Deutsche Stiftung für internationale Entwicklung
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Mahesh Banskota, Trilok S. Papola, Jürgen Richter (eds.)

Growth, Poverty Alleviation and Sustainable Resource Management in the Mountain Areas of South Asia

International Centre for
Integrated Mountain Development

Zentralstelle für Ernährung und Landwirtschaft (ZEL) Feldafing/Zschortau
Food and Agriculture Development Centre

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Proceedings of the International Conference held
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Front - Along the Silk Route - The Karakoram Highway (*Greta Rana*)
back (R) - Along the Silk Route - The Karakoram Highway, Hunza (*Greta Rana*)
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ICIMOD in Brief

International Centre for Integrated Mountain Development (ICIMOD) was established in 1983 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-Himalayas. It acts as a focal point for documentation, training, and applied research and demonstration on a wide range of issues that governments and people face and provides advisory and consultative services on different aspects of sustainable development in these regions. As an international centre with a geographic focus and mandate in integrated mountain development, ICIMOD faces the challenge of balancing specialisation with diversification in its programme activities. This balance, with the adoption of the Regional Collaborative Programme (RCP), evolved on the basis of extensive regional and international consultations to set priorities for a 4-year period. The first RCP covered the period from 1994-98 and the current RCP-II (1999-2002) has established three thematic focuses, viz, poverty reduction, gender balanced development, and sustainable management of mountain commons.

ICIMOD adopts a decentralised approach to programme implementation in which national academic and research institutions, government development agencies, and NGOs with a mandate or interest in sustainable mountain development have the main responsibility to plan, implement, and finance programmes of their specific interest. ICIMOD functions as a facilitator for access to knowledge and advice and provides a regional perspective to the national and/or local activities undertaken.

The overall decision-making body of ICIMOD is its Board of Governors, made up of eight members representing the governments of the regional member countries, Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan and seven independent experts. To help forge a link between the Centre and the donor community, an ICIMOD Support Group has been established comprised of the Board's government representatives and donors demonstrating significant commitment and support on a sustained basis.

ICIMOD has 140 staff out of which 30 are internationally-recruited professional staff representing several nationalities and diverse disciplines ranging from agronomy, agroforestry, and farm economics; common property resource management, land-use planning, and hazard and rangeland management; and soil conservation, communications and information management, and alternative energy systems and water resources.

Annually, ICIMOD publishes about 40 monographs in diverse topics, ranging from mountain agriculture and mountain risk engineering to alternative energy systems and biodiversity. ICIMOD also publishes a **Newsletter** and **Issues in Mountain Development** to keep a large network of institutions and individuals regularly informed about the results of research, lessons learned, and best practices in the context of mountain development.

Foreword

Development of mountain areas, particularly in the Himalayan regions of South Asia, is faced with the two major challenges of poverty alleviation and environmental conservation. The very resources that constitute the primary sources of income and livelihood for mountain people are environmentally vulnerable. The overuse and careless exploitation of these resources endanger not only the ecological balance but also threaten sustainability of living standards. Devising and implementating strategies that can meet the twin goals of improved standards of living and conservation of the natural environment have proved elusive. It is, fortunately, now widely recognised that sustained efforts in this direction are urgently needed, as poverty and environmental degradation are found to reinforce each other. In addition to securing a better future for the millions of people living in the mountains, the fate of the many more millions living in the downstream lowlands is closely intertwined with the state of environment and development in the uplands.

The international Conference on Growth, Poverty Alleviation and Sustainable Resource Management in the Mountain Areas of South Asia was undertaken to improve our understanding of these issues and identify appropriate strategies and policies for sustainable mountain development. The International Centre for Integrated Mountain Development (ICIMOD), with its mandate for promoting sustainable development in the Hindu Kush-Himalayan region, and the German Foundation for International Development (DSE), with its keen interest and commitment to poverty alleviation, in general, and in poor mountain areas in particular, came together to organise this Conference. Its purpose was to facilitate interaction and in-depth discussions among policy-makers, academics, and members of civil society from the countries in South Asia with the Himalayan region as a part of their geographical areas. Regional and international inputs to the Conference were provided by participants from this region as well by participants from ICIMOD, China, and Europe.

The Conference papers, discussions, and conclusions evoked wide interest among the participants, as well as among other policy-makers, development organisations, and academics from the region and beyond. We, therefore, decided that the record of the Conference deliberations and papers should be published for wider circulation and for the use of different stakeholders.

We are pleased to present this compendium of development experiences, views, and suggestions on overall, sectoral, and institutional strategies for growth, poverty, and sustainable management of natural resources in the mountain areas of South Asia. We recognise that the region has extreme diversity in natural resource endowment, sociocultural characteristics, and stages of economic and institutional development. All the findings and recommendations may not be uniformly valid and applicable to all areas and locations in the region. Yet we believe that the volume offers several

broad ideas on strategies with wider common applicability and a number of others that may be found of use in specific situations, sectors, and settings. We, therefore, hope that it will be found of interest and practical use for policy and programme formulation by governments, non-government development organisations, and donors.

Dr. T.S. Papola from ICIMOD and Mr. Jürgen Richter from DSE played key roles in organising the Conference. Dr. Mahesh Banskota joined them in editing the volume. We are very grateful for their excellent contributions and hard work in putting the volume together, editing the contributions, and synthesising the findings.

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Preface

This volume consists of the papers and proceedings of an International Conference on 'Growth, Poverty Alleviation and Sustainable Resource Management in Mountain Areas of South Asia' organised jointly by the International Centre for Integrated Mountain Development (ICIMOD) and the German Foundation for International Development (DSE) from January 31 – February 4, 2000 in Kathmandu. The Conference was an attempt to take stock of the trends and experiences and to contribute towards formulation of appropriate strategies and policies for sustainable development in the mountain areas of the Hindu Kush-Himalayan region of South Asia. Participants at the Conference included senior policy-makers, academics, and representatives of civil society from Bangladesh, Bhutan, India, Nepal, and Pakistan and resource persons from China and Germany, besides several staff members from ICIMOD and representatives from DSE and several multilateral and bilateral organisations.

The volume is organised into five parts. Part I consists of the chapter outlining the issues and strategies in mountain development emerging from the presentations and discussions of the Conference, including a summary of major conclusions and recommendations prepared by the editors. Part II includes papers presenting overviews on development experiences: first, in the Hindu Kush-Himalayan region, in general, and then in the five countries represented at the Conference. It also includes a paper dealing with the development strategies and experiences in poverty alleviation and sustainable development in the Qinghai-Tibetan Plateau Region in China. Five papers dealing with economic opportunities and options within and outside agriculture, based on the comparative advantages of mountain areas, are presented in Part III. Part IV has four papers, three examining the issues of land systems and land tenure and one on emerging participatory mechanisms in forest management. The last part consists of three papers on access, equity, and linkages. Various Annexes give information on the Conference participants and organisation.

In organising the Conference and putting together this volume many individuals and institutions have collaborated. We would like to begin by thanking DSE for providing financial support for organising the Conference and also meeting the cost of printing the volume. We would like to express our sincere gratitude to the Hon'ble Foreign Minister of Nepal, Dr. R.S. Mahat, and H.E., Dr. K. Barth, Ambassador of the Federal Republic of Germany to Nepal, for addressing the Conference and providing valuable insights. At ICIMOD, the initiative taken and support provided by the former Director General, Mr. Egbert Pelinck, were key factors in successful organisation of the Conference. Other colleagues from ICIMOD contributed papers and/or acted as resource persons for various working groups: Anupam Bhatia, N.S. Jodha, K. Rijal, S.Z. Sadeque, P. Sharma, P. Tshering, and P. Tulachan. Mr. Milan Shrestha, IIDS, Kathmandu, acted as the rapporteur at the Conference and helped in preparing the proceedings. Ms. Beryl Rajbhandari, Ms. Sunita Shakya, Ms. Sheetal Rana, and Ms.

Archana Sharma worked as secretary-rapporteurs for the working group sessions. Thanks are due to all of them, as also to all the paper writers from the region and outside for their contributions.

We would also like to thank the ICIMOD administration, especially the finance and travel sections, for their excellent logistical support . The MEI Division secretariat consisting of Rajendra Shah and Samjhana Thapa deserves special appreciation for processing the Conference papers and providing all the secretarial and administrative support.

Special thanks are due to the Conference facilitators, Gundula Kreis, George Bokeloh, Geert Balzer, and Annegret Schimidjell, for the efficient and result-oriented organisation of discussions during the Conference.

Lastly, we would like to thank Dr. Mohan Man Sainju, the Conference Chairman, for his guidance and excellent steering of the deliberations and for making valuable inputs at different stages of the Conference.

Mahesh Banskota
T.S. Papola
Jürgen Richter

Abbreviations

ACAP	-	Annapurna Conservation Area Project (Nepal)
ADB/N	-	Asian Development Bank, Nepal
ADMA	-	Ayurvedic Drug Manufacturers' Association
ADP	-	Annual Development Plan
AKRSP	-	Agha Khan Rural Support Programme
ANSAB	-	Asian Network for Small-scale Bioresources
APP	-	Agricultural Perspective Plan
APROSC	-	Agricultural Projects Services' Centre
BAMA	-	Baltistan Apricot Marketing Association
BARC	-	Bangladesh Agriculture Research Council
BBS	-	Bangladesh Bureau of Statistics
BC	-	Brahmin/Chhetri
BDFC	-	Bhutan Development Finance Cooperation
BNPP	-	Bhutan National Potato Programme
BRSP	-	Balochistan Rural Support Programme
BWTP	-	Banking With The Poor
CAF	-	Chinese Academy of Forestry
CBS	-	Central Bureau of Statistics
CDB	-	Cotton Development Board
CDS	-	Community Development Section
CDC	-	Conservation and Development Committees
CEAPRED	-	Centre for Environmental and Agricultural Policy Research Extension and Development
CECI	-	Canadian Centre for International Studies & Cooperation (INGO)
CEDA	-	Centre for Economic Development and Administration
CEDAW	-	Convention on the Elimination of All Forms of Discrimination against Women
CFPD	-	Community and Private Forest Division
CHEMEXCIL	-	Chemical Export Company (India) Ltd.
CHT	-	Chittagong Hill Tracts
CHTDB	-	Chittagong Hill Tracts' Development Board
CHTRC	-	Chittagong Hill Tracts' Regional Council
CITES	-	Convention on International Trade in Endangered Species
COs	-	Community Organisations
COU	-	Community Organisation Unit
CPR	-	Common Property Resources
CSD	-	Centre for Self-help Development
CSIDB	-	Cottage and Small Industries' Development Board

CSE	-	Centre for Science and Environment
CSO	-	Central Statistical Organisation
DAE	-	Department of Agricultural Extension
DANIDA	-	Danish International Development Agency (GO)
DFO	-	District Forest Officer
DKS	-	Damai/Kami/Sarki
DNPWC	-	Department of National Parks and Wildlife Conservation
DPT	-	diptheria, pertussis in tetanus
DSC	-	Druk Seed Corporation
DSE	-	Deutsche Stiftung für internationale Entwicklung The German Foundation for International Development
EDA	-	Economic Development Associates
EDI	-	Entrepreneurship Development Institute
EDPs	-	Entrepreneurship Development
EIA	-	Ethnic Impact Assessment
EPC	-	Environmental Protection Council
ERL	-	Environmental Resources Limited
ESCAP	-	Economic and Social Commission for Asia and the Pacific
FAO	-	Food and Agriculture Organisation (UN)
FCB	-	Food Corporation of Bhutan
FEDRC	-	
FHE	-	Female Headed Enterprises
FHH	-	Female Headed Household
FINNIDA	-	Finnish International Development Agency
FSI	-	Forest Survey of India
FTG	-	Fair Trade Group
FUGs	-	Forest User Groups
GAMA	-	Gilgit Agricultural Marketing Association
GBPIHED	-	Govind Ballabh Pant Institute of Himalayan Environment and Development
GDP	-	gross domestic product
GNH	-	gross national happiness
GHP	-	gross national product
GIS	-	Geographic Information Systems
GOB	-	Government of Bangladesh
GOP	-	Government of Pakistan
GOI	-	Government of India
GR	-	Gurung/Rai
GTZ	-	(Deutsche) Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)

HADP	-	Hill Area Development Programme
HDI	-	Human Development Index
HKH	-	Hindu Kush-Himalayas
HMG/N	-	His Majesty's Government of Nepal
HP	-	Himachal Pradesh
HRD	-	Human Resource Development
HVC	-	High-Value Crop
IBP	-	Intensive Banking Programme
ICAR	-	International Centre for Agricultural Research
IDRC	-	International Development Research Centre
IEDI	-	Industrial Enterprise Development Institute
IFAD	-	International Fund for Agricultural Development
IFPRI	-	International Food Policy Research Institute
IIED	-	International Institute of Environmental Development
IGAs	-	income-generating activities
ILO	-	International Labour Organisation
IMF	-	International Monetory Fund
INBAR	-	International Network for Bamboo and Rattan
INGO	-	International Non government Organisation
IOL	-	India Office Library
IOR	-	India Office Records
IPGRI	-	International Plant Genetic Resource Institute
IPR	-	Intellectual Property Rights
IRDP	-	Integrated Rural Development Programme
IUCN	-	International Union for the Conservation of Nature and Natural Resources
J & K	-	Jammu & Kashmir
JMA	-	John Mellor Associates
KIDP	-	Kalam Integrated Development Project
KKH	-	Karakoram Highway
KMTNC	-	King Mahendra Trust for Nature Conservation
LAC	-	Lumle Agricultural Centre
LWUP	-	Land and Water Use Programme
LPI	-	Living Planet Index
LRMP	-	Land Resource Mapping Project
MAPs	-	medicinal and aromatic plants
MAPPA	-	Medicinal and Aromatic Plants' Programme in Asia
MCPW	-	Micro-Credit Project for Women
MECP	-	Micro-Enterprise Credit Programme

