussion sets the scene for examining policy/programme issues and processes in mountain areas in Hindu Kush–Himalayan countries. Accordingly, one can look at orientation, design
and implementation of various interventions in mountain areas in terms of imperatives of mountain specificities, and understand their consequences in terms of sustainability issues. A simple way to do this is to juxtapose key attributes of development intervention and their details (imperatives of mountain specificities) as summarised in Table 1. However, such an exercise is constrained by lack of usable details on development interventions to facilitate comparison. Hence, I plan to have a broad look at selective policy/programme interventions to assess the extent and way in which they address or ignore imperatives of mountain conditions. However, while attempting this, one should be cautious about the limitations of such an exercise.

For want of readily usable relevant information at required scales and a high degree of intra-mountain diversity, this is a broad description of indicative situations rather than detailed and critically examined information. Thus, focus is on reflecting broad orientations, processes and consequences of policy/programme interventions with situation-specific exceptions (Table 4). Broad details are summarised in six parts covering six mountain specificities. They are based on observations and information from scattered literature and studies on mountain areas not directly and specifically focused on the approach and concerns of this paper.

The structure of Table 4 is as follows. Column A focuses on an individual mountain specificity and wherever relevant its different dimensions (e.g. marginality as a physical or social phenomenon); column B is recognition or disregard by interventions reflected by general pattern of orientation and attributes of interventions in the past and present, and emerging new trends; column C is sustainability-related implications or consequences of B in terms of components of a sustainable development process (enhanced flows of good/services or range and quality of options, and impacts on resource base). Finally, focus is selective, not covering all Hindu Kush–Himalayan countries in every respect.

**INDICATIVE EVIDENCE AND INFERENCES**

The bulk of development issues, aspects and interventions (including their sustainability-related consequences) are associated with three broad, interlinked contexts namely: recognition and responses to primacy of biophysical conditions (and human responses to them) in mountain areas; place and importance accorded to mountain areas/concerns in mainstream national policies; and attention to nature and functioning of mountain areas’ external links.

**Recognition and responses to the primacy of biophysical conditions**

The foremost factor affecting relevance and effectiveness of policies for sustainable mountain development is their recognition and response to context-specific mountain specificities; these determine the pace and pattern of changes intended through development interventions (Rieder and Wyder 1997). They can be reflected through various features of development programmes ranging from specific priorities, designs, implementation strategies, performance assessment norms, etc as affected by specific needs, constraints and potentialities, and through the manner in which these
features differ from interventions in the plains. Their presence can serve as indicators of sensitivity of policies toward mountain-specific conditions and concerns for sustainable development.

i. In keeping with constraints (access, fragility, marginality, diversity, etc.), guiding considerations such as investment norms, feasibility and performance yardsticks, etc employed in mountain contexts will have to be different from those in the plains (e.g., different norm for per km cost of road construction; criteria of population and number of villages per service centre; rate of premium for crop insurance; basis for subsidies; components of poverty index, etc).

Table 4A: Indicative details of development interventions in Hindu Kush–Himalayan countries with reference to inaccessibility

<table>
<thead>
<tr>
<th>(A) Inaccessibility as a policy/ programme context</th>
<th>(B) Broad attributes and orientation of interventions</th>
<th>(C) Sustainability-related consequences/ implications of B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Dimensions)</td>
<td></td>
<td>Enhanced flows, range/ quality of options</td>
</tr>
<tr>
<td>(a) External links</td>
<td></td>
<td>i. Positive side effects of 1 to 3 only where ancillary investments/facilities available (e.g. Himachal Pradesh, India; Karakoram area in Pakistan; Hunnan Province, China; major valley areas in other countries)</td>
</tr>
<tr>
<td>(b) Internal isolation/ distances</td>
<td></td>
<td>ii. Persistent loss of potential opportunities/ options due to 4</td>
</tr>
<tr>
<td>(c) Means of communication, movement</td>
<td></td>
<td>iii. High expectations from 7 to 9 for enhancing environmentally safe options and opportunities</td>
</tr>
<tr>
<td>(d) Issues of social access</td>
<td></td>
<td>iv. Rising economic inequalities between accessible and poorly accessible areas</td>
</tr>
<tr>
<td>Dominant pattern</td>
<td></td>
<td>v. Persistent unequal highland–lowland economic links as a result of 1 and 4</td>
</tr>
<tr>
<td>1. Road construction (in all Hindu Kush–Himalayan countries) with primary focus on harnessing niche resources (e.g. hydropower, irrigation, minerals, timber, tourism)</td>
<td></td>
<td>B. Resource depletion</td>
</tr>
<tr>
<td>2. Border security roads (in China, India, and Pakistan)</td>
<td></td>
<td>vi. Frequent and increased landslides, disruptions etc. in most cases as a result of 6</td>
</tr>
<tr>
<td>3. Major national highways as national needs</td>
<td></td>
<td>vii. Overextraction of niche resources owing to 1</td>
</tr>
<tr>
<td>4. General disregard of areas not satisfying 1 to 3, and with difficult terrain and scattered, small populations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Limited attention to alternatives (ropeways, improved donkey tracks, etc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Little concern for side effects on fragile slopes or technologies for mountain roads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emerging trends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Rising concern for ‘green roads’; slope stabilisation and technologies suited for mountain terrain (in Nepal, China)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Community pressures and emerging market needs (as a result of globalisation) for better communication and link roads (with donor support in smaller countries)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Initiatives promoting internet connectivity in various parts of all countries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key constraints</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Lack of appropriate technologies; high costs and lack of resources; environmental concerns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Tables 4A to 4F based on observations and information culled from various studies carried out by ICIMOD and other agencies as well as government planning documents and project reports.
Table 4B: Indicative details of development interventions in Hindu Kush–Himalayan Countries with reference to fragility

<table>
<thead>
<tr>
<th>(A) Fragility as a policy/programme context</th>
<th>(B) Broad attributes and orientation of interventions</th>
<th>(C) Sustainability related consequences/implications of B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Dimensions)</td>
<td>Dominant pattern</td>
<td>Enhanced flows, range/ quality of options</td>
</tr>
<tr>
<td>(a) Biophysical fragility (steep slopes, delicate ecosystem features)</td>
<td>1. Frequent references in policy/planning documents, disregard in actual interventions (e.g. resource intensification/disturbance promoted or permitted in agriculture, infrastructural development, mining, etc)</td>
<td>i. Temporary/short-term increased flows with reduced extent of resource protective options as a result of 1 to 4</td>
</tr>
<tr>
<td></td>
<td>2. Extension of cropping to fragile slopes under local food self-sufficiency/grow-more-food programmes, etc (in all countries)</td>
<td>ii. Erosion of time-tested adaptation options, against risks/vulnerabilities owing to 5</td>
</tr>
<tr>
<td></td>
<td>3. Extension of intensive agricultural technologies (disregarding diversification-led resource conservation/regeneration); promotion of intensive cash-cropping on better land pushing staple crops to steeper slopes</td>
<td>(iii) Rapid, often irreversible erosion of resource base; reduced potential productivity as a result of 1 to 5</td>
</tr>
<tr>
<td></td>
<td>4. Overgrazing, overextraction of non-timber forest products, other products of fragile areas</td>
<td>(iv) Decline of practices/ processes to conserve/ regenerate resources while using them owing to 5</td>
</tr>
<tr>
<td></td>
<td>5. Disregard of traditional institutional arrangements and conservation practices by formal administrative, technological, institutional interventions</td>
<td>v. Promising new initiatives setting a process to yield positive results in terms of resource conservation/ regeneration as a result of 6 to 8</td>
</tr>
<tr>
<td></td>
<td>Emerging trends</td>
<td>vi. Herbal extraction rising at alarming rate</td>
</tr>
<tr>
<td></td>
<td>6. Mainly alarmed by negative impacts on downstream (e.g. silting of dams), and pressures and incentives built at national/international level, gradual emergence of new initiatives such as biosphere reserves, protected areas, rehabilitation of upland slopes, afforestation, etc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Recognition and pleading for community empowerment; decentralisation, recognition and use of indigenous knowledge and systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Recent restrictions on deforestation in most countries; (preventing cropping beyond certain degree of slope in China)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Following globalisation, enhanced pressure for high-value products/resources (e.g. herbs)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4C: Indicative details of development interventions in Hindu Kush–Himalayan countries with reference to marginality

<table>
<thead>
<tr>
<th>(A) Marginality as a policy/programme context</th>
<th>(B) Broad attributes and orientation of interventions</th>
<th>(C) Sustainability-related consequences/implications of B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Dimensions)</td>
<td>Dominant patterns</td>
<td>Enhanced flows, range quality of options</td>
</tr>
<tr>
<td>(a) Biophysical marginality (linked to fragility, inaccessibility) offering risky limited production options</td>
<td>1. Reduced physical marginality in limited areas through provision of irrigation, access, new production possibilities (all countries)</td>
<td>i. Increased options/supplies and reduced risks/vulnerabilities owing to 1 and partly 2</td>
</tr>
<tr>
<td>(b) Socioeconomic marginality resulting from biophysical marginality reflected by</td>
<td>2. Recognition of special situation of mountains for liberal funding, subsidies — e.g. hill states as ‘special category states’ (India); mountain counties as key focal areas under ‘national poverty alleviation strategies’, ‘developed county/mountain county partnership programme’ (China); mountains at the centre of national policies of Nepal; mainly indirect approaches through ‘support-freedom’ to NGOs in Pakistan; renewed development focus on Chittagong Hill Tracts following peace accord in Bangladesh; any national development policy in Bhutan</td>
<td>ii. Reduced extent of flows and options and related gains owing to 3 and 4</td>
</tr>
<tr>
<td>(i) place of mountain areas in national context; invisibility/ disregard of mountain concerns; (ii) Voicelessness/ low capacity and contesting-capacity of mountain communities; (iii) Status of indigenous practices/systems in relation to formal arrangements</td>
<td>3. Inequity of highland–lowland economic links not addressed</td>
<td>(iii) Local capacity-building and other initiatives, as yet more formal and limited, to be able to initiate socially sustainable processes as in 6</td>
</tr>
<tr>
<td></td>
<td>4. Despite untied resources and relative freedom/autonomy for hills development interventions follow patterns of interventions in non-mountain areas (e.g., project components, implementation, delivery system) (all countries)</td>
<td>(iv) Economic globalisation likely to accentuate 3 and 4, and promote ‘exclusion’ of marginal groups</td>
</tr>
<tr>
<td></td>
<td><strong>Emerging trends</strong></td>
<td>Resource depletion</td>
</tr>
<tr>
<td></td>
<td>5. Increased attention for mountain areas (e.g., resource conservation) following downstream concerns (floods, silting of dams, biodiversity-based industries, potential gains from globalisation, etc) (in India, China, Pakistan, Nepal)</td>
<td>(v) Resource-depleting potential of 3 and 4</td>
</tr>
<tr>
<td></td>
<td>6. Social sector services to enhance local capacities, decentralisation programmes (using mainstream perspectives) to demarginalise mountain communities, important NGO initiatives</td>
<td>(vi) Possibility of improved resource management as a result of 5 and 7</td>
</tr>
<tr>
<td></td>
<td>7. Post-Rio global focus on mountain crisis and contributions</td>
<td>(vii) Focus on large scale environmentally insensitive projects, as in i, continue despite protests</td>
</tr>
</tbody>
</table>
### Table 4D: Indicative details of development interventions in Hindu Kush–Himalayan countries with reference to diversity