MENRIS	-	Mountain Environment and Natural Resources' Information Service (ICIMOD)
MFS	-	Mountain Farming Systems' Programme
MHE	-	Male Headed Enterprises
MHH	-	Male Headed Household
MNCs	-	Multi National Companies
MOF	-	Ministry of Finance
MPFS	-	Master Plan for the Forestry Sector
MW	-	Megawatt
MRD	-	Mountain Research and Development
NAs	-	Northern Areas
NASEPP	-	National Seed and Plant Programme
NADP	-	Northern Areas' Development Project
NAM	-	Need Assessment Mission
NARC	-	National Agricultural Research Centre
NARRC	-	National Research and Resource Centre
NBC	-	New Business Creation
NCAER	-	National Council of Applied Economic Research
NCCHT	-	National Committee on the Chittagong Hill Tracts
NCEA	-	National Commission on Environmental Affairs
NCHS	-	National Council of Health Statistics
NCS	-	National Conservation Strategy
NFC	-	Nepal Food Corporation
NGO	-	non-governmental organisation
NHFWS	-	National Health and Family Welfare Survey
NIRD	-	National Institute for Rural Development
NLSS	-	Nepal Living Standards Survey
NPC	-	National Planning Commission
NRB	-	Nepal Rastra Bank/Natural Resource Base
NRCR	-	Nepal Rural Credit Review Study
NRs	-	Nepalese rupees
NRSP	-	National Rural Support Programme
NSA	-	net sown area
NSDP	-	Net State Domestic Product
NSCA	-	National Sample Census of Agriculture
NSSO	-	National Sample Survey Organisation
NTFP	-	non-timber forest product
NVR	-	Nepal Village Resorts
NWAB	-	National Women's Association of Bhutan
NWFP	-	North West Frontier Province
OGL	-	open general licence

PARC	-	Pakistan Agricultural Research Council
PATA	-	Provincially Administered Tribal Areas
PCM	-	production to consumption and marketing
PCMCA	-	production to consumption and marketing chain approach
PCMS	-	production to consumption and marketing systems
PCJSS	-	Parbatya Chattagram Janasanghati Samiti
PCRW	-	Production Credit for Rural Women
PFM	-	participatory forest management
PMRY	-	Prime Minister's Rojgar Yojana
PMU	-	Project Management Unit
PPP	-	purchasing power parity
R & D	-	research and development
RRDB	-	Regional Rural Development Banks
RSPs	-	Rural Support Programmes
RSRF	-	Rural Self-Reliance Fund
SAARC	-	South Asian Association for Regional Cooperation
SARO	-	South Asia Regional Office
SAS	-	Society of Agricultural Scientists
SAD	-	Special Affairs Division
SALT	-	Sloping Agricultural Land Technology
SAP	-	Social Action Programme
SBPP	-	Small Business Promotion Project
SCOs	-	savings and credit organisations
SDP	-	Scheme Development Process / State Domestic Product
SDPI	-	Sustainable Development Policy Institute
SEEPORT	-	Socioeconomic and Ethno-Political Research and Training Consultancy
SEEUY	-	Scheme for Self-employment among Educated Unemployed Youth
SFDP	-	Small Farmers Development Programme
SHBP	-	Self-help Banking Programme
SHERPA	-	Society for Himalayan Environmental Rehabilitation for People's Action
SME	-	small micro-enterprise
SPCC	-	Sagarmatha Pollution Control Committee
SPCS	-	Sarhad Provincial Conservation Strategy
SRS	-	sample registration system
SRSC	-	Sarhad Rural Support Corporation
SRU	-	sustainable resource use
TB	-	tuberculosis
TDMC	-	Tourism Development and Management Committee
TMI	-	The Mountain Institute

TML	-	Tamang/Magar/Limbu
TNA	-	training need assessment
UN	-	United Nations
UNCED	-	United Nations Convention (Conference) on Environment and Development
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environment Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation
UNICEF	-	United Nations Children's Fund
UP	-	Uttar Pradesh
USAID	-	United States Agency for International Development
USF	-	unclassed state forest
VDP	-	Village Development Plan
VO	-	Village Organisation
VFDCs	-	Village Forest Development Committees
WDGs	-	Women's Development Groups
WEAN	-	Women Entrepreneurs' Association of Nepal
WIDP	-	Women in Development Programme
WO	-	Women's Organisation
WTO	-	World Trade Organisation
WW	-	World War
WWF	-	World Wildlife Federation

Glossary

Aman	kharif (summer) II rice
Aus	kharif (summer) I rice
Bhesaj Sangh	Traditional Doctors Association
Boro	Winter rice
Chathrims	Acts (Bhutan)
Driglam Choesum	Traditional etiquette (Bhutan)
Dzongdags	District Administration (Bhutan)
Dzongkha	National language (Bhutan)
Dzongkhag	district (Bhutan)
Garhwal Mandal	Garhwal Division Development Corporation
Vikas Nigam	(Tehri-Garhwal)
Gewogs	villages grouped together as 'blocks' (Bhutan)
Gups	village Headman (Bhutan)
Hhd	household
Jhum	shifting cultivation
Juhmia	shifting cultivator
Ka-Nying Zung Drel	Spiritual tradition (Bhutan)
Khas	government owned land but right to possession enjoyed by the individual
Mogachhari	A type of soil classification (hilly land) in Bangladesh
mouza	Lowest revenue unit, more or less about the size of a village
Pathshalas	Sanskrit schools in villages (India)
Rigney	grammar and arts school (Bhutan)
Sanskrit pathshalas	Sanskrit medium schools (Bhutan)
Sarpanch	head of panchayat (India)
Shanti Bahini	Literally Peace Brigade – actually the armed cadre of PCJSS fighting Bangladesh government
Tehsildar	A *tehsildar* is the officer in charge of a *Tehsil* - an administrative unit, smaller than a district (Pakistan)
tekedari	sub-contractor

Terai	Alluvial piedmont plain occurring at the base of the Himalayan range, from 60-300 masl. This is an extension of the broad Gangetic plains including the Bhabar region and the alluvial fans of the Siwaliks. The region is heavily traversed by the major river systems of Nepal. It exhibits a tropical type of climate. *Dalbergia sissoo*, *Shorea robusta*, and *Eucalyptus* are the major vegetation types of forest, interspersed with riverine savanna grassland. Much of the forests and savannas of the *Terai* have been converted to agriculture (Bangladesh).
Thana	sub-district
Tikka	hamlet
Zila Parishad	District Council (India)

Part I
Perspectives and Issues

This part consists of a chapter, prepared by the editors, summarising the issues, challenges, and options in development of mountain areas in South Asia, as reflected in the statements on the background material for the Conference, those made in the opening session, and presentations in the plenaries and discussions and recommendations in the working groups. It also incorporates the main conclusions and recommendations of the Conference and follow-up actions put forward in the concluding session of the Conference.

The presentations and discussions reflected the wide heterogeneity of the mountain economies and environments. This is evident in this overview also. Diversity is probably the most important characteristic of mountain areas. It not only provides potentials and options, but also places various constraints on development. Finding the right approach to promoting the opportunities within the constraints posed by the mountain environment is probably the key to achieving the twin objectives of poverty alleviation and environmental conservation.

Chapter

Part II
Overviews

This part includes seven papers: one each on the HKH region, South Asian countries represented at the Conference, and the Qinghai Tibetan Plateau region of China. The first paper describes the experiences in development and emerging trends in the economies and environment of the region from an eco-regional perspective. It describes some of the distinguishing features of the region, looking at them from the point of view of its biophysical, demographic, economic, and environmental conditions and processes. The paper argues that poverty and environmental degradation are increasing, and that this is reflected in the vulnerability to natural hazards of the growing population. It also makes suggestions and recommendations about future strategies for sustainable development.

Papers relating to different countries have a common theme, insofar as they all attempt to relate development issues to environmental concerns in mountain areas. Yet, as experiences are varied, they have also tried to focus on specific aspects of development in particular contexts. For example, the paper on Bangladesh focuses on the new development environment in Chittagong Hill Tracts following the Peace Accord after an insurgency lasting two decades. A number of development activities had been undertaken in the past, but some of these had adverse impacts on the population of the hill tracts. Shifting agriculture, a key feature of the hill economy, has raised important economic and environmental questions. There is, nevertheless, much optimism about the future of the hills tracts because of the peace accord. The paper from Bhutan emphasises the unique resource endowment of the country and its goal of Gross National Happiness - the Bhutanese version of sustainable development. Bhutan, in many ways, is very different from other parts of the HKH as currently there is little pressure on its natural resources because of its relatively small population. However, the country has already embarked on a strong environmental programme that is closely linked with issues of sustainable livelihood and conservation of resources. The paper on India deals with the variety of situations and experiences in

different mountain states and regions with varying resource endowments, socioeconomic contexts, and levels of development and the way in which the national planning system has tried to accommodate the problems and concerns of different areas within its development strategy. The Indian Himalayas provide examples of many interesting experiences and changes over time. If the rapid expansion in education in some parts of the mountains is noteworthy, the relatively poor economic performance of the mountain areas compared to other parts of the country is almost a uniform experience. The case of Nepal is presented within the overall context of the concerns for environment, development, and poverty alleviation and the need for differentiated strategies for its three ecological divisions, the Terai, mid-hills, and the high mountains. In Nepal's case the poor performance of agriculture as the dominant sector in the country appears to be the primary reason behind the increasing poverty and deterioration of the environment. The problems appear to be more serious in the mountain areas, although most of the solutions lie in developing better linkages between different regions and sectors. The paper on Pakistan focuses on poverty alleviation strategies in mountain areas with the help of a detailed analysis of selected programmes and projects in the public, private, and NGO sectors. It also brings out the emerging issues in and efforts made towards use and conservation of natural resources. In the case of Pakistan also, the focus on mountain people and their problems is more recent. Earlier development efforts were oriented towards the extraction of mountain resources (like water and forests), primarily for use in the plains.

The paper dealing with the Qinghai-Tibetan Plateau illustrates how national and local governments have tried to tackle the problem of poverty through programmes reorganising production structures, investments in infrastructure, technological interventions, and sustainable use and regeneration of natural resources. The paper emphasises the need to move away from subsistence to market production and emphasises the role of the government in establishing the infrastructure and support services needed. It also argues that mountain areas need to make themselves attractive for outside investors.

Chapters

2. **The Hindu Kush-Himalayas: Searching for Viable Socioeconomic and Environmental Options** — M. Banskota

3. **Socioeconomic Status and Development of Chittagong Hill Tracts (CHT) of Bangladesh: An Overview** — M.R. Shelley

4. **Integrating Economy and Environment: The Development Experience of Bhutan** — C. Lhamu, J.J. Rhodes, D.B. Rai

5. **Development Experience in the Himalayan Mountain Region of India** — B.K. Joshi

6. **Sustainable Poverty Alleviation and Mountain Development in Nepal: Status, Experience and Strategy** — H.K. Upadhyaya

7. **Growth, Poverty Alleviation and Sustainable Resource Management in Mountain Areas of Pakistan** — S. Zia

8. **Strategies and Experiences in Poverty Alleviation and Sustainable Development in the HKH and the Qinghai-Tibetan Plateau Region in China** — Y. Ruizhen

Part III
Economic Opportunities and Options

This part contains five papers on selected economic sectors with potential for development and poverty alleviation, based on comparative advantages offered by mountain areas. The first two deal with diversification of agriculture: one, on the general trends in the HKH region, looks at growth and compositional changes in food crops, horticulture and cash crops, and animal husbandry and brings out the implications for sustainable development of agriculture based on analysis of data from a cross-section of mountain regions and areas from different countries in the region. The second paper on the subject focuses on agriculture in the mountain regions of India and points out the tremendous heterogeneity across and within hill states/ regions. Still, in general, it concludes, the potential of agriculture, particularly in its diversified forms, has not been realised in mountain areas because of infrastructural and institutional constraints, while, on the other hand, signs of unsustainable use of natural resources are becoming increasingly visible.

Forest resources constitute an extremely valuable endowment for poverty alleviation and, within them, non-timber forest products, particularly medicinal herbs and plants, have great potential for high-value production. The paper on the subject, after analysing the experience of the extraction and use of these resources in the region, suggests an institutional and policy framework for commercialisation of forest products for sustainable development and improved livelihoods. Another paper on enterprise development, based on several ICIMOD studies, notes the trends and patterns emerging in the diversification of mountain economies through market-oriented development of products and argues for a more favourable policy framework and reorientation of programmes for enterprise development based on comparative advantages in mountain areas. While in some areas there is already a growing demand for mountain produce and products (herbs, forests, hydroelectricity, recreation), in others there is a need to generate greater awareness about the value of some of the products (those based on cultural resources). Increasingly, with improvement in access,

product quality, standardisation, and packaging have become critical components of value added.

The last paper in this part deals with the most visible and most recommended activity for development of mountain areas, namely, tourism. It focuses on tourism as a vehicle for local community development and improving the livelihoods of mountain people. Based on the experience of mountain tourism in the region, documented by ICIMOD through various studies undertaken, and with particular reference to Nepal, the paper draws several lessons for effective use of tourism to increase its benefits to local communities with adequate emphasis on augmentation of environmental resources. If some benefits from tourism are ploughed back to further develop local resources (both cultural and environmental), tourism can become a sustainable force for local development.

Chapters

Part IV
Land Systems and Natural Resource Management

This part consists of four papers: three on land resources, land-use systems, and land tenure and one on forest management. The paper on innovative land and resource policy discusses the issues of land-tenure systems and land policies in Asia: such as how well the land tenure and policy regimes will cope with the ongoing rapid socioeconomic changes, what are the implications of a shift from land tenure to resource tenure, and how will the conflict between local and global governance be resolved? It argues for greater devolution of natural resource management with suitable institutional strengthening at the local level. The second paper on the subject deals with land systems, tenure, and policies in Nepal and attempts to relate them to poverty alleviation efforts. It concludes that the government policy on land reforms has been lukewarm and not very conducive to the development of a growth and equity-oriented economy and argues that redistribution of land could augment agricultural productivity and, therefore, needs to be further pursued. The paper on North East India juxtaposes the traditional tribal land ownership and use system with the 'modern' land tenure system and points out how confusion between the two and increasing exposure of the area to the outside commercially-oriented world have led to increasing inequities in control over land and a few land 'sharks' capturing large amounts of land leaving the poorer shifting cultivators with increasingly smaller pieces of land to eke out their livelihoods.

The last paper in this part deals with participatory management of forests. It notes that significant advances have been made in involving communities and local users in the management of forests in the HKH region, mostly to the benefit of rural people and resulting in improved management of forest resources. A lot needs to be done, however, the paper points out, in terms of clarity in policies and strengthening the technical and institutional capacities of local communities. More emphasis is needed

on generating new forest resources that are environmentally and economically desirable rather than concentrating on managing an inherited stock of forest resources.

Land ownership, access to land, and land-use issues are still very critical in a region where most of the people have land as their primary source of livelihood. It is also at the heart of many issues regarding equity in mountain societies. At present, there appears to be relatively little emphasis on this aspect in mountain areas. In view of the fact that it is inextricably tied up with the question of poverty and the conservation of environmental resources, it should receive greater attention from governments in the future.