<table>
<thead>
<tr>
<th>(A) Diversity as a policy/programme context</th>
<th>(B) Broad attributes and orientation of interventions</th>
<th>(C) Sustainability-related consequences/implications of B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Dimensions)</strong></td>
<td>Dominant patterns</td>
<td>Enhanced flows, range/ quality of options</td>
</tr>
<tr>
<td>(a) Diversity as most central feature reflecting variations in each mountain specificity.</td>
<td>1. Broad recognition of ecological or climate zones, and alleviation or dominant activities zones, used for identifying intervention areas (e.g., highland pastures, horticulture belt, etc) (in most countries)</td>
<td>Disregard of diversities and diversification at operational levels, reduced range and quality of options, enhanced risks and vulnerabilities as a result of 2 to 4</td>
</tr>
<tr>
<td>(b) Heterogeneity at macro-scale (i.e., different ecological/bio physical zones).</td>
<td>2. Diversities at micro-operational levels, even if recognised, rarely incorporated in development activities, i.e. ‘plurality’ of situations ignored while introducing standard approaches (in keeping with the dominant plains’ perspective of decision-makers)</td>
<td>Limited relevance and effectiveness of generalised/uniform interventions and associated loss of traditionally evolved options as a result of 2 to 4</td>
</tr>
<tr>
<td>(c) Variability at sectoral, micro-operational levels in terms of suitability and limitations of specific activities.</td>
<td>3. 2 applies to agricultural programmes/technologies, social services, capacity-building, etc</td>
<td>Positive changes expected from 7</td>
</tr>
<tr>
<td>(d) Differing degrees of links between mountain specificities.</td>
<td>4. Links between diverse mountain conditions generally disregarded; mountain communities’ diversification strategies ignored; government departments’ fragmented structure further reduces chances of integrated approach to address diversities</td>
<td>Resource depletion</td>
</tr>
<tr>
<td>(e) Sociocultural diversities (i.e., ethnic groups, spatial location/habitation), differing local perspectives/practices.</td>
<td>5. Ethnic/cultural entities recognised but development approaches/interventions often bypass them and their knowledge systems</td>
<td>Reduced resource conservation, regeneration opportunities promoting unsustainability prospects through 2 to 4</td>
</tr>
<tr>
<td></td>
<td><strong>Emerging trends</strong></td>
<td>Loss of traditionally evolved knowledge/experiences to harness diversities through diversification approaches as a result of 5 and 6.</td>
</tr>
<tr>
<td></td>
<td>6. Slowly rising awareness about both physical and social diversities, and its application in mostly donor-supported projects in some countries.</td>
<td>Driving forces/mechanisms of globalisation likely to promote intensification, resource depletion.</td>
</tr>
<tr>
<td></td>
<td>7. Pressures and initiatives directed to decentralisation, participatory approaches and community empowerment, conducive to recognition and response to diversity.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Likely increased disregard of imperatives of diversities under globalisation.</td>
<td></td>
</tr>
</tbody>
</table>

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Table 4E: Indicative details of development interventions in Hindu Kush–Himalayan countries with reference to mountain niche

<table>
<thead>
<tr>
<th>(A) Mountain niche as a policy/programme context</th>
<th>(B) Broad attributes and orientation of interventions</th>
<th>(C) Sustainability-related consequences/implications of B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Dimensions)</td>
<td>General patterns</td>
<td>Flows and range/quality of options</td>
</tr>
<tr>
<td>(a) Major natural resource endowments:</td>
<td>1. Strong focus on harnessing major</td>
<td>i. Limited benefits and</td>
</tr>
<tr>
<td>freshwater, hydropower</td>
<td>mountain niche largely for meeting</td>
<td>compensation for mountain</td>
</tr>
<tr>
<td>potential, minerals,</td>
<td>mainstream/downstream needs, with</td>
<td>communities/ states for</td>
</tr>
<tr>
<td>timber, unique biodiversity, etc</td>
<td>limited local gains (in most countries).</td>
<td>extraction of the niche as a</td>
</tr>
<tr>
<td>(b) Small niche products (herbs,</td>
<td>2. Unrealistic pricing of niche resources,</td>
<td>result of 1 and 2.</td>
</tr>
<tr>
<td>other non-timber forest products, etc)</td>
<td>limited compensation to mountains for</td>
<td></td>
</tr>
<tr>
<td>(c) Traditional knowledge systems</td>
<td>resources, environmental services, social</td>
<td></td>
</tr>
<tr>
<td>(adaptations to mountain</td>
<td>displacement and environmental damage.</td>
<td></td>
</tr>
<tr>
<td>specificities, with rationale usable in</td>
<td>3. Unequal highland–lowland links</td>
<td></td>
</tr>
<tr>
<td>modern development policies/</td>
<td>unfavourable to mountains</td>
<td></td>
</tr>
<tr>
<td>technologies)</td>
<td>4. Primary focus on extracting natural</td>
<td></td>
</tr>
<tr>
<td></td>
<td>endowment with limited manmade</td>
<td></td>
</tr>
<tr>
<td></td>
<td>efforts/investments to strengthen niche</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Limited attention to micro-niche products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(gathered often by community/ poor),</td>
<td></td>
</tr>
<tr>
<td></td>
<td>huge market margin in trade; little</td>
<td></td>
</tr>
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<td>regulation/restriction on overextraction</td>
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<td>6. As a result of promotion/imposition of</td>
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<td></td>
<td>formal science/management/administration-based</td>
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<td>interventions, marginalisation and disregard of</td>
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<td></td>
<td>indigenous knowledge systems evolved with</td>
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<td></td>
<td>direct contact with mountain problem</td>
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<td></td>
<td>and opportunities.</td>
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<td></td>
<td>Emerging trends</td>
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<td>7. Unless guarded against, 1 to 6</td>
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<td>tendencies likely to be accentuated with</td>
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<td>economic globalisation.</td>
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<td>8. Rising NGO and community voices</td>
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<td>against overextraction of niche, non-pricing</td>
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<td>and non-compensation for environmental</td>
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<td>services, and disregard of indigenous</td>
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<td>knowledge systems</td>
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<td>2. Environmental concerns gaining a higher</td>
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<td>place in global agenda (e.g. case of large</td>
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<td>dams).</td>
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<td>3. Local pressures for higher compensation for</td>
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<td></td>
<td>mountain resources used by mainstream economy.</td>
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<td></td>
<td>Resource depletion</td>
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<td></td>
<td>iii. Overextraction of resources with little</td>
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<td></td>
<td>regulation owing to 1 to 5.</td>
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<td>iv. Loss of valuable indigenous knowledge</td>
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<td>systems owing to 6 and 7.</td>
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<td></td>
<td>v. Globalisation may</td>
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<td>accentuate iii and iv above.</td>
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<td>vi. Rising expectation about change in iii and</td>
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<td></td>
<td>iv owing to 8 and 9.</td>
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</table>
Table 4-F: Indicative details of development interventions in Hindu Kush–Himalayan countries with reference to human adaptations

<table>
<thead>
<tr>
<th>(A) Human adaptations to mountain conditions as a policy/programme context</th>
<th>(B) Broad attributes and orientation of interventions</th>
<th>(C) Sustainability-related consequences/implications of B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Dimensions)</td>
<td>General patterns</td>
<td>Enhanced flows, range/quality of options</td>
</tr>
<tr>
<td>(a) Traditional institutional and technological practices (e.g., collective risk-sharing, common property resources, folk agronomy, etc.) evolved for sustenance under generally harsh, high-risk, low-productivity environment.</td>
<td>1. No known mainstream policies (except some donor and NGO-driven projects) on this subject.</td>
<td>i. Reduced efficacy/feasibility of traditional measures suited more to low population, subsistence contexts as a result of 3 to 5.</td>
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<tr>
<td></td>
<td>2. Close integration (physical, administrative, economic) with mainstream, causing erosion of traditional arrangements/systems.</td>
<td>ii. Decline of traditionally evolved institutional defences against risks/vulnerabilities as a result of 1 to 5.</td>
</tr>
<tr>
<td></td>
<td>3. Promotion/extension of modern, formal arrangements for their high performance.</td>
<td>iii. Reduced self-controlled, locally evolved options. Resource depletion</td>
</tr>
<tr>
<td></td>
<td>5. Generalised approaches ignoring ethnic, cultural and other specific differences/arrangements.</td>
<td>v. Loss of links between locally relevant measures against diverse mountain specificities as a result of 3 and 4.</td>
</tr>
<tr>
<td></td>
<td><strong>Emerging trends</strong></td>
<td>vi. Disintegration of organically interlinked/diversified land-based activities as a result of 1 to 5.</td>
</tr>
<tr>
<td>6. With market-driven globalisation process, further marginalisation of traditional systems likely.</td>
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<tr>
<td>7. Emerging evidence, advocacy and revival of traditional arrangements by NGOs, etc.</td>
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<tr>
<td>8. Identification of elements of traditional systems for upgrading and incorporation into modern systems, especially technologies and resource management, increasing interest of researchers.</td>
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</table>

ii. Interlinkages and interactions between mountain specificities have to be recognised and used as a key concern while designing and implementing interventions (e.g. fragility-obstructing infrastructure development to reduce inaccessibility, intensive and narrow cropping specialisation causing erosion of fragile lands and loss of gains associated with diversification, etc). This suggests the centrality of an ‘integrated’ approach to development interventions. This applies to both sectoral and general programmes.
iii. In the light of diversity and limited accessibility (as well as social diversity and marginality of mountain communities), decentralisation and local capacity-building have to be an integral part of development policies, even when policies and provisions are initiated at the central level (e.g. mobility and decentralisation as key features of structure of credit, extension and health services).

iv. Responding to concerns raised about usage patterns of mountain niches, policies should address issues of resource protection and conservation as well as overextraction and degradation (e.g. by formal regulations and involvement of local communities), and assurance of economic gains to mountain communities (e.g. by provision of compensation for environmental services offered by mountain areas).

v. Mountain-related interventions should also have special orientation and differences in terms of choice of technologies for agriculture and infrastructure, etc, measures directed against risks and vulnerabilities, extent and type of social transfers and social services, approaches to trade and market promotion, etc, to be able to address specific constraints and opportunities in mountain areas.

This list could be extended. However, it is clear that despite increased awareness and advocacy, in most parts of the Hindu Kush–Himalayan region, these aspects are not sufficiently addressed. The key inference is that most development intervention lacks a mountain perspective. This is largely because of persistent dominance of mainstream (non-mountain) perceptions and perspectives guiding development strategies, and lack of (mainstream) effort to promote and operationalise a mountain perspective framework. The latter should receive high priority.

**Place of mountain areas/concerns in national policies**

The place and priority of mountain areas/concerns in national policies can be assessed in two ways: priorities and programmes focused on mountain areas in national policies and programmes, for example, as revealed by resource allocation to mountain areas; and attention and responses to specific situations. The first is an extremely important issue in countries having large and dominant non-mountain areas and populations where approach to or priority for mountain areas is determined largely by mainstream society’s (or decision-makers’) preferences and perceptions of mountain problems and potentialities. The second is important for countries that are largely or totally mountainous, and have no domination by non-mountain areas. Even in such countries, policy-makers often have an orientation and background shaped in non-mountain contexts. Having been exposed to and influenced by non-mountain perspectives (including through external advisors), they often think and act in ways similar to those in non-mountain areas.