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Part V
Access, Equity and Linkages

The first paper in this part deals with one of the most vital issues in mountain development, namely, accessibility. It discusses the role of transport networks and urban settlements in improving accessibility on the basis of analysis of the historical experiences in several South Asian mountain areas. It notes the reasons, other than the provision of better transport facilities for mountain people, that have mostly been responsible for developing transport networks in mountain areas of South Asia. However, mountain communities have benefited from such development whether they were the intended beneficiaries or not. The same has been the case with development of urban settlement. The paper emphasises that the impact from introduction of road systems and improved accessibility to mountain areas should not be underestimated and should be seen in the longer run and in a nation-wide perspective.

The paper on mountain women focuses on economic opportunities for them as a major vehicle for their emancipation and poverty alleviation. It describes the status of women, particularly in relation to their participation in control over economic resources and activities, differentiating between the Indo-Aryan and Tibeto-Burman communities; but the paper also brings out a lot of commonalities in terms of gains and losses of women in the wake of commercialisation in the entire HKH region. Finally, it draws a number of implications for policies and programmes, especially in terms of reducing gender discrimination in access to land, capital, and credit as well as provisions and practices in education and health.

The final paper in this part examines the implications of linkages between the mountains and lowlands in the context of globalisation of markets. It points to the adverse terms of trade against the uplands and the one-way drain of resources without compensatory mechanisms. It warns that penetration of markets into mountain areas may accelerate this process unless the capacities of mountain regions and their people are raised to take advantage of emerging opportunities in the global

markets and compensatory mechanisms are developed for the resource flows that cannot be easily taken care of by price and market mechanisms

In all three areas, appropriate government policies play an important role. If government fails to provide the needed investments to develop the basic infrastructure, it is unlikely to come from any other source – at least not until a reasonable level of economic development is achieved. Regarding gender discrimination, there is still a lot of room for changes in legal aspects, awareness generation, and capacity building – areas in which government plays a major role. The introduction of compensatory mechanisms for adverse terms of trade has many important policy implications in terms of both economic as well as environmental aspects. Similarly, important negotiations at the global level to win appropriate recognition of the unique value of mountain products require that not only should national governments play a major role but also that governments work together as a coherent regional body for promoting mountain products.

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Annexes

1. Conference Programme
2. List of Participants
3. Terms of Reference for the Parallel Working Groups
4. A Note on the Field Visits (also includes 3 field trips organised under separate headings)

Chapter 1
Development in Mountain Areas of South Asia—Issues and Options

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1.1 Introduction

The present chapter attempts to summarise and synthesise the issues, challenges, and opportunities in economic development and natural resource management in the mountain areas of South Asia, as presented in papers and discussions at the Conference. Starting with the background, objectives, and organisational structure of the Conference, the first section highlights the key issues raised and observations made in the opening session. Section 2 summarises the main issues and challenges in development as highlighted in papers presented at the Conference. Section III highlights the issues raised and options and recommendations made in the detailed thematic discussions on different sectors and aspects of development. The final section presents the main conclusions arrived at and recommendations made by the Conference.

Background and objectives of the conference

The mountains of South Asia are home to millions of rural poor, and their future livelihoods are being threatened by rapid degradation of natural resources, and this could also have serious implications in terms of downstream flooding and siltation. Many studies have suggested that, unless concerted action is taken immediately, poverty, hunger, and decline in resources will continue to aggravate these mountain areas. The important contributing factors are rapid population growth, insufficient

growth in per capita incomes from both agricultural and non-agricultural sources, and mismanagement of a fragile environment. Increasing numbers of poor people have little option but to expand the area under cultivation to marginal and forest lands. Indiscriminate exploitation of natural resources such as forests, not only by locals but also more often by outside interests, and many development activities have added to resource, degradation, leading to problems such as soil erosion, loss in land productivity, and pollution of the environment.

Over the past few decades, mountain areas throughout the region have been subjected to rapid changes. Expansion in education and health services, development of roads and electricity, improvements in irrigation, new agricultural and related technologies, and penetration of commercial forces are drastically altering many mountain areas. Whereas previously little attention was given to resolving mountain development problems, today there is widespread awareness and commitment. Among the mountain people themselves, there is a rising tide of expectation after centuries of isolation. There is much enthusiasm and willingness to work for a better future.

There have been several initiatives in the recent past, by governments in the region and local communities, to improve livelihoods and conserve the environment in their mountain areas. The results have varied depending on the degree to which mountain 'specificities' have been incorporated and the appropriateness of institutional mechanisms used for their implementation. Yet the challenges of poverty alleviation and sustainability of livelihoods are becoming more serious, primarily due to the overall inaccessibility and fragility of resources and environment in these areas, but also on account of the socio-political and economic marginality of mountain people and the unsuitability of institutional and related arrangements often taken in development initiatives. Nonetheless, there are some success stories amidst a plethora of failed experiments; and it is necessary to look at both to chart out appropriate approaches and strategies for the future.

It is against this background that the International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, and the German Foundation for International Development (DSE) jointly organised a five-day International Conference entitled, 'Growth, Poverty Alleviation and Sustainable Resource Management in Mountain Areas of South Asia' from January 31-February 4, 2000, in Kathmandu. The broad goal of the Conference was to contribute towards formulation of development strategies to achieve a pace and pattern of economic growth that will lead to alleviation of poverty with sustainable use and management of natural resources in mountain areas. The specific objectives were as follow:

- to analyse the nature and severity of the current crisis in livelihood needs and environmental degradation and of the future outlook if the current trends continue;
- to review the experience with development strategies in mountain areas and the reasons for past successes and failures; and

- to identify appropriate strategies and an agenda for action in respect of economic development and sustainable use and management of natural resources in the fragile eco-systems of mountain areas.

Organisation

The Conference participants, about 70 in all, included senior government officials engaged in policy-making and implementation, academics, experts, and representatives of civil society from Bangladesh, Bhutan, India, Nepal, and Pakistan. Resource persons from Germany and China, representatives of international development organisations, bilateral donors, and experts from DSE and ICIMOD also participated in the Conference.

Presentation of papers, parallel working group discussions and presentations, plenary sessions, a field visit, and a closing session to highlight the principal conclusions and recommendations were the main components of the Conference. Altogether nineteen papers discussing the key problems and challenges facing sustainable natural resource management, poverty reduction, and development in the mountain areas of South Asia were presented in the plenary sessions. The first paper reviewed the status, trends, and policies related to development of mountain areas in the Hindu Kush-Himalayan (HKH) region. Another six papers presented in Plenary Session I dealt with the situation in each of the South Asian countries present at the Conference and in the Qinghai-Tibetan Plateau Region of China. At Plenary Session II, on the second day of the Conference, five sectoral papers were presented on the broad theme, 'Options and Opportunities for Economic Diversification.' Diversification of agriculture, commercialisation of natural resources (non-timber forest products or NTFPs) for sustainable livelihoods, and development of tourism and micro-enterprises in mountain areas were the topics selected for presentation. Similarly, there were seven other sectoral papers in Plenary Session III; all seven papers were related to the theme, 'Access, Resources and Institutions'? These papers dealt with issues concerning the land system/tenure in Asia, Nepal, and North-East India, participatory resource management practices with a focus on forest resources, mountain women, improving accessibility, and highland-lowland linkages. Participants were also exposed to some real-life situations and experiences in tourism, a nursery for medical plants for farmers' benefits, dairy development, vegetable cropping, community forestry and watershed development, and participatory development planning during a day-long field trip.

On the basis of the five days' presentations and discussions in the plenary sessions and intensive discussions in eight Working Groups on the subjects of Diversified Agriculture, Enterprise Development, Forest Products, Tourism, Land Systems, Land Tenure, Natural Resource Management, and Impact of Globalisation, the Conference arrived at a number of conclusions and made detailed recommendations on various aspects of sustainable development in the mountain areas in South Asia.

Overview and expectations: the opening session

The Conference was formally opened with a welcome address by Mr Egbert Pelinck, Director General of ICIMOD. In his welcome speech, Mr Pelinck observed that ICIMOD has regularly undertaken numerous studies and organised meetings on sustainable mountain development since its establishment in 1983. Many subjects and problems had been covered. However, comprehensive stocktaking on a common and critical problem like poverty had been less frequent. He observed that the present Conference had been organised to revisit ICIMOD's original mission and assess where it stood at a time when processes of globalisation and liberalisation were also starting to affect the region.

The Conference, according to Mr. Pelinck, was significant for at least five reasons. First, physical access was improving and new exciting developments were taking place in the field of access to information. Second, technological options to incorporate the fragility of the youngest geological formation in the world were being adopted more and more, whether in farming systems or in road construction. Third, new institutional mechanisms for managing natural resources at community level had been developed. Fourth, globalisation and liberalisation had allowed mountain economies to bring mountain-specific products and services to international markets. Fifth, mountain issues had now entered the mainstream discussion on poverty and environment.

Mr. Pelinck urged the Conference participants to identify opportunities by which mountain areas could benefit from market-centred development and not lose out in the processes of commercialisation and globalisation of markets. He called for addressing not only economic but also the social impact of various interventions. He hoped that the outcome of the deliberations would include: (1) an agenda for knowledge generation and dissemination; (2) a set of suggestions for reorientation of policies towards mainstreaming mountains in a sustainable growth scenario; and, (3) suggested roles for different partners in development, viz., communities, government agencies, non-government and community-based organisations, international organisations, and donors and the private sector.

Dr. K. Barth, Ambassador of the Federal Republic of Germany to Nepal, made it clear that Germany, one of the most important contributors to ICIMOD, did not see herself exclusively as a donor in relation to ICIMOD but also as a partner. He said that sustainable and integrated development, 'particularly in the agricultural field and under very special, and sometimes inclement, circumstances prevailing in mountainous regions', required exactly the kind of multi-pronged, interdisciplinary, and long-term approach that ICIMOD was pursuing. He called for regional cooperation among scientists and experts from all nations able to contribute relevant knowledge and experience, and in particular from the countries where the new insights gained and methods developed through such cooperation were to be employed.

In his inaugural address, Dr. Ram S. Mahat, Minister for Foreign Affairs of His Majesty's Government of Nepal, said that the question concerning how mountain

people and the environment would cope with and benefit from the results of globalisation processes without adversely affecting sustainability of their environment was one of the greatest challenges and needed to be pondered over and the challenge met for the good not only of mountain people but for the overall and sustained well-being of the world community at large. He added that the development challenges in the hills and mountains were enormous. He, however, noted that development efforts for improving the resource base, increasing the economic opportunities, and promoting the use of improved technologies had not been able to keep pace with population growth.

Dr. Mahat remarked that environmental problems were not new for mountain communities. However, he added that currently the pressures were much larger in scale and consequently traditional adaptation mechanisms had become inadequate. He said that the processes underlying widespread resource degradation could not be tackled effectively if we perceived them only as a physical chain of cause and effect in isolation from social, economic, and institutional frameworks.

According to Dr. Mahat, the most difficult development and environmental question before us today was how to bring about a change in the lives of already hard-pressed mountain people. He warned that the inability to identify workable solutions could easily affect much larger mountain communities. He observed that the poverty eradication efforts of the governments of the South Asian countries as well as those of non-governmental organisations and the international community and donors had mostly been characterised by limited and ad hoc initiatives. Recognising the contributions to poverty alleviation made by programmes such as Comilla, Grameen Bank, Anand, Self Employed Women's Association (SEWA), Sukhomajari, Community Forestry, Small Farmers' Development Project (SFDP), Production Credit for Rural Women (PCRW), Participatory District Development Programme (PPDP), he, however, observed that once these programmes expanded, they became victims of all types of bureaucratic and political malpractices and, as a result, fell apart. Therefore, he called for tackling aspects of management, governance, transparency, accountability, and participation before experimenting with new programmes.

Outlining the objectives and structure of the Conference, Dr. Mohan Man Sainju, the Conference Chairperson, noted that mountain areas were becoming increasingly important from the point of view not only of millions of people living there but also of people living in the plains and beyond. He noted that the mountain areas were coming out of their traditional isolation because of modern technology, communications, education, and commerce. He pointed out that lack of mountain-focused development strategies had retarded the growth of mountain economies. He also raised a concern about unrestrained use of the environment which had accelerated the depletion of natural wealth and created new problems of pollution of air, water, and soil.

Striking a note of optimism, he added that, mountain areas were not only confronting challenges and problems; they were also offering new opportunities. The first of

these opportunities was presented by the breakdown of the isolation in which mountain areas had lived in the past. With their gradual interaction with the outside world, mountain areas were beginning to recognise their comparative advantages, including in the areas of cultural resources and environmental endowments. The challenge, however, was how to get the people who were struggling with subsistence farming to participate in sustainable growth.

Dr. Sainju cautioned that the task was not simple and that the 'business as usual' approach would not work as it did not address the challenges posed by the worsening poverty and unsustainable growth process. In this respect, he emphasised the importance of a path that recognised the intrinsic capacity of the people in mountain areas and pursued a path of development that would help improve the quality of life of the majority without compromising the basic interests of future generations.

Reminding the participants that the Conference aimed to contribute towards formulation of development strategies for achieving a pace and pattern of economic growth that would lead to alleviation of poverty with sustainable use and management of natural resources in mountain areas, Dr. Sainju asked them to focus on the current crisis in livelihood needs and environmental degradation and the experiences with past development strategies in mountain areas. On that basis, the Conference should identify appropriate strategies and an agenda for action in their presentations and discussions.

Mr. Jürgen Richter, the DSE representative, in proposing a vote of thanks to the guests and participants, said that the German Federal Ministry of Economic Cooperation and Development was firmly convinced that marginal lands in future would have to play an important role in any food security and poverty alleviation strategies and that, therefore, more resources would have to be allocated for agricultural research, extension, and infrastructure for use of such land resources in mountain areas. He hoped that the Conference would devote sufficient attention to this aspect. Describing the philosophy of DSE as "organising events in a participatory and interactive way in order to ensure that all available knowledge is tapped and everybody can contribute", he remarked that the continuous and mobile visualisation methodology that would be used at the Conference would help to intensify and focus discussion and to achieve concrete results. Mr. Richter assured the participants that the DSE had the 'firm intention' of following up on the advice and recommendations of the Conference.

1.2 Key Issues and Challenges Facing the Mountain Areas of South Asia

The first part of the Conference focused on an assessment of the overall dimensions of poverty in the region—looking at it regionally as well as nationally.

These issues and challenges in development of mountain areas are, in a way, as diverse as the areas themselves, transcending different physical and topographical characteristics, racial and ethnic as well as biological resource diversity, history and

culture, and administrative systems of different countries. Yet, a number of common issues, as presented below, can be identified as revealed in the different country overviews, sectoral papers, and discussions in plenary sessions of the Conference.

Policy context

- Consideration of the 'mountain perspective', as defined in terms of inaccessibility, fragility, marginality, diversity, and niche', essential for formulating mountain-sensitive development strategies. This will help not only to ameliorate the impact of marginalisation of mountain communities but also to achieve social equity by building on the comparative advantages of mountain areas.
- The persistent human poverty in the HKH region should be addressed through a broad-based strategy that incorporates economic growth, ensures equity and the interests of future generations, and addresses environmental sustainability. It is important to recognise that development issues in the mountains, such as sustainable livelihoods, mountain agriculture, persistent poverty, governance of the commons, fragile environments, gender, and inaccessibility are intertwined and call for an integrated development approach.
- Synergy between national and local levels with hierarchies of interventions to achieve consistency in implementation of mountain development programmes needs to be created. This also implies that roles of different stakeholders should be recognised, particularly in addressing the issues of marginalisation and decentralisation through NGOs; for example, community-based savings and credit groups and forest user groups. Involvement of the private sector and civil society has in fact helped address many problems and constraints through innovative approaches. Finding common ground to match externally-supported projects with internally evolved programmes is an essential part of the process. Policies to facilitate cooperation in use of transboundary resources (e.g., pastures, forests, and water) are necessary. Ways to develop collaborative and conflict-resolving mechanisms need to be found for this purpose.
- An enabling policy environment is essential in order to recognise and strengthen potentials developed at the grass roots' level and to encourage people-based initiatives in different areas. Policy support is also needed in order to promote research and development into niche-based products, market opportunities, harnessing indigenous knowledge system, and ensuring intellectual property rights for tribal and ethnic minorities. Recognising and supporting local strengths and diversities and bringing about people's participation are important challenges for mountain development policies.
- Mountain communities are often faced with difficulties in securing tenancy rights over land and forests and gaining access to social services (e.g., credit, education, and health), partly because of the problems of the tough terrain and inaccessibility and partly due to their inadequate representation on policy-making bodies. Due attention should be paid to equity in the distribution of services, infrastructure, opportunities, and resources.

Mountain agriculture and diversification of livelihoods

- Mountain agriculture, especially food grain production, has not been able to meet the food requirements of mountain households. Many mountain farmers are reported to have lost interest in farming — the proportion of people engaged in agriculture has gone down significantly. Multiple livelihood strategies through diversification of household activities have been the main coping strategy to meet food and other requirements in the past. However, these options for maintaining livelihoods are becoming inferior in quality and also diminishing over time.
- It has been increasingly realised that marginal lands will have to play an important role in ensuring food security in the future in view of the limited alternatives for most mountain households. This will require decentralised and innovative approaches to diversifying crop production as conventional high-yielding practices have little potential.
- It is evident that subsistence agriculture is undergoing transformation in several areas in the HKH region. With improved accessibility (i.e., roads, market, and support services), more and more people are benefiting from crop diversification and cultivation of horticultural and other high-value crops. Significant changes are occurring in the quality of livestock. However, diversification is not feasible without addressing the issue of food security in terms of availability of food, purchasing power, and efficient distribution systems.
- The impact of economic reforms on subsistence agriculture should be carefully studied. Some key areas suggested for the assessment are access of marginalised farmers to agricultural inputs and extension support, market development, and gender and social equity.
- Tourism development is providing employment and livelihood options for many mountain communities. Different policy approaches are considered in the HKH region for tourism promotion, ranging from village tourism to organised tours to selected areas. Tourism, however, has its own environmental and social implications, arising from increased demands for fuelwood, lodge construction, generation of garbage, land-use changes, and social and cultural impacts.
- There is potential for development of skill-based enterprises. However, these need to have a mountain orientation with emphasis on value addition of niche-based products. These enterprises also need to respond to changes. Development of any kind of enterprise in mountain areas calls for careful consideration of factors such as access to markets and development of new products based on changing demands. Integrated policy and programme support is essential in this respect.
- Remittances play an important role in maintaining livelihoods during slack agricultural seasons. In view of the changing pattern of outmigration — from temporary to permanent and single to family migration — whether remittances will continue to flow in as in the past needs to be examined. Also, the issue of how far remittances help mountain households needs to be carefully studied.

Food deficit, natural hazards, adversities, risks and vulnerability

- Increasing population, persistent poverty, and declining resources are leading to 'silent crises'—displacement of marginalised farmers and degradation of natural and land resources. There is increasing vulnerability of mountain farmers to forces such as natural disasters and hazards, food deficit and landlessness, diseases and pests, and epidemics. These problems are not new, but what is new is that more mountain households are becoming affected by these events than ever before.
- One of the significant trends witnessed by the HKH region in recent times is the change in demographic patterns (growing younger population) and increased male outmigration in search of cash income opportunities in the cities, both within the countries of the Region and beyond. This has led to a shortage of men in the labour force and increasing farming-related workloads for women. On the other hand, there are also some parts of the HKH region in which in-migration to mountain areas from the plains is taking place. The majority of mountain tribal communities resent this immigration and, in some areas, this has resulted in ethnic conflicts and civil unrest.
- While intensification of agriculture is continuing with expansion of cropped lands, marginalised farmers have limited access to agricultural technologies and inputs (e.g., fertiliser, seeds, and extension services), and this, in turn, is contributing to the decreasing productivity of marginal land.
- In spite of the strong resilience shown by some mountain communities, such as pastoralists, in maintaining their livelihoods so far, their resource base is eroding over time. With increasing exposure to 'modernisation', the aspirations of mountain communities are also increasing, but the means and resources at their disposal are decreasing.
- Some countries are providing heavy subsidies on energy use and physical and social infrastructure to the areas that have strategic importance. To what extent this can be sustained and how far these measures lead to sustainable development of mountain areas are questions that need to be examined.

Accessibility, highland-lowland linkages and impact of globalisation

- Breakdown of isolation and opening up of mountain areas to the wider market economy have both positive and negative impacts on the livelihoods and culture of mountain communities. However, because of the strong highland-lowland linkages, mountain areas cannot be looked at in isolation. The important challenge is to identify the different linkages and develop the competitive advantages that the mountain areas offer.
- Apart from uncompensated over extraction of mountain resources by people from the lowlands, the mountain areas may also face exclusion through trade and changes in property rights in the changing context of globalisation. There is no easy way to check these processes, and a suitable strategy for mountain areas is to identify

niche-based products and opportunities for value addition and to develop their comparative advantages.

- There are changes taking place in the access of mountain communities to traditional as well as modern market channels. The implications of these changes for the growth of mountain areas, for sustainable livelihoods of mountain people, and for socioeconomic equity need to be examined and appropriate policy measures taken to check any exploitative activities and inequitable effects, particularly in the context of wider commercialisation and globalisation.

Governance and management of natural resources

- In the absence of appropriate resource management strategies on the part of government, conflicts of interest regarding use of natural resources are growing between the state and ethnic minorities and tribal communities who are largely dependent on these resources for their survival.
- Commercialisation of forest products can help mountain communities achieve sustainable living standards; however, the state has to mediate to keep the balance between the sustainable livelihoods of mountain communities and commercialisation of resources.
- Participation of local mountain communities, who have a large stake in conserving natural resources for their survival, is crucial in their management. Recognition of the needs and concerns of local communities by the state is of utmost importance in any activity regarding regulation, regeneration, and sustainable use.
- The problem is not only of the degradation of natural resource endowment but also of the continuation of improper management. Equally important are transparent and well-articulated policy frameworks for use of natural resources in the mountain areas and for ensuring increased investments with proven strategy(ies) for regeneration of resources.

Land use and tenurial issues

- Long political turmoil has often led to undesirable land-use changes and natural resource depletion in a number of mountain areas. Peace and political stability are preconditions for rational and equitable land use.
- In many areas, landholding distribution is skewed and implementation of land reform has been ineffective, leading to inefficient and inequitable land use.
- Unclear land rights and inappropriate land-use policies have often led to land-use patterns that have endangered biodiversity and damaged mountain environments.
- Market-led reform of land markets, including introduction of economic and environmental cost-based price tags on different pieces of land, may help facilitate appropriate land use to some extent. Not withstanding, policy reforms are necessary for greater transparency and land tenure rights to encourage economic and environmentally friendly land-use changes.

Gender and social equity

- Mountain women across the HKH region share some common challenges: lack of access to productive resources (land), formal credit, and social services. They also have heavy workloads, lack control over production systems and benefits, and suffer from poor health conditions. Policies should recognise intra-household poverty to be a main constraint on poverty alleviation and should target programmes to deal effectively with these problems.
- There is a growing recognition that development efforts should ensure gender equity through mainstreaming gender needs and concerns. Quite often in the past gender issues have been tackled not through their incorporation in the broader development strategies and programmes but by creating a separate compartment or programmes to deal with women's disadvantaged position in society. This approach has mostly failed and changes are being introduced.
- Diversification of economic activities and introduction of new technologies have led to improved socioeconomic conditions and reduction in the workloads and drudgery of women in some cases, but very often these have also by-passed and further marginalised women and, in some instances, even resulted in increased workloads. For example, the shift from food crop cultivation to vegetable growing and livestock raising has benefited women economically but increased their work burden. Similarly electricity and improved cooking devices have reduced their workload in some areas but an increase in stall-feeding of livestock has led to an increase in their workloads.

Addressing the knowledge gap

- Data gaps, variations in data sources, issues of spatially disaggregated data (plains and mountains within the same administrative unit), and lack of data about gender and the poor have handicapped research and, consequently, hampered formulation of appropriate policies. There are also no cadastral surveys of communal land systems in many areas, and this constrains formulation of suitable land-use and land-tenure policies.
- Similarly, there is little effort in research and development to support and strengthen the indigenous knowledge base and practices.

1.3 Sectoral Strategies and Policies for Growth and Poverty Alleviation

This section discusses the opportunities and options for sustainable growth of mountain areas and factors facilitating their realisation and equitable sharing of the benefits of their outcomes. It is based on the detailed discussions in the eight separate working groups in the Conference and is organised into three broad headings: economic opportunities and options, land systems and natural resource management, and accessibility, equity, and linkages.

Economic opportunities and options

Diversified agriculture in mountain areas

It is being increasingly realised that diversification in agriculture can provide more choices and quality options for sustaining the livelihoods of mountain farmers. What is necessary in this process is to develop a clear understanding of the agricultural practices in specific mountain areas using a mountain perspective framework.

Diversification of agriculture implies changes in farming practice with introduction of high-value activities in agriculture, horticulture[1], and livestock practices. It is a departure from subsistence farming practice to a market and demand-based agricultural-livestock production system. The main purpose is to reduce the poverty in mountain areas by expansion of income earning options through off-farm employment and sustainable and efficient use of natural resources. Some key preconditions for diversification of agriculture are as follow:

- availability of infrastructure, both physical and institutional, at the local level;
- access to support services (e.g., credit, agricultural inputs, training and information);
- improved access, particularly of marginalised farmers, to markets and knowledge about comparatively profitable products and functioning of product markets;
- availability of food at affordable prices; and
- safeguards against ecological problems (e.g., land degradation, pests/diseases, overexploitation of natural resources, and endangered biodiversity).

While emphasising adoption of new technologies, it should be realised that it is difficult for mountain communities to have fair access to such technologies. Furthermore, at times, these may result in changes in gender relations, exacerbating persisting inequities. However, an enabling policy environment sensitive to mountain specificities—backed by appropriate institutions—can bring about benefits to mountain communities by helping them access appropriate technologies and promote their comparative advantages.

Mountain enterprise development

An enterprise may be defined as any activity aiming at earning cash income through sale of its product in the market. There is already a wide variety of traditional enterprises, entrepreneurs, and market links. One big challenge facing the small mountain entrepreneurs is the relatively small scale of activity. Processing and value-addition normally require pooling together resources from numerous producers. This is one of the reasons why categorisation of enterprises according to their scale, quality

[1] horticulture as used throughout this text refers to the cultivation of fruit and vegetables, usually on a commercial basis, and not to gardening.

of products, and capacity is very important. Another emerging trend is related to the greater vertical integration from pre-production to post-marketing which has become possible because of technological interventions.

To increase financial and economic viability of any enterprise through changing and upgrading the scale of its operations, there is a wide array of options and challenges. These include identification and analysis of comparative advantages for (new) enterprises in mountain areas, access to effective and affordable sources of energy, assessment of options for appropriate technologies, and a move towards demand-led diversification in products and production systems. Nonetheless, food security or availability of cereals is the most important pre-condition for enterprise development in mountain areas that are still dependent on subsistence farming. It is also necessary to pay attention to exogenous factors, such as peace, stability, and harmony, and effectiveness of support services.

The market alone cannot ensure enterprise development in mountain areas. Continuous support from the state remains essential. Most important, there is a need for clearly defined policies as well as changes in the legal framework (e.g., land rights) to promote enterprises based on comparative advantages of mountain areas. Rather than general concessions, selective support is required, especially to promote special products of mountain areas. The role of the state is to improve accessibility, support specialised entrepreneurial ventures suitable to local conditions, and provide continuing support in the form of safeguarding against crises, extending credit and training, helping market promotion, and ensuring quality. A potential role for the private sector is in linking small producers to wider market opportunities and dissemination of innovative techniques through establishment of processing and marketing enterprises linked to small producers in specialised product lines. Community mobilisation and participation, especially among entrepreneurs themselves, are extremely important, especially for articulation of and lobbying for their interests, dissemination of knowledge, marketing, and sharing benefits.

Commercialisation of forest products for sustainable livelihoods

Commercialisation of forest products, especially NTFPs, has a great potential for ensuring sustainable livelihoods among mountain communities. The overarching issue in the commercialisation process, however, is related to enabling policies that should focus on assessing the basic needs for forest products, providing incentives for sustainable use of forest products, and ensuring guaranteed benefits to the producers. What is important here is to complement commercialisation by improving the access of mountain communities to support services such as credit, appropriate technology, and processing/value-addition facilities. Emphasis, at the same time, should be placed on regeneration of resources and protecting endangered species.

Given the unequal highland-lowland economic links and intensive use or over exploitation of forest resources in mountain areas, retention of benefits for mountain communities through regulatory and compensation mechanisms assumes special

significance. It is possible to acquire such benefits for mountain communities by having a provision for compensation by outside users—contributions from people profiting from forest products—and subsidies for affordable alternative energy options. Similarly, the mountain people need to build community-based institutions to act as a social force to build trust among themselves and also to reduce the numbers of financial intermediaries and middlemen. It is necessary to strengthen capacities within communities in order for them to expand their socioeconomic roles in the community.