The focus of this section is the approach to assessing the place of mountain concerns in national policies. In this context, important indicators of concern or space for mountain areas in national policy/programmes can be listed as below.
i. Special provisions and priorities in resource allocation as required by mountain conditions (e.g. concessional funding, subsidies, etc for development and welfare activities)

ii. Attention to mountain situation by evolving specific programmes and activities addressing unique problems/aspects of mountain areas (e.g. rehabilitation of upland slopes, highland pastures development and transhumance, mountain roads, hill farming systems, etc)

iii. Generalised national programmes/policies also extended to mountain areas with modifications to suit mountain situation

iv. Mainstream sectoral programmes extended to mountain areas as a result of their importance in mountain areas (e.g. community forestry, watershed development, etc)

v. Specific programmes and policies significantly influencing mountain areas, but decisions made/controlled by mainstream—Largely governed by mainstream needs and perceptions, such programmes (positively/negatively) affect mountain areas (e.g. globalisation-related policies, policies about harnessing mountain niches).

There is a mixed and highly variable situation in Hindu Kush–Himalayan countries. One key indicator of place and priority of mountains in national policies is provision for guiding resource allocation to mountain areas.

**China:** Mountain concerns enter Chinese development policies through an indirect channel. Being the poorest areas of the country, mountain counties dominate pockets of poverty. Hence, eradication of poverty is treated as synonymous with development of mountain areas. Development is focussed on harnessing local resources, enhancing local capabilities and promoting social wellbeing. It involves partnership between poor mountain countries and developed countries where the latter are made responsible for developing the former. In the context of economic liberalisation, poor mountain areas have become quite attractive as high-potential virgin areas for other counties. The past approach of emphasising food self-sufficiency for each county (and commune) and prohibiting so-called side-line activities—i.e., diversified locally appropriate activities (e.g. horticulture, dairying, floriculture, etc)—in mountain areas has now been replaced by choice of best-suited activities. In the context of globalisation, several mountain countries are specifically developed as sources of high-value export products such as herbs, tea, flowers, etc. Similarly, the policy of 'go west' offers incentives for rich areas/firms to invest in western mountain areas.

**India:** Based on biophysical constraints, mountain areas (states) are special category states and are covered by special provisions of financial resource allocation by central government. As a result of backwardness, high cost of development and special needs of mountain areas, provisions were introduced from the Fourth Five-Year Plan for enhanced fiscal support with liberal terms. Hill states receive around 90 per cent of central government support in terms of grants and 10 per cent in the form of repayable loans; the opposite is the case for the plains. Liberal financial aid is accompanied
by freedom and flexibility in planning and implementation of development interventions. However, most hill states (except some such as Himachal Pradesh) have not been able to provide mountain-specific orientation to development strategies. They more or less follow patterns and practices common to the plains.

**Nepal:** In a country where over two-thirds of its areas is under mountain/hills, national policies have always been concerned with mountain areas, although underlying perspectives and priorities have frequently changed. For example, regional development policies prior to the Fourth Five-Year Plan focused more on western parts indicating intra-mountain differences as a key concern; growth corridors and growth centres (Fourth and Fifth Five-Year Plans) focused on integrating development processes of mountains/hills/terai regions; regional agricultural specialisation focused on sectors or areas with ecological comparative advantage of mountains (livestock, hill horticulture); and decentralisation policies responded to imperatives of inaccessibility and locational specificities of mountains/hills. Mountain areas and approaches to development figure strongly in sectoral master plans usually developed by donor agencies with input from Nepalese and outside experts. However, on implementation, the situation is characterised by a focus on selective components and frequent changes in priorities as a result of financial constraints and changes in perceptions of donors whose support has been crucial to development efforts in Nepal. Furthermore, as in many other mountain regions, projects lead policies rather than the other way round. Upscaling or spread of successful project experiences to other areas has not taken place in a visible manner.

**Pakistan:** Problems and concerns of mountain areas, despite these areas’ significant contribution to downstream economy, have not received sufficient attention from national policy-makers in Pakistan. Hence, the dominant focus of national policies has been on harnessing mountain niche (water, hydropower, forest resources, etc) to meet downstream needs. However, of late, again initially promoted by concerns of the downstream economy, visibility of and attention to mountain areas have increased. There is an increasing emphasis on changing the development paradigm to make national policies sensitive to mountain areas and their people. In this scenario dominated by limited policy concern for mountains, a major highlight is the active and effective role of NGOs in enhancing the visibility of mountain problems, and designing and implementing measures to address them. The activities of NGOs present a unique approach focused on minimising constraints and harnessing opportunities.

**Bangladesh:** Area-wise and as a source of irrigation, hydropower and space for settling people from mainstream society, the mountain region of the Chittagong Hill Tracts is important for the country. However, largely as a result of social marginalisation and past national approaches, the region passed through a phase of unrest and instability in the last two decades. Hopes for development and closer attention have been renewed following a peace accord signed a few years ago. At present, largely donor-funded, limited development interventions characterise the situation.

**Bhutan:** In this totally mountainous country, all national development efforts and interventions imply coverage of mountain areas. Gaps could be identified between urban/valley areas and upland
areas/communities. As a result of its closed situation and cultural setting, Bhutan is relatively free from some development problems of other Hindu Kush–Himalayan countries (e.g. natural resource degradation). Donor-funding has an important place in development resource allocation.

**Extension of generalised programmes to mountains**

As a part of national coverage, several sectoral programmes, e.g. forest management, agriculture, tourism, etc, are extended to mountain areas with specifically earmarked funding. However, norms, mechanisms, procedures, etc in such programmes are generally not differentiated according to specific mountain conditions. Community forest management, watershed development programmes, and rural credit schemes in South Asia illustrate this.

Another category of national initiatives addresses high-priority problems. Programmes and support are not intended specifically for mountain areas; however, since mountains also share these problems, they also receive attention and support from national programmes. Programmes on environmental protection, biodiversity conservation, poverty, livelihood security, and so on are examples.

Finally, to address mainstream needs, projects and activities are undertaken, such as hydropower generation, tourism, irrigation dams, border area roads, etc, that as a result of physical location have direct or indirect gains for mountain areas. The role of border roads in Himachal Pradesh and the Karakoram Highway in Pakistan are two such examples. However, the extent of such benefits to mountain areas is conditioned by local capacities and ancillary activities that are able to make use of new opportunities.

To sum up, mountain areas are receiving increased attention from national policies and programmes but most intervention involves extension or replication of approaches and activities evolved for non-mountain areas.

**Policies/programmes related to external links**

Links promoting profitable exchange and use of successful external experiences can play an important role in facilitating sustainable development. However, in Hindu Kush–Himalayan countries, external economic links described as highland–lowland economic links are highly extractive and unequal (i.e. unfavourable to mountains) in their impact (Jodha 2000). Primary reasons behind unequal links include limited accessibility, marginality of mountain communities, and domination of mainstream society (decision-makers) in deciding priorities and ways in which natural resources should be used. To this, one may add the role of market forces, which play an effective role in harnessing niche through providing investment, technology and destinations for products.

These economic links (rooted in differences between highlands and lowlands in terms of natural endowments, their products and demands) are generally dominated by higher net flows of resources/products from mountains to plains, often poorly compensated for or exchanged on unfavourable terms. Gains from these links and the ability to extract rich mountain resources (water, power, timber, minerals) are major factors attracting mainstream attention to mountain areas.
Indicative areas for policy/programme interventions in the context of prevailing highland–lowland links could include the following.

- Policies, approaches and provisions to change the historically established patterns of niche extraction, primarily by mainstream economies with limited compensation for mountain areas/communities
- Policies/programmes focused on realistic pricing of mountain resources and compensation for environmental services provided by mountain areas
- Promotion of equitable terms of trade under highland–lowland exchange
- Identification and promotion of new mountain niches, besides enhancing existing ones, in the context of globalisation
- Equipping of mountain areas/communities to adapt wisely to globalisation-led change processes and benefit from new opportunities

However, despite the importance of economic links and their prevailing inequities, and except for creation and maintenance of government bureaucracy and poorly enforced regulatory arrangements, there are no structured policies and programmes to guide linkages in Hindu Kush–Himalayan countries. The few activities or measures implemented or debated and advocated in this context can be mentioned.

i. In some cases, the focus is on royalties or compensation in cash or kind for supply of mountain resources to the mainstream economy. Besides, cash royalty for hydropower generation, mineral extraction, etc, some support in kind is provided, e.g. free or concessional supply of power to areas from where resources are harnessed (as in hill states of India). Similarly, compensation, or substitute land for those displaced by projects is provided. However, as protests and agitation against big dams (by NGOs and local communities) show, compensation, especially in terms of rehabilitation and environmental protection, is often not considered satisfactory.

ii. One potential response to addressing inequity of terms of trade between highlands and lowlands is to focus on decentralised approaches with smaller facilities (e.g. micro-hydropower production with involvement of local communities and supply of power to national grids at proper pricing arrangements). Another related approach is to focus on local processing (at least, preliminary processing) and supply of products/resources to the plains with some value addition. However, such possibilities are at present at the stage of debate and advocacy with little concrete action (except for micro-hydropower production and some herbal products exported internationally).
iii. Another step in making highland–lowland links more equitable is debated in terms of introducing appropriate pricing of mountain resources and products. A related issue, currently debated by NGOs and researchers, is to evolve and implement mechanisms for compensation for environmental services provided by mountain areas or communities as their custodians. This debate is gradually moving to the global forum as a result of increased visibility of mountain problems and their contributions since the Rio Earth Summit (Sene and McGuire 1997). IYM may further advance advocacy of these issues, although there is a long way to go before discourse converts to policies and their implementation. However, economic globalisation offers a new provocation to attend to these aspects at the policy level.

iv. In the context of highland–lowland economic links, policies and provisions induced or imposed by economic globalisation are a major change affecting mountain areas. This represents a paradigm shift where unprecedented primacy is accorded to the market, and the state's role in economic matters is gradually marginalised. Under obligations to WTO or World Bank, etc, Hindu Kush–Himalayan countries have undertaken structural reforms, deregulation measures, etc. As a consequence, in several areas, overextraction of niche products (e.g. medicinal herbs), disregard of customary rights/regulations and acquisition of local resources by external business firms (as in India, China, Nepal, Pakistan), and exposure of mountain products (e.g. apple, pashmina, etc) to global competition as a result of new trade policies, etc have taken place. Agreements decided at a national level have impacts at the micro-level where there is little preparation and capacity to adjust to them. At this stage, at least with reference to mountain areas and problems, there are no separate policies and provisions in this context. The state has (by default) left the job to market forces; however, these forces have a tendency to ignore the negative externalities of their success.

**Key general inferences**

i. All countries accord visible space to mountain areas in their national policies. However, their approach may be broadly described as reactive rather than proactive, in the sense that they respond to mountain areas either because of adverse impacts of neglect of mountain problems on mainstream economies (e.g. silting of downstream dams) or because of a 'charity instinct' that leads to dispensing of financial resources in response to visible backwardness and other difficulties (often because of under-investment in the past). The missing proactive approach would involve concrete activities/programmes in keeping with imperatives of mountain specificities.

ii. To be fair to policy-makers and planners in mountain areas, their inability to incorporate the mountain perspective in their development interventions can be partly attributed to lack of conscious knowledge about the imperatives of mountain specificities and difficulties associated with operationalisation of mountain perspective in macro-contexts. This calls for a greater emphasis on action research (with concurrent dissemination).
iii. Of all mountain specificities, mountain niche have received the greatest attention of policy/programme planners. It has demonstrated directly the economic significance of mountain areas. This has significant implications for mountains' external links and their equitable place in the larger external/global economy. This (like mountain perspectives) is a lead line for future policy direction and action. Discourse and work during and after IYM may further add to evidence and need for promoting research and action on these aspects.

REFERENCES


Annex 4 Poverty in Mountain Areas of the Hindu Kush-Himalays: Some Basic Issues in Measurement, Diagnosis and Alleviation

T. S. Papola

Abstract

An attempt is made in this paper to examine the prevalent concepts, measurement methods of, and approaches to alleviation of poverty in the specific context of mountain areas of the Hindu Kush-Himalayan Region. On that basis, it points out certain specificities of poverty and its sources and outlines the basic elements of a framework for analysis and alleviation of poverty in mountain areas. The paper is organised into five sections (i) Manifestations of Poverty in Mountain Areas; (ii) Sources of Poverty; (iii) Poverty-Natural Resource Degradation Linkage; (iv) Common Strategies and Interventions; and (v) Towards a Framework for Poverty Alleviation, with a focus on the distinctiveness of the dimensions of poverty in mountain areas.

Overview

Poverty refers to a state of absolute or relative lack of fulfillment of basic human needs in the contemporary context. Attempts to portray and measure it and identify its sources among population groups have been continuously pursued, especially over the last four decades, with the realisation that economic growth and development, even at a rapid pace, often leaves certain groups of the population in relatively poor living conditions. Based on analysis of the nature and sources of poverty, measures to make growth more equitable or focused on the poor, and/or special programmes for poorer groups have been devised by national governments, non-government development organisations, and international organisations and donors. These have met with varying degrees of success. Evaluations and analyses of successes and failures have also been continuously undertaken and changes in approaches, programmes, and interventions have taken place. One of the important lessons from these experiences, often not fully recognised while introducing interventions, is that although in most cases the extent of poverty and its sources and, therefore, the nature and magnitude of required interventions may vary over space and time quantitatively, there are situations in which the manifestations and sources of poverty are qualitatively different, warranting special kinds of approaches and interventions.

In mountain areas conventional methods of portrayal, measurement, and diagnosis are not able to capture the distinctive nature and causes of poverty; hence, realistic assessment of poverty has not taken place. Approaches to poverty alleviation based on assessment using these methods, therefore, are found ineffective. The basic reasons for this are found in the geo-physical features and the social and economic formations conditioned by them in these areas. Specific characteristics of mountain areas conditioning the lives and development of the people are schematically described in what has come to be known as the ‘mountain perspective’ and consist of inaccessibility, fragility and marginality as constraints on development; and diversity, niche’ and adaptation mechanisms as windows for
development opportunities (see Jodha 1997 and 2000). These specific characteristics, combined with the ‘isolated enclave’ nature of mountain economies and societies lead to different manifestations of poverty from those obtaining in non-mountain areas. Lack of recognition and understanding of the implications of mountain specificities often leads to myths and misconceptions about the status of the socioeconomic conditions of the people and also misdirects the diagnosis of the sources of poverty. As a result the strategies and interventions for development and poverty alleviation tend to be either unsuitable or partial, resulting in ineffectiveness and distortion. An attempt is made in the present paper to examine and illustrate the different manifestations of poverty, how its sources differ and why common strategies and interventions are inadequate; and, on that basis, to identify the basic elements of a framework for approaching poverty alleviation in the context of the mountain areas of the Hindu Kush-Himalayan Region.

It should be clarified at the outset that the Hindu Kush-Himalayan region, extending over 3,500 km from east to west, covering an area of about 35,66,000 sq.km and with an estimated population of 140 million contains not only a wide variety of eco-systems, but also falls into eight countries - Afghanistan, Pakistan, India, China, Nepal, Bhutan, Bangladesh and Myanmar – with varying levels of socioeconomic development among and within them. And there are significant differences in accessibility, economic development and institutional structures not only among the areas falling in different countries, but quite often in different parts of the mountain regions within a country. As a result generalisations on the forms, extent and causes of poverty are always risky. Yet, since characteristics such as inaccessibility, fragility, marginality, diversity and niche’ are common to all areas to a greater or lesser degree, the observations made in this paper, based on the framework of these mountain specificities as they are, would be, by and large, valid for the majority of areas in the HKH region. At the same time, differences in the levels of development and poverty as they occur currently in different mountain areas of the HKH region are recognised and used for drawing inferences about the poverty generating and poverty alleviating forces in mountain areas.

**Manifestations of Poverty**

**Common Measures of Poverty**

Poverty is a multidimensional concept. It encompasses both the prevailing welfare levels and capabilities (IFAD 2001). Most often it is measured and portrayed in terms of the indicators of current levels of welfare, disregarding the capabilities of the population to sustain and enhance it. As will become clear from the subsequent discussion, this approach to poverty has serious limitations in mountain areas. Levels of welfare are also mostly seen in terms of some economic indicator - income or consumption. Non-economic aspects of welfare and poverty are not necessarily ignored, but it is assumed that those poor in income and consumption terms are poor in other aspects as well, or those able to meet some objectively determined minimum level of consumption expenditure are also able to enjoy other social and political aspects of a decent living. These assumptions are not always valid. Improved income and consumption may be accompanied by higher dependency and lower freedom
while a great sense of empowerment and mobility could be had even at low income levels (Jodha 1988). Yet, economic indicators of poverty, specifically private consumption below an objective ‘poverty line’, have continued to be the most commonly used measures for analysis and policy. The simplest application of the summary economic statistic in this respect has been the ‘dollar poverty’ concept used by the World Bank to consider all those as poor who have less than one US dollar per day expenditure in constant purchasing power of 1993.

There have been attempts to both sharpen the scaler concept of poverty by going beyond a single income or expenditure indicator or headcount ratio to assess the poverty gap and severity of poverty (WB 1999) and to include socio-political dimensions by the multi-dimensional index of poverty such as the human development index (à la UNDP) for different countries and regions or by bringing in aspects like vulnerability, deprivation, lack of freedom and empowerment, and exclusion (Heninger 1999) in the analysis of poverty. Vulnerability defined as the lack of people’s capacity to withstand shock (DFID 2000) is considered a basic feature of poverty. So is the lack of autonomy, referring to the capacity to decide and act for oneself and lack of entitlement making people incapable of claiming their customary and legal rights (Harris et al. 1992; Sen 1999). In its latest exposition on poverty, the World Bank views poverty to pertain to the lack of four attributes: opportunity, empowerment, security and capabilities (World Bank 2000). Data on these aspects are often ‘soft’ and only qualitative, but their incorporation into the understanding of poverty is important, particularly in the case of marginalised mountain people.

Several development and donor organisations have attempted to approach poverty from different dimensions with a view to developing a framework for poverty alleviation according to their own jurisdiction and work orientation. According to the United Nations Development Programme (UNDP) people are considered poor when they cannot secure a minimum standard of well-being and when their choices and opportunities for a tolerable life are limited or restricted (UNDP 1997). The World Bank would like to make it more precise in terms of determining a consumption-based poverty line, but recognises that the concept is not sensitive enough to the extent and depth of poverty and would, therefore, like to use measures such as the Poverty Gap (WB 1999). World Food Programme, concerned primarily with ensuring food security for the poor, concentrates on people for whom food supplies are insufficient, implying that they constitute the core of the poor (WFP 2001). The Department for International Development (DFID) of the United Kingdom in its approach to ‘sustainable livelihoods’ as the basic framework for development and poverty alleviation identifies ‘vulnerability’ as the key to poverty (DFID 2000).

Each of these and other approaches to defining poverty and identifying the poor are relevant to mountain areas, as is clear from the account of manifestations and sources of poverty in the subsequent sections of this paper, but none of them directly incorporates the specific manifestation of poverty in mountain areas. Limited options for livelihood, food insecurity, and vulnerability are some of the basic features of mountain livelihoods, but their forms and sources are often different from those
in other areas. Closest to recognition of the physical location as a correlate and source of poverty is IFAD’s operational approach to poverty from different perspectives, such as ‘who are the poor?’ ‘where do the poor live?’ ‘how do the poor get income and use it?’ ‘what access do the poor have to assets?’ and ‘what are the barriers to progress for the poor?’ (IFAD 2001), which lists ‘high altitude’ and ‘remote’ areas among the ones with high concentrations of poverty.

Poverty is not only a multi-dimensional phenomenon, its manifestations vary across areas and groups of population as well as by levels of development. The poor are mostly identified, in terms of private consumption below an objective ‘poverty line’, but those considered non-poor in terms of current consumption and income may be poor in terms of capabilities and welfare. Such non-linearities between consumption levels and other aspects of welfare and capabilities are more prominent in mountain areas where variations in access to markets, services, and knowledge can lead to drastically different levels of welfare and capabilities not necessarily reflected in current consumption levels.

Discussions about whether we need separate indicators for poverty and development in mountain areas, or should study them in a comparative framework using common indicators and methodologies, have taken place. The ‘mountain perspective’ framework argued that mountain areas need a separate frame of analysis because of the specificities that qualitatively distinguish them from the flatlands. On the other hand, there is also a plea to ‘apply well established development indicators’ such as ‘quality of life indicators’ in mountain research, even though the ‘complex living conditions’ and ‘great variations’ between regions, groups, and households and their members are well recognised (Kreutzmann 2001). This view is contested by others, not so much with the plea that separate indicators are required for mountain areas, but with the argument that ‘indicator–driven research’, is ‘highly aggregated’, ‘externally imposed’ and ‘decontextualised’. Emphasis, it is argued, should be not only on building relevant indicators, but also on ‘qualitative, informal or cultural contexts’ (Rhoades 2001). A more meaningful approach to research into development and poverty in mountain areas lies in, first, examining how common indicators suit the specific conditions in these areas and what modifications are needed to reflect specificities of location and, then, to identify what additional phenomena and processes need to be examined to account for mountain specificities. Accordingly, an attempt has been made below to examine the appropriateness of conventional economic measures of poverty for portraying economic poverty and to indicate non-economic correlates of poverty as they specifically occur in mountain areas.

**Economic Indicators of Poverty: Limitations of Consumption – Production Based Approach**

Commonly applied statistical indicators of poverty do not always reflect poverty or its absence in mountain areas. Mountain conditions, terrain, and climate make it absolutely necessary that people have a higher minimum energy and caloric intake, in their food, for survival than in the plains and that they have minimum clothing, including warm clothing and permanent shelter, to protect themselves from the extremities of weather and climate. Use of common consumption norms to measure the well-
being of the people in these aspects, therefore, may place many mountain people above the poverty line even though their basic needs have not been fulfilled. Poverty ratios based on consumption, using a common ‘poverty line’ are likely to indicate that many people who are not able to meet their basic survival needs according to local conditions are non-poor, and thus the ‘incidence of poverty’ is shown to be lower in mountain areas than even in relatively better-off regions in the plains. Thus incidence of poverty measured as the proportion of the population below the poverty line based on consumption norms was estimated to be lower (41%) in the hills of Nepal than in the Terai (42%) in 1995-96 (HMG/NPC 1998; Upadhyaya 2000), in the North East Hill region (34%) and Jammu and Kashmir (25%) than in India as a whole (36%) in 1993 (Dubey and Kharpuri 1999; Joshi 2000), and in Balochistan (8%) than in the whole of Pakistan (17%) in 1991 (Zia 2000). If a poverty line taking into account (i) higher energy/calorie intake; (ii) greater non-food needs for clothing and shelter for survival; and (iii) higher prices prevalent in mountain areas is adopted, the incidence of poverty, in terms of population suffering from the inability to meet basic needs, would be much higher (for an illustration, see Annex 1).