There are some social and institutional issues involved in the commercialisation process that need attention: gender equity in access to and control over the benefits, social responsibility among the users, and sensitivity to cultural and religious rights over forest products.

To maximise the benefits of commercialisation to marginalised communities, different government agencies acting to promote the process should develop a shared understanding and strategies so that the communities are not discouraged by the process. As and wherever possible, traditional institutions that have proven track records in preserving forests should be strengthened, as they can be very effective in conflict mediation and resolution. Efforts to retain the benefits and exploration of new possibilities and options should include supporting various research activities for updating indigenous resource pools and genetic quality and documentation of the indigenous knowledge of women. Investments in research activities also help the state to document and register indigenous knowledge and genetic pools and to ensure intellectual property rights for the communities.

Mountain tourism

Mountain tourism can flourish in various forms: eco-tourism, pilgrimage, wilderness and sanctuaries, protected areas, and cultural tourism. In the case of the HKH region, apart from the aforementioned, tourism is also linked to adventure (e.g., trekking and expeditions). Nature conservation and preservation of mountain culture and cultural diversity are important aspects of any form of sustainable tourism in the mountains.

The effects of tourism on different spheres of the mountain community and mountain environment are varied. The contribution of tourism to local economies is still relatively low, although it is considered to be one of the main contributors to national economies. Both forward and backward of linkages from tourism are weak. Mountain tourism also lacks a clear marketing strategy. Local communities have no other option but to rely on weak infrastructures and institutions. Organising and monitoring tourism in such cases can be difficult. Mountain tourism is often sensitive to exogenous factors such as security and natural calamities. Another important aspect of tourism is to have a cadre of trained people at the local level who are knowledgeable about the local mountain environment and can provide quality services to visitors while promoting the local, cultural identity and who can assist in preserving the environment.

Land systems and natural resource management

Land systems and land tenure

The nature of private and communal tenurial rights plays an important role in determining the security of land tenure and also influences poverty alleviation, economic growth, gender equity, and sustainable resource management. Ensuring the rights of mountain communities to access to common properties (e.g., pasture, shrubs, and forests) has a deep-rooted impact on their livelihoods. The case is more so for marginalised farmers whose very survival is dependent on their legitimate access to such resources. However, in a changing context, mountain communities are also faced with issues related to private tenure.

It was realised that improvement in tenurial rights calls for consistency in the functioning of land administration, particularly in updating land records and rapid resolution of land disputes. In addition, the state should have an enabling policy to ensure tenurial rights for socially excluded groups, especially women. Effective implementation of land reform, particularly in securing tenurial rights, can have a far-reaching impact on poverty alleviation, sustainable resource management, and equity. However, there is scepticism regarding the commitment of the state to enforcing new land reforms that focus on improving conditions related to tenurial rights, land ceilings, land consolidation, and abolition of absentee landlordism.

It is worthwhile to mention here that most mountain areas have had customary laws governing land tenure until recently. With erosion of the 'traditional' customary system of natural resource management, many mountain communities are encountering problems in securing their livelihoods because new legislation and introduction of private property rights have restricted their access to the natural resources important for their survival. Not only have the options for earning a living decreased for marginalised farmers, but the creation of skewed land distribution has also contributed to increasing degradation of natural resources.

Given the capacity of community-based organisations to support livelihoods and contain resource decline in mountain areas, enabling legislations are needed to support their roles in managing collective land use. This approach could ensure greater equity, security of tenure, and protection from outside control over land resources. Pre-conditions for collective land use are codification of customary law, extension of usufruct rights (i.e., legal recognition and access to services like credit), provision of incentive and control systems, and appropriate arrangements for equitable benefit sharing. It should be noted that the collective land-use system does not automatically augment positive changes. Some of the above conditions have been noted. The system, in fact, could result in adverse impacts such as low productivity, over-exploitation of resources, appropriation by the powerful rural elite, and no incentive/motivation for investment if rewards are not in line with the efforts made by different households.

It appears that, in the HKH region, both the individual and collective systems are going to prevail simultaneously for a long time to come. Nonetheless, proper regulative

mechanisms, such as clear incentive and control systems, are required to prevent misuse and misappropriation of natural resources. The state should enforce land tenure legislation so that powerful groups and individuals are prevented from misusing land and other natural resources. Codification of the rights of all stakeholders and primary users is essential to ensure usufruct rights. Implementation of collective land use can thrive only in the presence of strong local institutions and a decentralised governance system.

Forest management

In managing forests, a significant trend over the past decade has been an increasing acceptance of community participation as the preferred mode of management rather than exclusive management by the state. Various forms, such as Joint Forest Management, Community Forestry Management, Social Forestry, and management by Forest User Groups, have evolved in different countries in the HKH region. It has also been demonstrated in a number of cases that management by communities has resulted in checking denudation of forests and in an increase in forest cover. The system is still evolving and, in the process, new problems about sharing benefits and power are also emerging. In some cases, the official forest managers are still rather diffident about sharing power with the people.

The advantages of participatory forest management are seen in improvements in the bio-physical environment, meeting community needs better, effective resource generation, and community development and poverty alleviation. Realisation of these advantages is, however, contingent upon a number of factors such as clearly defined and stable policy support translated into appropriate rules and their timely implementation, recognition of people's capabilities, effective participation of stakeholders and involvement of communities, appropriate institutional arrangements both in government and in communities, human resource development in both technical and social aspects, and a continuous process of learning and communication. These conditions are often not obtained in all situations. As a result, there is also a danger of participatory management falling into disrepute. It is, therefore, necessary that an appropriate environment is provided simultaneously with the introduction of participatory forest management.

Accessibility, equity and linkages

Accessibility

Remoteness, with tough terrain and consequent limited accessibility, is one of the common characteristics of mountain areas, and it acts as a severe constraint on development. Increasing accessibility in mountain areas means expanding road construction, linkages to markets, and social service outlets (e.g., schools, health posts, and other service delivery centres). Accessibility is more than just developing physical infrastructure. Breaking the isolation of any 'closed society' by exposure to wider market linkages and social and economic exchanges is an essential ingredient.

Improvement of accessibility in mountain areas that have been isolated for centuries can lead to both positive and negative impacts. It is necessary to define the need for accessibility clearly. It has been recognised that increasing accessibility facilitates activities that result in better incomes. Improved access has made it easier to develop high-value cash crops, agricultural specialisation, tourism, and other mountain enterprises. Furthermore, when physical accessibility is complemented by improved access to other inputs and (e.g., micro-credit, training for skills and entrepreneurship development, improved technologies, and energy), it can also result in faster economic growth and help introduce programmes to maintain equity and improve the overall quality of life.

The high cost of construction and maintenance of transport and communication infrastructure is one of the main constraints in increasing accessibility in mountain areas. There is always the question of the cost involved in terms of the return on investments. Moreover, the fragility of mountain areas makes construction of infrastructure prone to ecological hazards, which can at times have disastrous effects. The technical capacity to cope with such challenges also needs to be developed. Increase in accessibility may also lead to an increased drain on mountain resources with little benefit to local mountain people and a damaged mountain environment. Exposure of mountain communities to the wider market economy has also resulted in a loss of traditional cultural values, and , over time, this could result in changes in customary rules of resource allocation and lead to increasing rural-urban migration.

Any strategy for increasing accessibility in mountain areas should be able to identify potential stakeholders and define their roles clearly, taking into account those likely to benefit the most from the increased accessibility, as well as these likely to lose in the process. Such strategies should also facilitate marketing and value-addition for local niche-based products. It is also necessary to strengthen the technical capacities of stakeholders so that they can also benefit from increased accessibility. It is important, in this connection, to learn from success stories from similar areas. Many mountain areas of the HKH region, for instance, have had positive impacts from environmentally friendly ‘green roads’ which provide seasonal links to the main highways. Such road construction does not use heavy equipment and environmental impacts are controlled. They are labour-intensive, low-cost technologies in construction and maintenance, providing a great deal of seasonal employment to the poor. Another potential is the use of ropeways for transferring goods and commodities from and to remote areas. Ropeways are environmentally friendly and could be cost effective also. Some communities are also emphasising trekking paths rather than roads because of the role of village tourism.

Decentralisation of management and maintenance of infrastructure can prove very effective in sustaining accessibility in mountain areas. The Food for Work Programme implemented to construct roads, for instance, could be better integrated with local institutions. Social services and support systems should also be integrated with activities and options created by improved accessibility. Some other aspects that

need serious consideration are the preservation of mountain culture, development of village tourism, promoting resource regeneration and renewal to reduce the social and environmental costs of improved accessibility, and developing a system for regular road maintenance.

Gender and social equity

There is a growing recognition that many of the current development policies discriminate against women and reinforce gender inequalities. Persistence of such inequalities is directly related to women's disadvantaged position in access to and control over resources and the decision-making process, including some prescribed roles and responsibilities.

In order to ensure that development strategies and interventions do not reinforce existing gender inequalities and inequities, 'gender auditing', i.e., assessment of any policy or programme in terms of its sensitivity to addressing gender equity issues, for all development interventions is necessary. It should focus not only on women, but also aim to improve the conditions and positions of both men and women on the basis of equal participation and sharing of benefits. Such strategies for gender equity, however, will have to be region-specific due to the variety of socioeconomic contexts. In all cases, however, consideration of equity is essential, given the skewed distribution of resources and services between sexes. A major instrument to bring about gender equity is the provision of special programmes of education and health services for women.

As networks of organisations of women can play an important role in strengthening the process of women's empowerment, facilitating group formation and community mobilisation should be an essential component of any development programme. Any effort to mainstream gender issues and concerns should also include reorientation and change in the existing legal framework (e.g., inheritance of land titles). Economic independence is a major contributing factor in achieving gender equity. Improvement in social equity requires increased access to resources, opportunities, and services for deprived communities.

While there is no denying that women's empowerment is the paramount concern for achieving gender and social equity, the best and proven strategy to do so is to promote gender sensitisation among all parties concerned. Gender sensitisation should be designed in such a way that it becomes relevant to the particular area and context. In certain societies it is possible to promote gender equity by addressing the perceptions of men. It is also necessary that a gender sensitisation strategy include human resource development as an important element.

Highland-lowland linkages and globalisation

The impact of expanding globalisation is experienced virtually everywhere in the world and mountain areas are no exception. Isolated for centuries with limited economic linkages with the outside world, mountain areas are now linked to the

more transformed plains in terms of socioeconomic transactions, political influence, and, most importantly, resource flows. Trade in natural resource flows, exchange of human resources, and transfer of technologies and information are some of the important forms of linkage at present.

One of the principal concerns expressed in the discourse on highland-lowland linkages so far was that mountain communities were in a disadvantaged position because of the 'unequal economic exchange' with the plains. It is a fact that mountain areas are often politically marginalised, as their situation and concerns are inadequately reflected in national policies. There is a continuous outflow of resources from the mountain areas with little value added. The mountain communities, in effect, are not able to benefit from wider market opportunities.

The mountain economies will have to face the process of globalisation. It is, therefore, necessary for mountain communities to prepare themselves as well as possible so that they can also benefit from it. There will be increased trade between mountain areas and the plains, necessitating increasing specialisation of production in mountain areas in order to gain from trade. There will be increasing chances to strengthen the complementarity of mountain areas with the plains. There may also be other opportunities to use the comparative advantages of mountain areas for various tradable products.

It is very likely that the mountain areas will be able to attract increased investment from 'outside' the mountains. There might also be an increase in private investments in infrastructural development and regeneration of resources and more intensive use of natural resources. This could have an adverse impact on mountain communities, insofar as the regular framework and accountable mechanisms continue to be weak in terms of administering use rights and benefit sharing. There are other likely challenges as well such as marginalisation of women (e.g., as a consequence of displacement of traditional handicrafts) and resource competition between mountain areas.

Organisations dealing with the issues of globalisation, especially the World Trade Organisation (WTO), have included natural resource management in their priority agenda, but there is no specific place for mountain areas and products at present. With countries trying to diversify and take advantage of their resource potentials, the political importance of mountain areas may increase in days to come. However it is also important for mountain communities to continuously identify 'changing economic opportunities/niches' to prepare themselves to adjust to the rapid expansion of the wider market economy in line with their comparative advantages. At the same time, it is important to evolve appropriate regulating mechanisms and institutions for guiding investments, avoiding negative external effects, and compensating for displacement and resource degradation.

Intervention mechanisms should emphasise greater value addition to products from mountain areas. For this purpose, regular efforts to prepare an inventory of potential

tradable products are necessary, as are investments in research and development to identify and develop new productive opportunities. In addition, effective supportive structures and institutions (e.g., availability of credit for small producers) are needed to strengthen production and marketing of niche-based products of mountain areas. The mountain communities will also need to foster cooperation among themselves, creating horizontal synergy. Mountain communities will need assistance in development of human resources and entrepreneurial skills that eventually can harness indigenous skills/knowledge for profitable use.

1.4 Main Conclusions and Recommendations

Based on the presentations and discussions in the plenaries and detailed work in the working groups, the Conference arrived at the following conclusions and recommendations during its concluding session.

The context

- The Conference noted that mountain areas, including those in South Asia, have emerged as a significant item on the agenda of discussion at national and international levels, particularly after the 1992 United Nations Rio Conference on Environment and Development (UNCED) and adoption of Agenda 21, Chapter 13 which deals with Fragile Mountain Ecosystems. Concern and awareness about environmental conservation have increased over the past decade.
- Problems and concerns of mountain people have, however, remained, by and large, neglected mostly because of their political marginality and inadequate appreciation of the specificities of their situation. Development and conservation efforts have mostly taken place in isolation from each other.
- As a result, neither of the two goals — poverty alleviation or environmental conservation — has been achieved; poverty has persisted and environmental degradation has continued unabated. Both these phenomena have been accentuated by increasing population pressure. Food security for mountain people is under severe threat. Extension of cultivation on to marginal lands and fragile slopes has led to degradation of resources and the overall environment.
- On the other hand, improvement in access is leading to rising aspirations. The crisis that has been ‘silent’ so far is rapidly becoming more visible and noisier both in the sociopolitical economy and natural environment, leading to ‘violent’ action in several areas.

Some hopeful signs

- At the same time, the Conference recognised that there have been instances of successful fusion of environmental and development goals; and an increasing reflection of the mountain specificities and concerns of mountain people in national-level policies.