It may, however, be noted that, even using conventional measures, incidence of poverty in mountain areas is generally found to be higher than in the plains. In Nepal, mountain areas had 56 per cent of its households below the poverty line in 1955-56, compared to 42 per cent in the country as a whole. In the North West Frontier Province, it was estimated to be 20 per cent compared to 17 per cent for Pakistan as a whole. In India, most hill and mountain States showed a higher percentage of households below poverty line (e.g. Arunachal Pradesh [40%], Meghalaya [38%], Nagaland [48%), Sikkim [41%], Himachal Pradesh [39%], than in the entire country [36%] in 1993.

A more important feature of the consumption levels in mountain areas is that they are not always met by local income generation but by remittances, thus making their sustainability rather precarious. Studies from different areas suggest that an average of about 35 per cent of the consumption needs of mountain households are met through remittances (Khanka 1988; Bora 1996). Income estimates, as they are made, measure the income originating and not income accruing, and, in the case of mountain areas, the latter happens to be much smaller than the former due to the extractive nature of several important income-generating activities (e.g. forests, tourism, hydroelectricity, minerals) from which income is produced in the region, but most of it flows elsewhere. Of the income from forests, for example, local retention is estimated to be only around 10-15 per cent. Per capita domestic product was estimated to be about 25 per cent higher, for example, in the case of Himachal and Uttaranchal than the national average of India, but these estimates go down by about one-third, once income retained in the respective states only is considered (Papola and Joshi 1985; Papola 2000).

**Isolation**
A poor productive base, limited absorptive capacity, limited linkages to use local produce to strengthen the local economy in a value-adding chain and unfavourable institutional and market mechanisms leading to accentuation of the phenomenon of unequal exchange with other areas are features that are, more or less, common to most poor areas. What makes the situation in mountain areas qualitatively different is their inaccessibility. Lack of access to markets, technologies, and information is not only a cause of their underdevelopment, but is itself a facet of poverty in terms of isolation and non-participation in wider social, political, and economic processes. Improvements in access through development of transport and communication networks and, in recent years, access to knowledge and information through electronic media, while positive developments, in themselves, have made the physical, social and economic isolation of mountain communities more conspicuous to them and others and have added a new dimension to the perception of poverty in a relative sense. Access to information has raised awareness and aspirations, but, unaccompanied by access to resources and opportunities, it has, at the same time, led to frustration and increased consciousness about their poverty among mountain people.

**Insecurity and Vulnerability**

A limited resource base, further limited by the constraints on its use due to fragility, is a dominant characteristic of mountain areas. While the population density is lower in these areas than in the lowlands, the actually usable, arable land per person is extremely limited and not very fertile. Food insecurity, because of both limited availability and poor fertility of land and difficulty in delivering food from lowland areas, is a common feature in many mountain areas. Access to other resources, such as forests, is mostly restricted by legal and institutional arrangements. Use of non-crop, non-forest, marginal lands, even where permitted, is not very productive because such land is usually degraded and cultivation is often hazardous due to its fragile nature. Infrastructure such as roads, that constitute ‘lifelines’ for most mountain people, are often not dependable because of natural hazards and blockades. Fragility and a high incidence of natural hazards make the lives of people insecure and vulnerable and often threaten the very means of survival and livelihood such as agricultural lands, crops, and shelters, besides transport and communication channels. In other words, maintenance of livelihoods, even at current levels, is precarious and danger of relapse into poverty is ever imminent.

**Social and Political ‘Exclusion’**

Mountain areas are often located on the periphery of the geographical landscape of nations. They are inhabited by too few people to be politically important. The total population of the HKH region is estimated to be around six per cent (and the area 23%) of the total of all the eight countries within which the region falls (Banskota 2000). Often, most people in the mountains are also socially secluded because of their tribal origins. As a result they find themselves marginalised with limited or no voice, presence, and involvement in national socioeconomic and political processes. This not only results in the absence of their concerns and issues of development in national agenda, but also develops in them a sense of exclusion and deprivation, which adds another, psychological and emotive, dimension to the poverty of mountain people (Sadeque 2000).
Infrastructure and Services: Provision v/s Physical Access
Isolation because of limited physical access to infrastructural services is a distinct feature of mountain areas arising out of the peculiarities of topography and terrain. This is not often reflected in the indicators of infrastructural development commonly used. Road length per thousand of population or even per square kilometre of area, or schools and health posts per thousand of population do not correctly reflect access to these services, as even a high density of these items may still leave many settlements and population groups far away from them. Indicators that reflect the proportion of population within walkable distance can convey the extent of access better. But even such indicators have limitations because of the terrain to be covered. Similar distance to a motorable road, school or health post, in fact, implies less access in mountain areas than in the plains. A kilometre in the mountains is much ‘longer’ than in the plains in terms of the time and energy taken to travel!

Geographically Endemic Poverty
A distinct dimension of poverty in mountain areas is that it primarily results from the severity of constraints of an unfavourable geographical situation and only secondarily by the resource endowments of individual households. Thus poverty afflicts the entire population of an area more often than only some households in a generally non-poor area. This is not to deny the differences and inequality among households and groups, but they are less glaring than those between accessible and inaccessible areas, on the one hand, and between the mountains and other areas, on the other. In other words, poverty in the mountains is more area-specific than household-specific. This seems to have been well recognised in the poverty alleviation approach adopted in China where ‘poor areas’, rather than ‘poor people’ are identified and targeted for development (Banskota and Sharma 1993).

Physical Stress, Hazards and Risks
Among the most visible manifestations of poverty in mountain areas are the strain and drudgery that people, particularly women, have to undergo to eke out a living. Much of the strain is because of the difficulty in procuring basic needs such as water and fuel and basic inputs like fodder for livestock, which are not always available within easy reach and have to be brought from some distance through difficult and hazardous terrain. Various operations in the main productive activity, namely, agriculture, are also no less strenuous as most of them have to be carried out manually. Long hours of work, drudgery, hazards and physical strain are not only results but, in fact, are special dimensions of poverty in mountain areas that are not reflected in any of the conventional indicators.

Wastage of Human Resources
A paradoxical situation is often visible in many mountain areas: in the midst of long hours of back-breaking work and year-round drudgery in household and productive activities, specially among women, there is a lot of idle labour, particularly among men. Studies show that about 45 per cent of person days remain unused, the proportion is much higher at 63 per cent for men than for women at 34 per cent (Bora 1996; Khanka 1988). Women’s efforts and energy are mostly spent without
commensurate returns, and could be available for more productive and socially useful purposes if
technological, economic and institutional solutions were found to reduce the time taken for and
drudgery of their work to satisfy basic household needs. Men have little productive work beyond what
is ‘assigned’ to them in the context of so-called gender-based division of labour. Thus most labour is
not productively used and is reflected in high incidences of unemployment, underemployment and
‘disguised’ unemployment, constituting other important aspects of poverty in mountain areas.

Poverty Induced Migration
Lack of productive employment opportunities results in outmigration, mostly of adult males. Mountain
areas, as a result, have a much higher incidence of outmigration (estimated to be around 40 per cent
among adult males) than areas in the plains, producing multiple impacts on mountain economies and
societies. To the extent that migrants send remittances, they help to support their households. Since
migrants are mostly males, the sex ratio is ‘favourable’, particularly in the working population, and
there is a higher incidence of women-headed households, sometimes as high as 20 per cent
(Acharya 2000). Both these phenomena have concomitant economic and social effects. Although
the main occupation, namely, agriculture, does not need all the available workers throughout the year,
to the extent that most of them are needed during the short busy seasons, migration results in labour
shortages and reduction in agricultural productivity. Thus migration is a multidimensional aspect of
poverty in mountain areas; constituting not only a result, but also a cause and manifestation of
poverty in itself.

Sources of Poverty
The descriptions of the various facets of poverty in mountain areas suggest that the nature and
pattern of livelihoods are primarily shaped by physical characteristics that also condition the
socioeconomic situation of people in these areas. Inaccessibility, fragility and marginality in physical
terms lead not only to a limited base for sustaining livelihoods but, more importantly, result in a great
degree of vulnerability, risks and uncertainty in realising the outcomes of livelihood activities.

Limited Resource Base
It is often said that mountains are rich in resources. The fact, however, is that usable resources are
extremely limited. Most mountain households depend on farming as the main source of livelihood, but
as only around six per cent of the land area is arable (Banskota 2000), the per capita cultivable land is
very limited, even with a very low density of population. Over two-thirds of households, with an
average size of five to six persons, own less than one hectare of land each, in Bhutan, the hill states
of Central and Western India, the hills and mountains of Nepal and the mountain areas of Pakistan
(Tulachan 2001). The average amount of arable land per capita is higher in some parts of North East
India and Bhutan, but most of it is very low in productivity as it is used for shifting cultivation. In other
areas too, most of the land is on slopes and is not suitable for the modern farming methods applied
elsewhere. Most arable land is marginal and fertility poor.
Resources for non-farm activities are also limited and in most cases not under the control of local communities. Also, whatever potentials there are not used because of several constraints. Being inaccessible and isolated, most mountain areas have little exposure to and contact with the commercial world outside. This has forced them to focus on farming for subsistence as getting food from outside is difficult. Rising populations with limited cultivable land have led to insufficient food supplies and insecurity. Opportunities to earn income from non-farm activities to buy food and other items of consumption have been limited by the lack of a resource base and poor infrastructure. Thus, over the years, the livelihoods of most mountain people have become more precarious.

**Restricted Access to Natural Resources**

Resources in which mountains are described as rich, such as forests, minerals and water, are not always accessible for use by mountain people. Besides the difficulties in physically accessing them, they are mostly under the control of external authorities like governments that legally restrict their use by local communities for various, including commercial and environmental, reasons. And when these resources are used, either by governments or the private sector for commercial purposes, most income and revenue flow out of the mountains with minimal retention within the mountain regions themselves.

**Lack of Access to Markets, Technologies and Inputs**

The limited opportunities for an increase in incomes that exist with whatever access to natural resources is available are constrained by lack of access to markets. Markets are physically distant, information about them is not available and because production is dispersed and on a tiny scale, marketing costs are prohibitive. Production is with traditional techniques, mostly manual because there is no motive energy, resulting in low productivity. The capital base of mountain people is poor and access to credit is limited because of lack of both accessible credit outlets and the technical ineligibility of most mountain households to obtain commercial bank loans. For example, in India, with a strong state-led emphasis on extending banking outlets and services to rural areas and targeted programmes of agricultural credit, per hectare credit by 1997 in mountain areas worked out to be INRs 150 compared to INRs 1,600 in the country as a whole (Chand 2000). In Nepal, of the seven major micro-credit programmes, five had no coverage in mountain districts and limited coverage in hill districts. Only government-run programmes reached all the districts (Dhungana and Thapa 1999). Remittances that many households receive from out-migrants are mostly used to meet the deficit in subsistence level consumption over their own production and income.

**Unequal Exchange**

The purchasing and investing capacity of mountain people is further weakened by highly unfavourable terms of trade in their transactions with other areas. Most of their purchases are at high prices due to transportation costs and, often, the scarcity situation. They have to sell their produce cheaply due to lack of knowledge and inaccessibility to markets, limited holding capacity because of the dire need for cash to meet subsistence needs and lack of bargaining power due to unorganised, individually based
small-scale sales to middlemen. Lack of lateral trade and transport often leads to sale at low prices and purchase at high prices of the same commodities, because only ‘vertical’ transport and trade channels are available between the mountains and plains, and not among different mountain areas, so goods first flow ‘down’, and then ‘up’ for final sale to consumers in the mountains. Inequality in exchange is magnified many times if one considers not only the terms in which goods are traded but also the overall flow of natural and human resources from and to mountain areas.