- Some mountain areas have undergone economic transformation based on their comparative advantages, at the same time ensuring conservation and regeneration of natural resources, with strong national and local policy support. Mountain tourism and profitable use, with regeneration, of bio-resources have, for example, been suitably used in some cases for income generation and augmentation of resources.
- Accessibility has improved as a result of expansion of transport and communication networks, even though, in many cases, this has arisen as the result of the security concerns of nation states.
- There has also been greater recognition of mountain people as custodians, users, and preservers of resources, and there have been several successful experiments in devolution of power and effective use of participatory approaches for conservation and poverty alleviation.
- There has been increasing recognition of the value of mountain resources for global genetic diversity, and this has led to programmes combining conservation and people's well-being in some cases.
- There is now increased recognition of the importance of indigenous knowledge and practices in the areas of both conservation and sustainable use of local resources by mountain communities.

Concerns and constraints

The Conference expressed concern over the widespread evidence of threats to the livelihoods of mountain people and to the mountain environment as well as lack of adequate recognition of and appropriate policies and interventions for dealing with these threats.

- It was observed that mountain production systems are becoming increasingly unsustainable both economically and ecologically. Yet, national policy-makers have not been sufficiently sensitive to the specific mountain conditions and constraints faced by mountain people in coming out of the 'poverty trap'.
- There has been a general lack of recognition of the niche that mountains offer in certain productive activities that can increase incomes without any serious damage to the environment. As a result, there has been a lack of appropriate policies to promote their sustainable and profitable development and use.
- There has often been indiscriminate exploitation of natural resources with very little economic advantage for local communities, for the poor in particular. On the other hand, local communities have been denied access to resources for their basic livelihoods in the name of environmental concerns without offering them alternative opportunities.
- Traditional local institutions of governance, management, and benefit sharing, which have successfully functioned for sustaining livelihoods and the environment in the past, have often been disregarded and replaced by 'modern' institutions that are more inequitable and patronage oriented.

- There has not been enough recognition of the plight and potential of women and, consequently, they have been further marginalised in the already marginalised mountain economies, communities, and households. Disregard of the indigenous knowledge and practices of mountain people, particularly women, has resulted in further erosion in the livelihood bases and disuse of potentials, particularly in the case of women.
- The fact that mountain people are subject to 'unequal exchange' and unfavourable 'terms of trade', because of market imperfections and market failures and because of their disadvantageous location in the flow of commodities and natural and human resources between the highlands and lowlands is hardly recognised. As a result, any suggestions about compensatory mechanisms are treated with indifference.
- Programmes are mostly formulated and implemented in a fragmented manner and are partial in character. They may succeed in the plains because of the easier access to infrastructure, inputs, and services, but they generally fail in mountain areas.
- Development of infrastructure is often undertaken by considerations other than the development and welfare of the mountain people and is of the type and form that bring little benefit to isolated communities.
- There are apprehensions that globalisation and further penetration of markets may result in increased resource drains and other adverse impacts on the livelihoods and environment of mountain areas; but there is a general lack of preparedness and policies to enable mountain people to prevent further erosion of their livelihood base and environment and to equip them to benefit from the opportunities globalisation might offer in the areas of comparative advantage.

Recommendations

The Conference made the following recommendations.

- National and sub-national governments should evolve specific strategies, policies, and programmes to foster faster growth by facilitating diversification of mountain economies from subsistence food crop-centred production patterns to production for the market based on comparative advantages.
- Food security should be ensured through improvements in infrastructure, public distribution systems, and/or a fair trade regime to facilitate such diversification.
- Increased investments are needed in infrastructure—both physical and social—to improve the accessibility of mountain communities in a manner compatible with the fragile environment of the mountains (e.g., off-road transportation and use of information technology to improve access to knowledge about markets).
- Appropriate revenue-sharing/compensatory mechanisms should be developed for mountain areas to benefit mountain people where mountain resources are used in a manner that mostly benefits the lowland areas and people.

- Changes need to be made in the legal framework where it denies/restricts access to and use of local resources that are basic to the livelihoods of mountain people, particularly mountain women.
- The gender dimension needs to be incorporated into strategies and programmes for development in such a manner that not only ensures women's participation but, given their proven potential in mountain areas, also provides scope for them to act as change agents and fully share in the benefits and empower themselves in economic, social, and political spheres.
- All policies and programmes need to be integrated instead of being women exclusive; although this may, no doubt, be required to supplement the general programmes in some sectors/areas.
- Mechanisms should be developed to facilitate effective decentralisation of power and promotion of the use of participatory and collective approaches to resource management and social and economic development.
- The existing and potential niche of mountain areas should be identified through focused efforts in documentation and classification of mountain resources.
- Transfer of knowledge, technologies, and successful institutional mechanisms/practices should be promoted across the mountain areas in different countries and locations in the region.
- Concerted research and development (R&D) efforts are urgently required to develop products and technologies in which mountains have unique or comparative advantages.
- There should be an appropriate combination of use and regeneration of natural resources rather than imposing a ban or giving free licence to the use of mountain natural resources.
- High priority should be given to efforts to develop human resources appropriate to use of the opportunities offered by improvement in access and greater penetration of markets in mountain areas in the process of globalisation.

Roles of different actors

The Conference emphasised the following.

- Governments will have to continuously play a pro-active, regulatory, and promotional role in mountain areas even in this age of, and probably because of, the ideology of the supremacy of market forces; and not only in development of infrastructure but also in:

  - putting appropriate legal and regulatory frameworks in place,
  - generating and disseminating knowledge and R&D,
  - rescuing local institutions and enterprises in times of crisis, and
  - enabling local institutions to function effectively,

- Non-government organisations (NGOs) and international non-government organisations (INGOs) have a significant role to play as catalytic, facilitating, and supportive organisations; and they as well as government agencies should emphasise local capacity building by providing support for development of community-based organisations, especially producers' own organisations, to access markets, inputs, and technology.
- Research and training institutions working in or for the development of mountain areas should reorient and strengthen their training and research programmes to more specifically relate their outputs to the needs, problems, and opportunities in mountain areas.
- Multilateral and bilateral organisations should reorient their efforts, resources, and investments towards filling the gaps in basic requirements of development and environment in mountain areas, including building infrastructure and environmental conservation, as investments needed in such areas could very well be beyond the capacity of mountain areas, mountain states, and mountain countries.

Concluding observations and follow-up

These conclusions and recommendations were adopted after some discussion. With regard to the follow-up action, several suggestions were offered, particularly by the representatives of ICIMOD, DSE, and the Chairperson of the Conference. The Director General, ICIMOD, Mr. E. Pelinck, noted that the country overview and sectoral papers had helped identify key environmental and livelihood issues and challenges and set the agenda for informed analyses and interactive discussions not only in the parallel working groups and plenary sessions in the Conference, but also for further exercises in various academic and policy-making for different countries. He hoped that participants would take a lead in their respective countries and organisations to carry out exercises that would contribute to:

- enabling policy formulation and legislation for informed mountain development strategies;
- strengthening institutional mechanisms and support structures;
- introducing programmes for the sustainable livelihood of mountain people which are targeted to promote diversification of livelihoods and economic opportunities; and
- encouraging consistent efforts towards gathering knowledge and addressing the knowledge gap.

He mentioned that ICIMOD was privileged to accumulate the knowledge generated from the Conference which would be helpful in developing the future strategies and programmes of the Centre. For this purpose, he hoped that the fruitful partnership with and support from DSE would continue in future.

Appreciating the contributions made by the Chairperson of the Conference, policy experts, paper contributors, the participants, and ICIMOD, especially the Conference Coordinator and the facilitators who had made the organisation of the Conference a success, Mr. Richter, the Representative of DSE, observed that the Conference had justified and strengthened the commitment of DSE in putting mountain areas on its priority agenda.

In his closing remarks, Dr Sainju, the Chairperson of the Conference, suggested that different institutions working in the HKH region, including the governments, should develop a shared vision and strategies for mountain development as it is only through collective efforts that issues related to mountain development can be addressed. He emphasised the use of the available information and knowledge effectively for mountain development. Given the growing recognition and mainstreaming of mountain-related issues on the sustainable development agenda, synthesis of research results dealing with mountain development was essential. ICIMOD had been contributing significantly in this respect and other institutions should also become partners in this endeavour.

Dr. Sainju urged all the participants and institutions concerned to advocate for a concrete action programme for mountain development with political leaders. It was recognised that there was an enormous need for continuous research on the mountains and on widespread poverty; and especially was there a need for disaggregated data. Emphasising the role of the people in mountain development, he suggested that social mobilisation and empowerment should be essential ingredients in the development strategy for mountain areas.

In concluding, it was decided to remit the recommendations of the Conference for consideration and use in policy and programme formulation to the following sectors.

- The central and relevant provincial governments in the countries of South Asia
- Relevant institutions—academic, training, policy influencing, NGOs and INGOs—working in the HKH region
- Bilateral agencies/donors
- Multilateral organisations, particularly FAO, the agency responsible for implementation of Agenda 21, Chapter 13, for possible use in preparation for the International Year of [the] Mountains, 2002

Participants also suggested that ICIMOD, in addition to remitting recommendations, should take more proactive initiatives such as organising and/or facilitating interactions on the subject at national level in the region.

Chapter 2
The Hindu Kush-Himalayas: Searching for Viable Socioeconomic and Environmental Options

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2.1 Introduction

The Hindu Kush-Himalayan Region has experienced both continental as well as cultural collisions between mainland Asia and the Indian sub-continent. It is one of the most diverse physical and cultural landscapes in the world. Within very short distances, components of almost all the principal ecosystems and a wide range of cultural systems of the world are found. In response to different environmental factors, each has also developed its own unique features. Yet, for all its biological and cultural diversity, it is among the least known of the world's mountain systems. For centuries the only information coming out of these mountains was the experiences or impressions of a few travellers who were migrants, invaders, traders, or missionaries (Fürer-Haimendorf 1975; Hammerton 1984; Biddulph 1986). Mountain people themselves knew very little about each other. Barricaded by high mountains, swift rivers, and an array of dialects and customs, with the added impact of fierce competition for limited resources, they were also strangers to each other. The long history of isolation and conflicts in the region has made its inhabitants highly suspicious of outsiders and their motives. This is also experienced at times by central governments when they try to implement their development activities (Clarke 1987; Shrestha 1993; Bahuguna 1994).

The traditional isolation of mountain areas is being increasingly broken by the wheels of technology, the increasing education of mountain people, and the expansion of modern commerce and communications. These have brought with them many new opportunities for mountain communities, but they have also introduced new challenges (Banskota and Sharma 1994).

The Hindu Kush-Himalayas are facing new problems and opportunities in almost every aspect of the economy, the environment, and the society. Unprecedented economic, environmental, and cultural changes have been brought about by different agricultural, commercial, and developmental activities. While many continue to struggle with subsistence farming on their small sloping farms, others, albeit a few, are beginning to receive attractive returns from commercial crops, tourism, and new economic activities. If in the past local communities collectively regulated the harvesting of different natural resources, today, many new organisations, laws, and practices have been introduced.

Although the influence of modern education and health care is mainly concentrated in accessible urban and rural mountain areas (UNICEF 1996), it has been phenomenal throughout the mountains. In great haste to catch up with their contemporaries in the plains, mountain people are unhesitatingly embracing all-round change, sometimes even at the cost of their unique environment and cultural heritage. Urbanisation has been limited in scale in the past, but more recently there has been rapid growth throughout the mountains – mostly sporadic and unplanned, but nevertheless economically dynamic (Sharma and Partap 1994). Government activities and influence have also expanded considerably, reaching many communities that have been isolated for a long time. Governments have brought with them a huge development agenda which, while raising expectations, has been greatly wanting in effective implementation and delivery. Development has resulted in an unrestrained use of the environment, a rapidly depleting stock of natural wealth, and creation of new problems of pollution of many natural resources: mainly air, water, and soil.

There is indeed a vast array of environmental, economic, and social issues that need to be taken into account before introducing change to mountain societies of the Hindu Kush -Himalayas. With increasing interaction with the rest of the world, mountain areas are also recognising their comparative advantages in environmental endowments and cultural resources. The challenge for the architects of mountain development is to pursue a realistic but affordable path of development that will improve the quality of life and provide future generations with adequate options in building their own futures without burdening them with huge economic, social, and environmental costs.

This paper provides an overview of the Region—drawing upon the available information to describe its distinguishing features, its environment, and its economy. The next section provides background information on the Hindu Kush Himalayan mountain chain. This is followed by a discussion about the environment and the economy. The last part looks at the experience in mountain development of more

advanced countries in Europe, followed by suggestions about priority areas for the future.

2.2 Background to the Region

The Hindu Kush-Himalayas (Figure 2.1) are not a single continuous range or chain of mountains. They consist of a series of ranges running roughly parallel for long distances, separated by deep rivers fed mostly by mountain glaciers. The westernmost part of the HKH, located in Afghanistan and Pakistan, consists of the Hindu Kush, the Karakoram, and western most parts of the Himalayas. Close by are also other important ranges such as the Kunlun, TienSien, Mustag Ata, and Altai, all extending out of the Pamir Plateau into Central Asia and China (Figure 2.2).

Hindu Kush mountains

The Hindu Kush Mountains, which are considered a part of the great Himalayan mountain chain, extend east-west over an area of approximately 456,000 sq.km in the centre of Afghanistan and touching parts of North Western Pakistan. They separate the Northern Plains from the Southern Plateau in Afghanistan and the Weran Pass (5,000m) connects the Valley of the Kunar River in the south with the Kokcha River in the north. The eastern Hindu Kush is a cold desert highland with snow-covered peaks and practically no vegetation, whereas the climate of the Central Hindu Kush is less severe and parts are forested. The Salang Pass (5,000m) on the main road from Kabul to the Northern Plains lies in the Central Hindu Kush (Hassanyar 1995).

Karakoram range

The main parts of the Karakoram lie in Northern Pakistan and along the border with China. The eastern boundaries, however, extend into eastern Ladakh in India. Its western boundary touches the Hindu Kush. K2, the second highest peak in the world, is in the Karakoram. It has twelve out of the thirty top peaks with elevations over 7,500m. It contains some of the largest glaciers outside the polar region. As it is unaffected by the monsoon, the valleys are mostly dry except in irrigated areas.

Himalayas

The Himalayas are the highest mountain chain of all and form a great arc of 2,700 km from the Indus River in the west to the Brahmaputra River in the east. Transversally they have been classified according to the rivers, and these are listed below (Table 2.1).

Table 2.1: The Himalayas classified according to rivers

Different Rivers	Himalayan Group	Length (miles)
From the Indus to the Sutlej	Punjab and Kashmir	350
From the Sutlej to the Kali	Kumaon	200
From the Kali to the Tista	Nepal	500
From the Tista to the Brahmaputra	Assam	450

Source: Joshi, et al. 1990

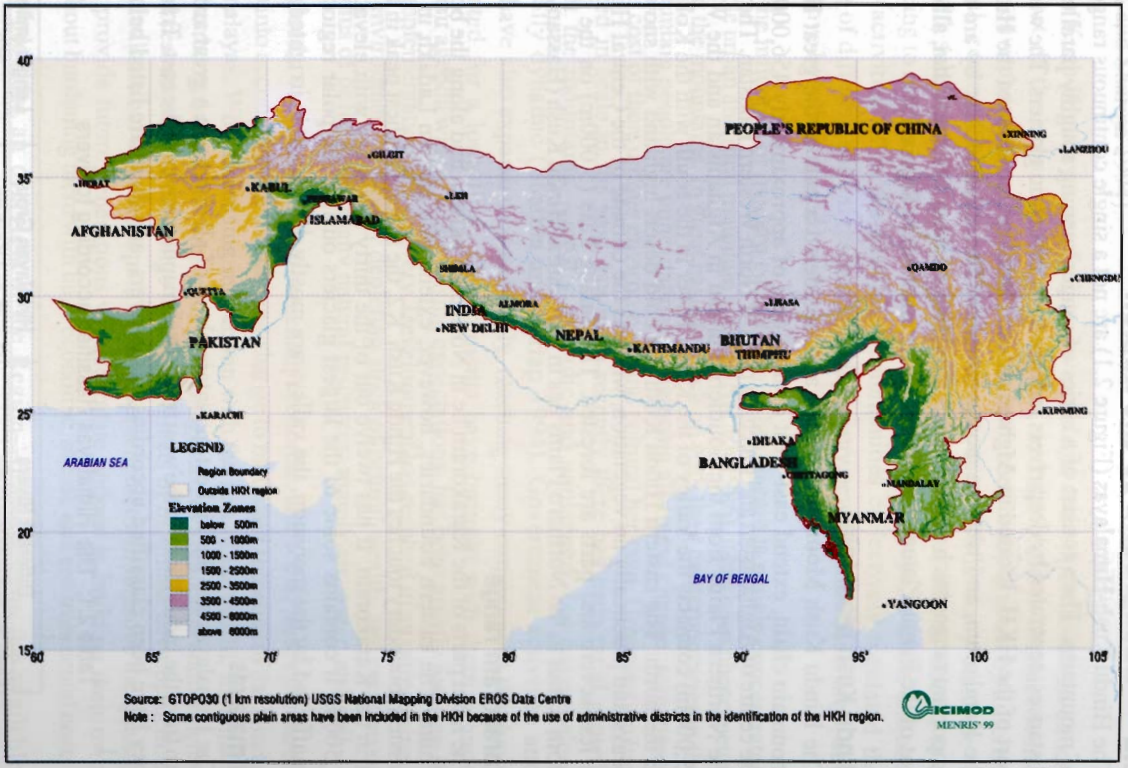


Figure 2.1: The Hindu Kush-Himalayas

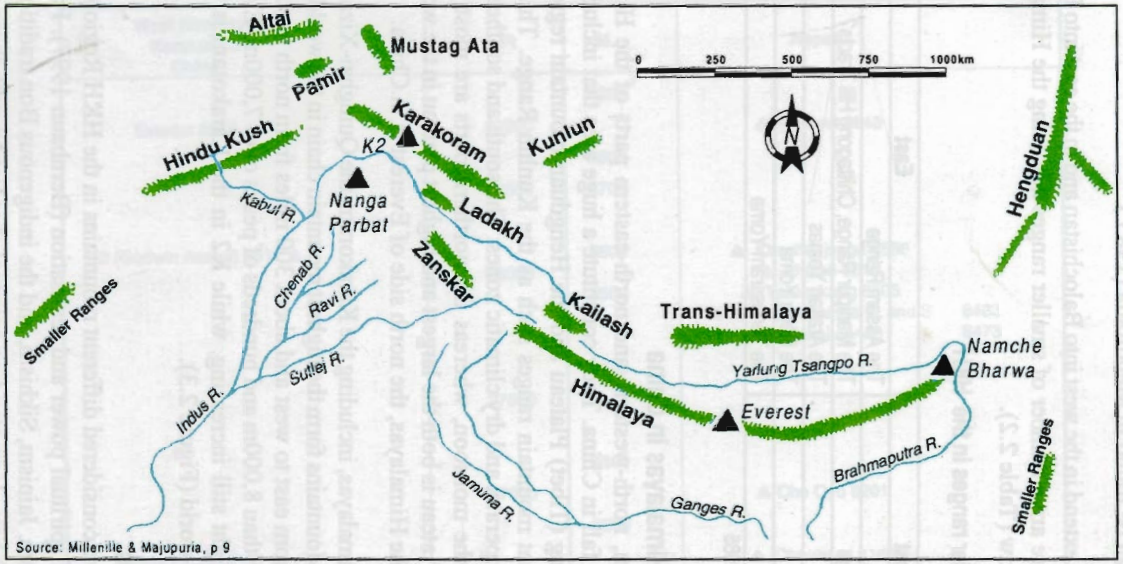


Figure 2.2: The Himalayas and related mountain systems extend to about 2,800 kilometres

They have also been classified longitudinally as the Outer Himalayas - consisting of the Siwaliks rising from the plains and going up to 3,500 ft and the Lesser Himalayas - going up to the snowline. Above the snowline lie the Great Himalayas covered with perma-snow and ice , and these include the Tibetan Plateau. Geological classifications of the Himalayas can be found in Mehdiratta (1985).

The Himalayas also extend in the west into Balochistan and in the east into Bangladesh and Myanmar. There are a number of smaller ranges adjoining the Himalayas, and these are given below (Table 2.2).

Table 2.2: Smaller ranges in the HKH

West	East
The Salt Range	The Assam Range
The Suleiman Range	The Manipur Range, Chittagong Hill Tracts?
The Bugh Range	The Arakan Yomas
The Kirthar Range	The Regu Yoma
The Mekran Range	The Tenassram Yoma

Source: Mehidiratta 1985

The Hindu Kush-Himalayas in China

The entire northern, north-western, and north-eastern parts of the Hindu Kush-Himalayan Region fall in China. They constitute a huge area that includes most of the Quinghai-Xinjiang (Tibet) Plateau and the Hengduan mountain regions, linked with other important mountain ranges such as the Kunlun Range. This vast area covers tropical, temperate, and dry climatic zones. The south and southeastern parts are influenced by the monsoon, whereas the northern parts are mostly dry. The Quinghai-Xinjiang Plateau is both the largest and highest plateau in the world. Along the main range of the Himalayas, the north side of Everest is in China.

The Hindu Kush-Himalayas, including the Karakoram, the Quinghai-Xinjiang Plateau, and the Hengduan Mountains form the highest mountain chain in the world, extending to over 3,500 km from east to west and about 300 miles from north to south. There are 14 peaks higher than 8,000m and hundreds of peaks over 7,000m. Everest is the highest with its height still increasing, while K2 in the Karakoram is the second highest peak in the world (Figure 2.3).

Sacred mountains

Many religions have considered different mountains in the HKH Region to be very sacred as places of spiritual power and realisation (Bernbaun 1997). Followers of Hinduism, Buddhism, Jainism, Sikhism, and the indigenous Bon tradition (in Tibet and parts of Nepal) have long standing spiritual association with these mountains. Even today there are important locations where thousands of pilgrims undertake long and arduous journeys in order to offer their prayers to the gods and goddesses that have become identified with the mountains.

West Himalaya Karakoram China	Ft	M.	Nepal
		8900	
Everest 8848 ▲	29000		▲ Everest 8848
		8800	
	28500	8700	
K2 (Godwin Auster) 8611 ▲		8600	▲ Kanchenjunga 8586
	28000		▲ Lhotse 8516
		8500	▲ Yalungkang 8505
			▲ ▲ Kanchenjunga C, and S 8483
			▲ Makalu 8463 8473
		8400	
	27500		
		8300	
	27000		▲ Cho Oyu 8201
		8200	
Nanga Parbat 8125 ▲			▲ Dhaulagiri 8167
Gasherbrum I 8068 ▲		8100	▲ Manaslu 8163
Board Peak 8036 ▲	26500		▲ Annapurna 8091
Gasherbrum II 8036 ▲			
Board Peak Central 8000 ▲		8000m	

Source: Milleville & Majupuria P11

5

Figure 2.3: Peaks above 8,000 metres

Mount Kailas, located in Xinjiang (Tibet) Province in China, is considered to be the most sacred peak in the Himalayan Region. The Hindus maintain that this is the location where Lord Shiva stayed on this earth. Shenrab ,the legendary founder of the Bon religion, also introduced his religion from this area. Hemkund, a mountain lake near the source of the Ganges, is the location where Guru Govinda Singh, the last of the principal teachers of the Sikhs, is supposed to have practised meditation in a previous life. In another cave the Tibetan yogi, Milarepa, also meditated and attained enlightment.

Mount Everest is referred to as Chomolungma by Tibetans and Sherpas. While there are various explanations of its precise meaning, one common reference is to the goddess in the mountain. Mount Nanda Devi in Garhwal (India) is seen as the Goddess of Bliss and next to the mountain are the two holy pilgrimage sites of Kedarnath and Badrinath where hundreds of thousands of pilgrims visit every year to offer their prayers. There are also many very old monasteries throughout the Himalayas.

In Nepal there are many other mountains, such as Annapurna and Machhapuchhre, that also have religious significance. Similarly, Kanchenjunga plays a central role in the religious life of the Sikkimese who regard the peak as their divine protector. Buddhist shrines and monasteries are found in the mountains in Bhutan, China, and Myanmar, and many of these are in daily use as sites of prayer for local people.

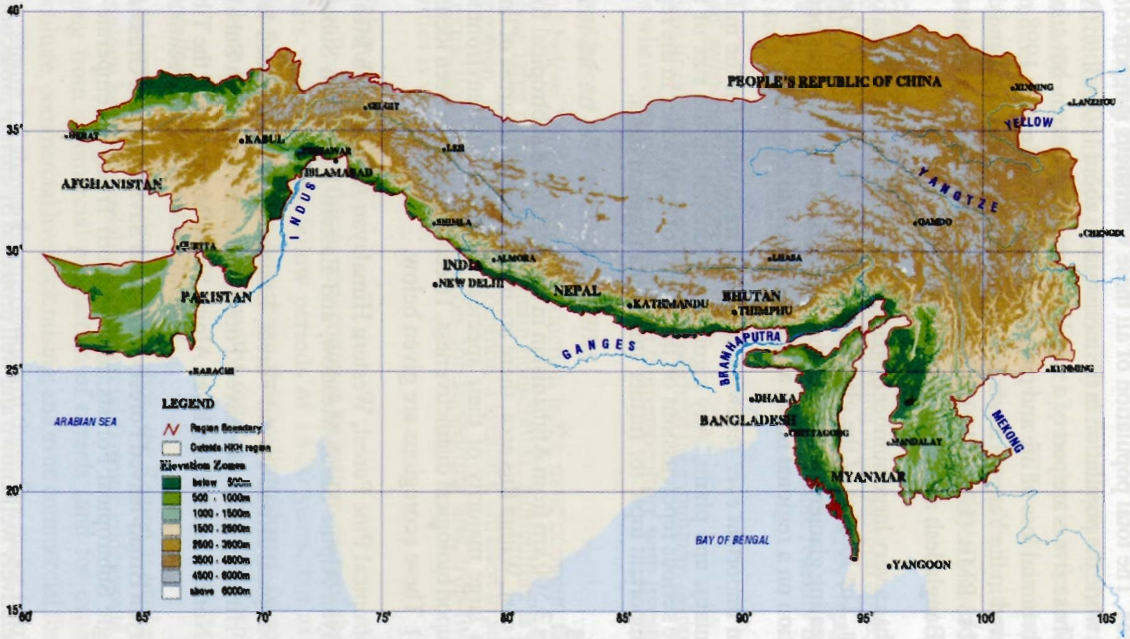
Rivers and glaciers

The Hindu Kush-Himalayas are the sources of a number of major rivers in Asia (Figure 2.4). In fact many of the rivers are older than the mountain systems – particularly those in the north of the Himalayas. The major rivers, some of which are among the longest in the world, include the the Indus, the Ganges, the Brahmaputra, the Mekong, the Yangtze, and the Yellow rivers (Myint 1998). The Yangtze is the third longest and the Yellow River is the seventh longest river in the world. Another interesting aspect of these rivers is that only 30% of the total drainage area is in the lowlands, i.e., below 1,000ft, emphasising the rugged nature of most of the watersheds of these rivers (Table 2.3).

Table 2.3: HKH rivers and their watersheds

River	Length	Watershed Size (sq.km)	0-1,000 ft Elevation (% in watershed)	Countries Sharing River
Indus	3,200	945,000	34.97	China, India Afghanistan and Pakistan
Ganges	2,950	1,050,000	48.58	China, India, Nepal, Bangladesh
Brahmaputra	2,880	580,000	18.78	China, India, Bhutan, Bangladesh
Mekong	4,800	795,000	31.47	China, Myanmar, Laos, Thailand
Yangtze	6,290	1,808,500	33.39	China
Yellow	5,464	752,443	7.06	China

Source: Myint and Hofer 1998



Source: GTOPO30 (1 km resolution) USGS National Mapping Division EROS Data Centre

Note : Some contiguous plain areas have been included in the HKH because of the use of administrative districts in the identification of the HKH region.

Figure 2.4 Rivers of the HKH Region

Another important feature of these river systems is that annual rainfall increases from the Indus to the Brahmaputra catchments. The Indus has a higher winter precipitation with dry conditions in the lowlands: The Yellow River catchment has dry conditions on the highland plateau. All the rivers are very important for agriculture in downstream areas. The total population of all these watersheds is reported to be about 700 million, while the population in the mountains is about 150 million (Myint 1977, Table 15). These rivers are part of a vast life-supporting system, but annually they also cause substantial loss of life and property by flooding. In June 1998 major flood events occurred in the Yangtze River Basin, resulting in 3,656 dead and direct economic loss of 248 RMB[1] (UNEP 1999). Floods have also become a regular part of summer life in Bangladesh and Northeast India.

The HKH Region has a very large number of glaciers – particularly in the Karakoram and the Himalayas. The longest of the glaciers is about 72 km (Siachen). There is concern about retreating glaciers throughout the region. However, there has been no systematic evaluation on a regional basis, and it is difficult to generalise.