**Weak Institutions**

Mountain communities have evolved their own institutions and organisations to regulate the socioeconomic aspects of their lives and to cope with calamities and hazards. These include mechanisms for sharing labour and other household resources; for management of common resources like forests, pastures and water; and for community action to meet natural disasters. They have functioned well in the context of subsistence economies and isolated societies. They are, however, becoming increasingly inadequate in a scarcity ridden and dynamically changing environment exposed to the world at large. In other words, their efficacy in the spheres of development and poverty alleviation is inadequate. For example, tribal councils in many areas have been successfully managing the resources and conflicts of communities, but are not equipped to deal with the problems of organising production and marketing agricultural or forest-based products. On the other hand, the new institutions and organisations tried by governments and non-government agencies to carry out these tasks have only been partially successful, partly because they are alien to local communities insofar as they have not been built upon the local traditional, institutional and cultural base, but mostly because, as they are often conceived, they are not able to bring about the necessary enthusiasm and commitment of people around common interests and visible or potential benefits.

**Neglect of Mountain Specificities by Development Policies**

Mainstream development strategies, policies and programmes are often unsuitable for mountain areas either because of inadequate understanding of mountain specificities or because of lack of concern for marginal mountain areas. Dominant development strategies, such as those based on the green revolution and large-scale industrialisation, have little relevance for mountain areas; and no special strategies based on their specific conditions have been evolved and implemented in mountain areas. Sometimes an extreme view is taken to write-off mountain areas as unfit for development and any concerns raised relate solely to environmental conservation. This perspective, focussing only on the constraints of development, fails to recognise and, therefore, tends to ignore the opportunities that mountain areas have in the diversity, comparative advantage and niche of their natural resources and the skills and dexterity that mountain people have developed to adjust to adverse circumstances. And, even when these opportunities, such as in tourism, hydropower, and forest products, are recognised, appropriate and integrated policy and institutional mechanisms are not developed to use them for the benefit of mountain people.
Poverty and Natural Resource Degradation

The link between poverty and natural resource degradation is the central issue in sustainability of livelihoods and the environment in mountain areas. In all efforts to analyse the nature and sources of poverty and to devise poverty alleviation approaches for mountain areas, it is extremely important to understand and appreciate the nature and implications of poverty - environmental resource - development links. For, given the limitations of large-scale creation and use of man-made physical assets and technologies, mountain people primarily depend on natural resources to sustain and improve their standards of living. However, most of these resources are environmentally sensitive and their indiscriminate exploitation poses threats to sustainability not only for the living standards of people in the mountains but also for those of people in lowland areas. The basic issues that need to be investigated and understood in this context are:

• what is the relationship - associative or causative - between poverty and the state of environmental resources?
• does development for poverty alleviation necessarily lead to degradation of natural resources?
• are there economic and technological solutions that lead to enhancement of the welfare of mountain people without degrading environmental resources?
• to what extent can poverty reduction and sustainable resource management be combined with appropriate institutional arrangements? and
• what criteria should be used when a trade off is involved between poverty reduction and conservation of resources?

Relationships between development and environment and between poverty and natural resources have been studied over the past two decades within the framework of what has generally come to be known as ‘sustainable development’. The concept, evolved in the Report of the World Commission on Environment and Development, is defined as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED 1987). It implies prudent use of natural resources at a rate that does not exceed their regeneration. Studies assessing the poverty-environment-development linkages have mostly highlighted the conflict between poverty alleviation and environmental resource conservation but have fallen short of arriving at workable solutions. In any case, attempts to examine the linkages between poverty and natural resource degradation in the mountain context, particularly in the poor regions of the Hindu Kush-Himalayan region, have been rather limited. It is, therefore, important that the hypotheses that have been generated on the basis of studies elsewhere are examined closely in this region.

Poverty-Environmental Degradation: Cause and Effect

The first proposition that needs examination relates to poverty as a cause or consequence of degradation of natural resources. Most studies have established an association, but not a causality between the two phenomena (Markandya 2000). In general, a poor community is likely to have a more degraded environment than a non-poor community. Thus deforestation and poverty are found to go together (Jagannathan 1989; Deininger and Mintzen 1996). On the other hand, mapping of
development indicators in Nepal showed that the poorest districts have the least natural resource degradation (ICIMOD 1997; Jodha 1998a). None of these or other studies establish causality: neither the earlier two studies in West Java, Indonesia and Nigeria and in the Chiapas and Oaxaca regions of Mexico suggest that the poor were responsible for deforestation; nor do the findings relating to Nepal tell us that the poor conserve their environment better, or forgo opportunities for improving their livelihoods for the sake of environmental conservation.

In general, however, the poor are seen as ‘the most visible agents’ of destruction in a degraded environment. The poor depend heavily on natural resources, especially in mountain regions, for their livelihoods and their poverty offers them few choices. It is this lack of alternatives that forces them to use available natural resources intensively. The poor seem to ‘stand at the end of a long chain of cause and effect’ and ‘are the messengers of unsustainability rather than its agents’ (UNFPA 2001). There is a growing view that the poor are not necessarily the main agents responsible for resource degradation: quite often the rich play a much greater part in this process (Metz 1991; Prakash 1997; Jodha 1998b). Where the poor have encroached upon or over-exploited natural resources, it is not out of preference for providing for their sustenance in this way, their ignorance of its consequences, or for lack of a stake in natural resources, but because they have no other options. Therefore, it is necessary to look at the factors and processes that have led the poor into a situation of ‘choicelessness’ and evolve strategies to increase their livelihood options.

Irrespective of whether the poor or the non-poor are mainly responsible for environmental degradation, it is widely agreed that the poorest sections of the society are hurt most by a declining natural environment. For, the poor and the vulnerable are most often users of marginal resources and also the most dependent on common property resources (Dasgupta 1996). Fuelwood scarcity imposes greater hardship on the poor, particularly women, than on the better-off (Kumar and Hotchkiss 1988) and when water shortages occur as a result of deforestation and misuse of natural resources, the poor are most affected (Kadekodi 1995). On the other hand, it is also observed that environmental regulations that increase the cost of production of certain goods result in increased unemployment and higher prices producing differential impact on the poor and the non-poor groups.

**Population-Environment Links**

Among the factors that have led to over use of natural resources by the poor, pressure of increasing population is considered to be the most important (De Janvry and Gracia 1988; Cleaver and Schreiber 1994; Dasgupta 1996; Lopez 1997). There is limited evidence in favour of the ‘Boserup hypothesis’ (Boserup 1965) postulating improvement in resources, particularly land-based, and increasing resource productivity with increase in population pressure, but most empirical evidence suggests that areas with an increase in population density beyond ‘carrying capacity’ are also areas of the greatest degradation. At the same time, it is pointed out that with right policies increase in population need not result in environmental degradation (Heath andBinswanger 1996). A poverty-resource degradation linkage is found to work through population pressure in the following sequence:
as the natural resource base is increasingly degraded, poor families require more members to achieve the same level of welfare and with increasing fertility and population the cycle of increasing degradation is established (Dasgupta 1995). In mountain areas, another dimension of population dynamics that needs to be considered is that of high incidence of outmigration of the working population, especially men. Although this could, on the one hand, help to check environmental degradation to the extent that it reduces pressure on natural resources, it could, on the other hand, result in weakened families compelled to adopt short-cuts to natural resource use and less labour allocation for conservation-oriented practices (Collins 1987).

**Resource Management Systems: Is Community Participation the Solution?**

It is widely recognised that the key to the poverty-environment relationship is the question of natural resource management systems. It has been argued that the traditional community systems of natural resource management have a great deal to offer in the evolution of institutional arrangements for sustainable management of natural resources and their use for the benefits of local people (Berkes 1989; Jodha 1998a, 1998b). Several cases have been documented about how community, rather than state or private, control and management has succeeded in ensuring sustainable use and regeneration of natural resources. Notable examples are those of the land, water and forest resources in Western India (Chopra and Kadekodi 1988; Chopra and Gulati 1996; Narain 1998) and of participatory forest management arrangements, especially community forestry in Nepal (Bhatia 2000; UNFPA 2001).

**Economic Growth, Environment and Globalisation**

An interesting aspect of the poverty-environment-development interrelationship consists of the long-term relationship between income levels and quality of environment. As pointed out by Markandya (2001), some studies suggest a U-shaped relationship between GDP and environment, i.e. the quality of environment deteriorates initially as GDP per capita increases, and then improves after a threshold level of the per capita GDP is achieved (Grossman and Krueger 1991; World Bank 1992; Barbier 1997). (The relationship is also referred to as ‘Environmental Kuznets Curve’, alluding to the economic growth-income distribution relationship postulated by Simon Kuznets.) Evidence has also been found favouring an ‘inverse U-shaped’ relationship (Stern and Barbier 1996) suggesting a positive relationship between GDP and environment initially and a decline in quality of environment after a critical level of per capita GDP is achieved. In either case, however, there appears to be inevitable degradation of the environment, sooner or later, and it could be of an irreversible nature. It is, therefore, important to build in mechanisms to check environmental degradation into the strategies for development and poverty alleviation. In the particular case of mountain areas, the nature and sequence of relationships between income enhancement efforts and natural resource degradation need to be studied at the level of micro-ecological regions and locations to devise such mechanisms. It seems clear that communities in mountain areas will continue to depend heavily on agriculture and other natural resource-based activities for their livelihoods. Environmental degradation will only deepen their poverty. So environmental conservation and poverty alleviation need to be the parallel
objectives of any intervention in mountain areas. In this context the impact of on-going processes of globalisation on mountain communities and environment needs to be closely examined. It is feared that globalisation can, on the one hand, marginalise the nature-based niche of mountain areas, and, on the other, be quite insensitive to their fragile ecosystems (Jodha 2000). In general, globalisation is seen to have increased overall prosperity and stimulated growth, but, at the same time, it has increased income inequality and environmental degradation (UNFPA 2001). In pursuing economic reforms to benefit from globalisation, policy-makers have often ignored the parallel social, environmental, and institutional reforms required to prevent increases in inequality, poverty, and environmental degradation (Reed and Rosa 1999).

**Economy-Environment Trade-off: Making Choices of Economic Activities**

It should be recognised that most development activities, either of a productive nature or for building infrastructure in mountain areas impinge on environment. The environmental impact of different activities varies, as does the economic benefit flowing from them. At one end, there could be ‘environmentally benign’ activities with high income generating potential (e.g. growing medicinal plants and herbs, planting fruit trees, and so on.) and, at the other end, there are ‘ecologically disastrous’ ones bringing in large short-term gains mostly to non-local entrepreneurs and contractors, but inflicting irreparable damage to the environment (e.g. extractive activities such as mining and indiscriminate exploitation of forests). The latter need to be, no doubt, severely restricted; but confining economic activities to the former only will leave mountain people with very limited options for their livelihoods. Between the two extreme types of activities - ‘environmentally benign’ and ‘ecologically disastrous’ ones, there is a whole range of activities with varying degrees of environmental impact and economic benefits. Each of them entails a ‘trade-off’ and effort needs to be focussed on selection of a pattern of activities that minimises environmental impact and maximises economic benefits. The exact measurement of the impact of each activity in quantitative terms is not always possible, especially as environmental impacts are not easily quantifiable. It should, however, be possible to rank activities by their environmental impacts and economic benefits (as illustrated in Annex 2) and use such a ranking for decision-making and policy formulation with a view to promoting a structure of economic activities that maximises benefits to the people and minimises environmental degradation.

**Green Technologies and Alternative Energy: A ‘Win-Win’ Strategy?**

It appears that there is more often a conflict than a concordance between poverty alleviation and environmental conservation. In most cases, a trade-off between conservation and poverty alleviation looks inevitable, and this poses a major challenge to policy- and decision- makers. It is agreed that only an integrated approach to the problems of poverty and environmental degradation can result in sustainable development. Such an approach remains elusive. In a recent document UNFPA has been bold enough to propose a sustainable development strategy, consisting of the following ‘building blocks’, as ‘win-win solutions for poverty and the environment’ (UNFPA 2001): (i) increasing the resource base of the poor; (ii) investing in alternative energy services and infrastructure; (iii) support
to green technologies; and (iv) pricing policies that do not encourage profligate use of resources such as electricity, water, and fertiliser (UNFPA 2001). The emphasis placed on energy technologies and use seems to be of particular relevance for mountain areas. Energy consumption is positively associated with levels of living and development, but sources of energy - renewable or non-renewable - and efficiency of energy use can make a tremendous difference to sustainability and environment. Mountain areas are generally deficient in access to energy, although most of them have substantial potential for renewable energy generation. Energy sources, technologies and devices of the poor mountain people are inefficient and mostly involve a lot of time, drudgery, and burden, particularly for women. Escaping poverty is not merely, therefore, a question of finding ways to increase energy consumption, but rather of changing the kind of energy used. Investment in alternative energy services and infrastructure could be among the most effective ways of alleviating the poverty of mountain people.

Most of the above propositions are still in the stage of hypotheses and opinions, as not enough empirical evidence to test them is available as yet. Also most of them are based on experiences and observations from flatland areas. It is important to examine them in the specific context of mountain areas, particularly in the developing mountain areas of the HKH region, with a view to devising strategies and policies for poverty alleviation and sustainable development.

Common Strategies and Interventions
Approaches, strategies and interventions for poverty alleviation in mountain areas have mostly been in the form of replications and extensions of those developed for and adopted in the mainstream flat land areas. Most of the time the strategies have been sectoral, relying on a lead-sector approach. Identification of the sectors has often not been based on the area - specific approach required for mountain areas, and intersectoral linkages that need to be developed even in sectoral development in the mountain areas, have not been given sufficient recognition. Thus value-addition and marketing emerge only as after-thoughts in agricultural development and diversification programmes. Livelihoods and income generation are seen only as an appendix to forestry sector programmes. Promotion of tourism has not always been linked to local economies and enterprise development is seen basically as a function of small credit. In recent years governments and donors have tried to recognise linkages, though mostly on the basis of experiences in the plains, and develop more comprehensive and integrated programmes. Larger investments in infrastructure and access improvement have become a critical element of development strategies for mountain areas, for example, in China; and sectoral specialisation based on comparative advantage is being tried in some areas in the Himalayan region of India. Donors like the Department for International Development (DFID) have developed a ‘holistic’ sustainable livelihood approach, emphasising simultaneous development of human, natural, financial, social, and physical capital. The International Fund for Agricultural Development (IFAD) has launched a series of projects especially focusing on ‘uplands’, relying on a multi-pronged strategy for ‘securing livelihoods’. These are recent experiments and their outcomes are yet to be seen.
In most cases, however, the strategies of different programmes have seldom taken cognisance of the specificities of the forms and sources of poverty in mountain areas, as described above. The following paragraphs illustrate how some of the dominant approaches and interventions tried by government planners, non-government development agencies, and donors have proved ineffective in mountain areas.

**Infrastructure-led Strategy**

Provision of physical infrastructure as a catalyst has been one of the oldest strategies of development. Given that inaccessibility is a major cause of underdevelopment and poverty in mountain areas, access improving infrastructure can obviously be a major facilitating factor in development and poverty alleviation. There are, however, two main problems in solely relying on an infrastructure-led approach in these areas. One, the topography, terrain, and fragility of mountain areas make development of physical infrastructure like road networks economically expensive and environmentally hazardous. Second, the assumption that infrastructure is not only a necessary but also a sufficient condition of development is not valid in most mountain areas because of a limited, dispersed, and environmentally sensitive resource base and difficulties in the realisation of linkages of infrastructure with the processes of building the production base. As a result, the development of transport networks, unaccompanied by simultaneous efforts to develop the productive potential of connected areas, has often resulted more in a drain of resources, including of human resources, than the benefits to local areas and communities. Access improvement, unless accompanied by the development of human capital, systematic harnessing of niche, and appropriate institutional arrangements for improving the bargaining power of local people may result in greater marginalisation rather than integration of mountain areas in the wider economic space (Bandopadhyaya 1993).

**Targeting Poor Households**

Identification of the poor and assisting them directly with the provision of productive assets through subsidy and/or credit-based programmes has been a common approach to poverty alleviation. This approach is based on the assumption that poverty is primarily a phenomenon at the household level, and it is mainly caused by the absence of a productive asset base in the case of some households. Once they are enabled to acquire such assets, they will be able to cross the poverty threshold and progressively improve their livelihoods on a sustained basis, as the other conditions for productive use and income realisation, such as access to other inputs, technology, and markets, are in place. In mountain areas, these conditions are generally lacking and, as a result, effective use of the productive assets provided under various government and non-government credit programmes is severely constrained. In any case, provision of credit through targetted programmes is no substitute for investment in social and physical infrastructure (Bennett 1993).

**Technology Driven Approaches**

Quite often the availability of new technologies has prompted governments, non-government agencies, and manufacturers to introduce programmes based on them to alleviate poverty through
more efficient and productive use of resources. Such initiatives assume availability of the extensive resource base as well as access to markets. Input-intensive agriculture and energy-intensive industry are among the successful technology-initiated strategies in the plains. Their suitability for mountain areas is obviously very limited. But even small-scale technologies for improving agricultural productivity, agro-processing, and improved practices for meeting household needs for cooking, heating, and drying are not found suitable because insufficient attention is paid to such specificities as the local resource base, socioeconomic organisation of production, and the capacity and skills to use and maintain technologies and access to markets.

**Human Capital Development**

Human capital, no doubt, has been found to be a major contributor to development and poverty alleviation. No other approach, either based on physical infrastructure development, capital investment or technology, has been found to have sustained success unless accompanied by development of human capital, particularly education, technical skills, enterprise, organisational capabilities, and health. Most mountain areas have a weak human capital base due both to limited access to social infrastructure and lack of exposure to knowledge and experience of activities that enhance human capital endowment. Efforts to improve the human capital base of mountain people are essential for improvement in their general well being, but by itself if may not lead to alleviation of poverty because of the limited opportunities for its effective use in economically and socially productive activities. In fact, education, a major means of human capital formation, results in outflow of human resources, for that reason, resulting in a decline in the productive capabilities of the population in mountain areas. It is well known that most educated persons migrate out of mountain areas.

**Social Mobilisation Approach**

Mobilisation of intended participants and beneficiaries of programmes, through formation of groups, participatory rural appraisal (PRA), and so on, has been an important part of rural development and poverty alleviation programmes and projects in recent years. These processes have been found to help not only in improving programme delivery and outputs, but in making a significant contribution to building social capital. They have also helped, particularly in relatively better endowed and accessible areas, in accessing resources, services, and markets for productive activities. In mountain areas, however, these groups have often found it difficult, beyond a point, to use the awareness and organisation they have built for themselves to improve their livelihoods because of limited access to productive resources and exposure to markets. Some success has been achieved in this respect by those organised around a common interest like production of similar commodities and use of common property resources like forests. In other cases, even where the groups are able to pool their resources, they have not been able to put them to productive use. Notable examples are those of the several women’s savings and credit groups through which large sums of money have been collected in small contributions, but have remained idle due to the lack of investible opportunities and/or of initiative on the part of programmes to identify and plan such opportunities.
Conservation Motivated Approach
It is widely feared that development of mountain areas, including development of poverty reducing activities, damages ecology and the environment. Therefore, any proposal for development activities, whether related to infrastructure construction or use of natural resources for productive purposes to sustain livelihoods in the mountains, is often perceived as a danger signal. Policy and regulatory mechanisms and practices that result from this perception are extremely restrictive. Thus, even a small rural road project remains blocked for years and is finally rejected; and banning the use of bioresources by local people is considered to be the only way to conserve biodiversity. Alternative technological, economic, and institutional options and mechanisms are rarely considered to arrive at environmentally compatible solutions for development activities. Mountain communities, therefore, often feel that they are compelled to remain poor for the sake of environmental conservation which benefits others more than them. And no mechanisms to compensate them for this deprivation by way of alternative measures for alleviating their poverty are evolved.

A Framework for Poverty Alleviation in Mountain Areas

Combination of Approaches
The above description of the limitations of various mainstream approaches, strategies, and interventions for development and poverty alleviation is not meant to pronounce their futility; but what it seeks to emphasise is the very partial character of each of them, which might still work in better endowed areas with only one or two missing links in the development chain. Mountain areas, as earlier emphasised, have several links missing due to their specific physical and concomitant socioeconomic characteristics. Therefore, the strategy of development and poverty alleviation for these areas needs to integrate elements of all these approaches, with suitably varying weights depending on the specificities of different areas. Some other basic elements of a strategy for development and poverty alleviation in mountain areas, emerging from the foregoing description of the nature and sources of their underdevelopment and poverty, are outlined below (Various elements of the strategy, along with the characteristics and sources of poverty in mountain areas, are also schematically presented in Annex 3.)

Recognition of Mountain Specificities
Mountain specificities consist of a set of conditions of which one sub-set (inaccessibility, fragility and marginality) represents constraints and another subset (diversity, niche and adaptation mechanisms) opportunities for development and poverty alleviation. Opportunities offered by the latter are not realised because of the constraints imposed by the former. The crucial issue is that of finding appropriate ways of mitigating and reducing the constraining influence of the former in order to ensure sustainable use of the latter. In other words, the approach to development and poverty alleviation in mountain areas has to be two-pronged: reducing inaccessibility, minimising the impact of fragility, and mainstreaming mountain economies and societies to reduce their marginality, on the one hand; and
identification, development and, use of the diverse natural endowment, comparative advantage, and human adaptation skills, on the other. The two processes have to be integrated and to go on simultaneously.

**Improving Access: Physical and Social Infrastructure and Energy**

It is recognised, without doubt, that improvement in access of the mountain people to markets, technologies, and information as well to social services like education and health is vital for their development and for sustaining their livelihoods. It is also, at the same time, pointed out that improving access through building of physical infrastructure, such as road networks, damages the environment and is also very expensive, particularly in relation to the prospective returns on investment. The strength of economic argument against roads in the mountains depends on the time span for assessment of returns. Rates of return would also be considerably higher than otherwise estimated if planning of roads were to be integrated with identifying and using economic potential of road catchment areas. So far as the environmental argument is concerned, it seems to have been used too often without fully examining its force. Efforts, nevertheless, need to be made to explore and use technologies and methods of constructing infrastructure that minimise environmental damage and hazards. There have been experiments to deal with the problems of costs, environment, and economic benefits of roads in mountain areas (Banskota 1997), which need to be carefully assessed from the point of view of their wider application. At the same time, it has to be recognised that it may not be possible, within the foreseeable future, to provide road access to all mountain settlements; and, therefore, alternative ways of providing physical access, such as ropeways, power driven or gravity-based, and bridges have to be seriously considered as suitable options for very remote and inaccessible areas.

Building infrastructure for the provision of access to education and health services and information, including information on technologies and markets, should generally have no adverse environmental impact. It is, however, expensive because, given low population density and the small size and thin spread of settlements, it is necessary to have more schools and health posts, say per thousand of population, than in the plains to ensure universal access. Given, however, that the mountain people have as much right to these basic services as any other groups of population, society will have to bear the cost. New frontiers opened by satellite communication, information technology, and electronic media offer opportunities for distance education, as well as for accessing information on technologies and markets in a more economical than and equally effective manner as normal channels. Use of these opportunities on a wide scale needs to be seriously explored for the benefit of mountain communities.

Access to modern forms of energy is extremely important for improvement in the quality of life and productivity of economic activities. Mountain areas suffer from a paradox in this respect: they are endowed with large amounts of energy resources, especially water, but also biomass, wind, and solar radiation; but most mountain settlements and households have no access to electricity. For example,
in Nepal only about five per cent of rural households have electricity connections, figures for rural Balochistan and North East India are 23 and 25 per cent respectively (Rijal 1999). Use of water resources is often bogged down in controversies about environmental impacts of large projects amidst which the needs of mountain people get completely sidelined. Environmental problems apart, large dams, in any case, provide little benefit to upstream mountain communities. It must be ensured that dams do not pose any threat to the lives and livelihoods of mountain people and mechanisms should also be developed to see that part of the revenue earned by these projects is invested in improving the lives of mountain people. Solution to the problems of mountain areas and households, especially of those not likely to be connected to the national grid system in the near future would, however, primarily lie in the development of small-scale, decentralised systems based on local energy resources (Rijal 1998).

**Resource Base: Identification, Assessment and Access**

It must be clearly recognised that the development of mountain areas, particularly of the kind that is likely to lead to poverty alleviation should be based on local resources. Therefore, it is necessary to identify such resources on an area to area basis. Uniqueness and diversity are strengths of the mountain resource base that need to be focussed upon, as these areas cannot compete with products and services produced by non-mountain areas. Also, diverse resources require different approaches to identify, develop, conserve, and use them. The unique mountain environment in terms of natural beauty, scenic grandeur, biodiversity and ruggedness of topography as well as cultural heritage constitutes a kind of resource that needs to be conserved and promoted for tourism of various types. Limited arable land, the primary resource for the livelihoods of mountain people, needs to be put to uses and technological treatments that improve its productivity; and non-cultivated, non-forested land could be used in productive ways such as for growing horticultural crops and for commercial plantation in order to combine the economic and environmental benefits. Forests could similarly be developed, conserved, and used with suitable mechanisms to meet the twin objectives of environment and economy. In the case of water resources, many mountain areas face a paradox of plenty with scarcity: huge quantities of water flow down from the rivers, often with deep gorges, but villages above them face acute scarcity of drinking and irrigation water; and, there is heavy rainfall during a few months, while for the rest of the year there is drought. Access to water for drinking and irrigation from the rivers and harvesting rainwater through the use of appropriate technologies are of crucial importance for sustaining livelihoods. On the other hand, use of water resources for power generation, especially on a small scale, decentralised basis would lead to improved well-being and productive capacities of mountain communities.

It must be noted that productive resources available in mountain areas are, more often than not, thinly spread over space, each location offering a small quantity thus limiting the scale economies of production and marketing, and are also often liable to be rapidly exhausted if used indiscriminately without attempt at conservation and regeneration. This is particularly the case of non-timber forest
products such as medicinal, herbal, and aromatic plant resources. A systematic assessment of the locations and quantities of such resources is, therefore, necessary from both the economic and conservation angles. Introduction of area wise, large-scale production and regeneration of resources can be useful and effective in this respect and needs to be systematically explored.

It is obvious that the mountain people should have access to local natural resources in order to use them for productive purposes. It is seen that access is denied to them, ostensibly for conservation. Thus, they cannot use or have only restricted access to plant resources from state controlled forests or protected areas and sanctuaries, to barren non-agricultural, non-forest lands and to river waters. Many communities have lost their traditional rights to these resources, as a result of new laws relating to forests and natural resources and with the conversion of large areas into sanctuaries and reserves. Regulating use of environmentally sensitive resources is quite understandable, although it is a debatable issue whether environmental degradation is caused mainly by the actions of local communities or results from policies and actions of the state or from those of large business enterprises outside mountain areas. But it should be possible to find ways to conserve the environment without jeopardising the livelihoods of the people. It must be noted that conservation efforts may have better chances of success if the local people are associated with them and also benefit from them. Mechanisms to entrust the task of managing, conserving, and using natural resources to local communities have been successful in some cases and could be emulated on a wider scale. Use of incentives and disincentives within suitable legal and institutional frameworks should be preferred over instrumentalities such as total bans and denial of access.

**Collective Institutions**

It is often forgotten that most productive resources are collectively, rather than privately owned in mountain areas. Leaving aside a small fraction of the land area under cultivation and a small proportion of land under non-agricultural uses owned by individual households, mostly in urban areas, all land, forests, pastures, and water resources are under state or community ownership. Therefore, livelihoods are, to a great extent, dependent on state policies and actions and the capability of communities to manage and use these resources and share the benefits among their members. Also, private actions of households in the use of resources under their control have significant externalities, both positive and negative, on the well-being of the communities. The role of communities and community-based organisations, therefore, is extremely important, not only for managing common resources, resolving conflicts, and determining access to and benefits from these resources, but also as channels for voicing the interests, concerns, and claims of mountain communities. In the specific sphere of productive activities, the small scale of production of individual households and units warrants that producers organise themselves to gain access to technology and inputs and marketing products in order to reduce transaction costs per unit of production and improve bargaining power to realise lower procurement costs and better product prices.

**Area-based Approach**
Diversity in ecological conditions and resource endowment and lack of connectivity with other areas within mountain regions warrants an area-wise focus in development. This is also likely to be more effective than the household-based targeting approach in view of the area, rather than household characteristics constituting the main sources of poverty, as argued earlier. Delineation of an area for strategic and programme interventions could best be done in mountain areas on the basis of a watershed approach, but it is necessary to combine socioeconomic features with physical characteristics to define and make a watershed the basis for planning of development and interventions to alleviate poverty (Papola 1996). At the same time, it must be recognised that a watershed, small or large, is a part of a wider economic space with linkages and inter-dependence with other spatial units. In this context, it is important to explore and develop rural-urban linkages and the role of small towns as market and service centres. These towns have a vital role as links between villages and cities located far away from most mountain areas. From the economic perspective, it would be useful to graduate from a watershed to a market-shed approach for development planning with a town in the centre providing market linkages to villages in the hinterland.

Use of Spatial Methodologies
Unlike in the plains, space is characterised by discontinuities and extreme and frequent variations in mountain areas. Therefore, any approach with a linear treatment of space will not be suitable here. Methodologies for resource assessment and development planning have, therefore, to be highly sensitive to spatial variations. Mapping techniques using tools like Geographical Information Systems (GIS), therefore, are of particular significance for mountain areas. Maximum use should be made of such methodologies in portraying living conditions and poverty, geographical distribution of the resource base, and infrastructure and market linkages for planning and implementing development and poverty alleviation programmes in mountain areas.

Role of the State
In the current context of emphasis on greater reliance on markets for development and poverty alleviation and only a minimalist role for the state as facilitator, mountain areas are in danger of further marginalisation insofar as market failures afflict these areas more than other naturally and infrastructurally better endowed areas. The state, therefore, needs to continue not only investing in infrastructure and services, but also to evolve policies in favour of these areas to ensure that markets function better and that the risks and effects of market failures are minimised. Ensuring food security will be essential for facilitating diversification of mountain economies into market-oriented development of products with comparative advantage, and the state will need to play a role in this respect in the initial period until markets become profitable enough for private trade to take over. Pro-mountain policies can be well justified not merely on the grounds of equity, but much more on the plea that mountain people need to be compensated for the deprivation and cost involved in conserving an environment that is necessary for sustaining development and livelihoods not only in mountain areas, but also of the people and economies in downstream areas. In other words, investments made by governments and society as a whole, including the private sector, in the development of mountain
areas and for the welfare of mountain people need to be seen as the price of environmental services rendered by them rather than as dole outs and subsidies in the conventional sense.

**Analysis and Advocacy**

Such an approach towards development of mountain areas and poverty alleviation among mountain people can emerge only if the government, civil society, private sector and international organisations are convinced that the fates of wider national and global economies and societies are linked to a great extent with those of mountain areas and people. It is, therefore, important that the issues of the valuation of mountain resources and costs and benefits of the mountain environment to local communities and for wider national and global development and sustenance, as well as highland-lowland linkages, are intensively and extensively investigated; their results widely shared with governments, private sector, and the international community; and appropriate mechanisms evolved for rational and equitable sharing of costs and benefits.

**Bibliography**


### Poverty Lines Using Different Norms

<table>
<thead>
<tr>
<th>Poverty Line</th>
<th>Plains</th>
<th>Hills</th>
<th>Mountains</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mountain Specific Poverty Line</strong></td>
<td>45%</td>
<td>41%</td>
<td>+25% (70%)</td>
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<tr>
<td>(Rs. 33,000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Calorie Intake-2800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Modified Consumption Basket (+15%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Local Price Level (+20%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hills-Specific Poverty Line</strong></td>
<td></td>
<td>+14% (55%)</td>
<td></td>
</tr>
<tr>
<td>(Rs. 27,000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Calorie Intake-2500</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- Modified Consumption Basket (+10%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Local Price Level (+15%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Common Poverty Line</strong></td>
<td>42%</td>
<td>41%</td>
<td>45%</td>
</tr>
<tr>
<td>(Rs. 20,000)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- Calorie Intake-2300</td>
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<td>- Modified Consumption Basket</td>
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<td>- Local Price Level</td>
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</tbody>
</table>
Annex 2 (Poverty in Mountain Areas of the Hindu Kush-Himalayas)

An Illustrative Listing of Activities
in Mountain Areas with Varying Economic
Benefits and Environmental Costs
(Ranks are relative among 20 activities)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rank by Economic Benefit to Local People (Starting with Maximum)</th>
<th>Rank by Environmental Costs (Starting with Minimum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumption I Availability of Resource (Supply Base)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Food grain cultivation</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>• Fruit cultivation</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>• Off-season vegetables</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>• Livestock</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>• Agro-Processing</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>• Fruit Processing</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>• Timber Products</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>• Micro-Hydel Plants</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>• Medicinal Plants, Growing and Processing</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>• Bamboo Products</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>• Saw Mills</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>• Wool Based Textiles</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>• Handicrafts</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>• Trekking Tourism</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>• Conservation Tourism</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>• Stone Queries</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>• Cement Factories</td>
<td>17</td>
<td>20</td>
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<tr>
<td>• Electronic Products</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>• Bee-keeping</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>• Natural Fibre Based Products</td>
<td>20</td>
<td>15</td>
</tr>
</tbody>
</table>

Notes: 1 List of activities is only illustrative. More could be identified.
2: Rankings are also illustrative, not necessarily based on detailed examination of benefits and impacts.
Annex 3 (Poverty in Mountain Areas of the Hindu Kush-Himalayas)

A Schematic Framework for Poverty Analysis and Alleviation Strategy in Mountain Areas