The glaciers are an important ever-renewing source of fresh water for the millions living in the mountains and plains. Any significant reduction in the size of these glaciers could have serious repercussions on the supply of fresh water in the region. It is therefore an important topic for further study on a regional basis.

Many ecoregions

The HKH stretches 3,500 km from Afghanistan in the west to the subtropical forests of Myanmar in the east. Within this area, there are many ecoregions-areas of land or water that share a large majority of their species, dynamics, and environmental conditions. Based upon biological distinctiveness, 16 ecoregions have been identified (Dinnerstein 1998). These ecoregions are given below.

a) Himalayan Subtropical Pine Forest, Western Himalayan Alpine Shrub/Meadow, Eastern Himalayan Alpine Shrub/Meadow, and Eastern Himalayan Subalpine Conifer Forest.
b) Himalayan Subtropical Broad-leaved Forest, Eastern Himalayan Broad-leaved Forest, Eastern Himalayan Broad-leaved Forest, Western Himalayan Subalpine Conifer Forest, North-western Himalayan Alpine Shrub/Meadow, and the Tibetan Plateau.
c) Western Himalayan Broad-leaved Forest, Terai-Dual Savannahs and Grasslands, Northern Triangle Subtropical Forests, and Northern Triangle Temperate Forests.

The first group is relatively well known and well protected by current protection and conservation activities. The second and third groups have received little attention and are in varying stages of degradation.

[1] There are 8.28 RMB to a US dollar.

Figure 2.5 provides a more detailed description of the different agro-ecological zones found in the HKH Region. Other parameters associated with these agro-ecological zones are also provided in the accompanying Figure 2.6.

Major farming systems

The HKH Region is also characterised by different farming systems. Over the years mountain farmers have developed unique approaches in order to adapt to the various environmental conditions and take advantage of the endowments available to earn their livings. While each system is broadly distinguishable, these are not static by any criterion, and there are many examples of adaptation (Rhoades 1997).

Specialised pastoralism

In the HKH, above 4,000m, groups are living in the pastoral zone. These groups rely on grazing animals more than on sedentary agriculture. They engage in long- distance migration of livestock as well as trade – although more recently many changes have been seen in these traditional practices.

Mixed agro-pastoralism

Agro-pastoralism is very common throughout the mountains. Mountain farmers raise crops wherever possible and support their agriculture with livestock activities.

Cereal-based hill farming systems

Found below 2,500m, cereal production is the most common farming system and involves large numbers of mountain households. Agriculture is intensive, with use of irrigation. Terraces are very common. Livestock are used to support soil fertility, and extraction of forest resources for supporting and crop-livestock production activities is very extensive.

Shifting cultivation

Also called swidden, this is very common in eastern parts of the HKH. In the past farmers practised long fallow periods of 15-20 years, but as forest areas have diminished, fallow cycles have been drastically reduced. In some areas, farmers have been forced to settle permanently, resulting in serious decline of soil fertility.

Specialised commercial farming

This is becoming more common throughout the Region as market opportunities and technology become available. Commercial farming endeavours are being adopted, ranging from commercial production of cereals (and for export) to horticulture, floriculture, commercial livestock raising, and even commercial forestry and medicinal herbs. Figure 2.7 shows the distribution of these five major farming systems.

Eight countries and their population

There are eight countries in the HKH Region. From the perspective of sustainable development, a country focus provides the most practical way of looking at the

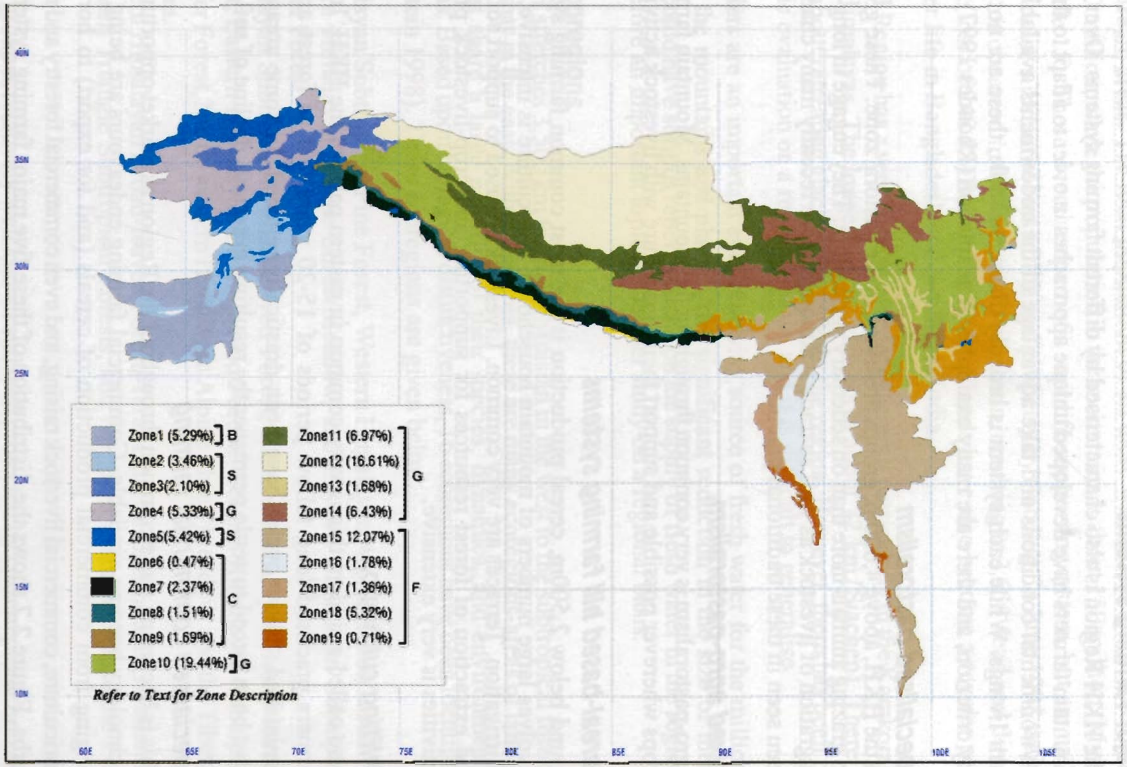


Figure 2.5: Agro-ecological zones of the HKH

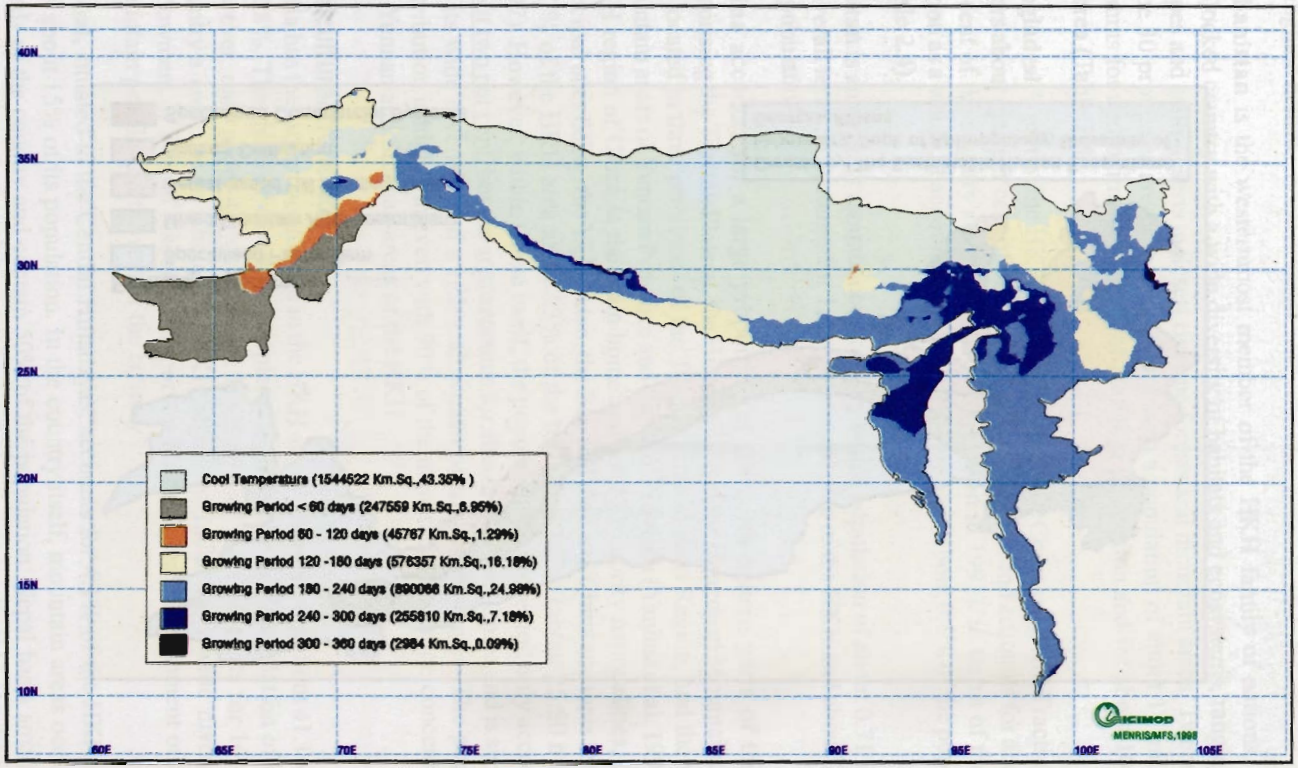


Figure 2.6. Possible breakdown in regions for the Hindu Kush-Himalayan area

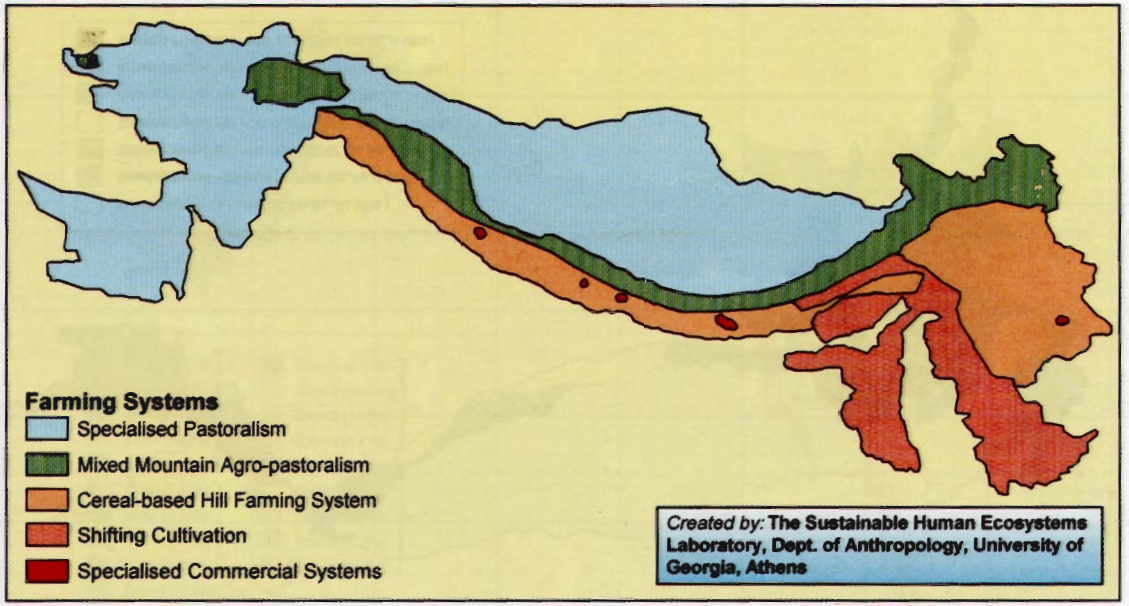


Figure 2.7. Farming systems in the Hindu Kush Himalayan Region: the development of a prototype

mountains. For each country, the prevailing situation in mountain areas is briefly highlighted below.

Afghanistan is the westernmost member of the HKH family of nations. It is a landlocked country with a wide diversity of habitats and ecosystems, ranging from steppes and semi-deserts to desert riverine forests and mountain areas. Twenty- five of the 30 provinces are part of the HKH, with a population of about 17 million. It accounts for approximately 10.6% of the HKH population and for about 10.9% of the area (Table 2.4).

Bangladesh's part of the HKH Region, known as the Chittagong Hill Tracts (CHT), covers about nine per cent of the land area of Bangladesh and accounts for about one per cent of the country's population (or 1.0 million in 1991). In terms of the HKH Region as a whole, it accounts for 0.7% of the area and about 0.8% of the population (Table 2.4).

Bhutan is an entirely mountainous country with a population of about 0.71 million. In overall terms, it accounts for 1.3% of the total area of the HKH and about 0.4% of the population.

China accounts for a large proportion of the north-eastern parts of the HKH comprising the Tibetan Plateau, the Himalayas, and the Hengduan Mountains, which are located in three provinces of the Tibetan Autonomous Region, and the western mountain areas of Yunnan Province and Sichuan Province (Yanhua et al. 1997). The HKH region of China is the main homeland for 25 minority nationalities, the four principal ones being, the Yi, Tibetan, the Bai, and the Lisu. China accounts for almost 47.7% of the HKH area and 17.3% of the total population (about 25.50 million in 1997). However, within China itself, the population of this region only accounts for about two per cent, but the area accounts for almost 17.7% of China and is significant for its wide diversity and a rich endowment of natural resources. The population distribution is highly uneven with 90% of the mountain population concentrated in the Yunnan and Sichuan areas of the HKH.

Agricultural transition

India has the largest population in the HKH area countries, with about 41.16 million or 28%. The share of mountain people in terms of the total population of India is, however, only about 4.5%, while the HKH area of India accounts for 14% of the country's area. As in China, the HKH region of India has a wide diversity and endowment of natural resources, important for the future development of both the mountain people and the rest of the country.

Nepal, situated in the Central Himalayas, accounts for 4.1% of the HKH area but has about 15% of its population. In the country itself, mountain areas occupy two-thirds of the country and contain 50% of the population. Nepal has a small strip of plains called the Terai; and these plains are becoming increasingly important for their potentials for development. Rising population pressure on the land and deterioration

Table 2.4: Mountain area, population and their respective shares in the HKH countries

Country	Total Area (sq km.)	Total Population (millions) 1997 estimates	Mountain Areas (Inclusions)	Area (Mountains)			Population (Mountains)		
				Total (sq.km)	% of HKH Total	% of Country	Total (million)	% of HKH Total	% of Country Total
1. Afghanistan	648,000	17.4 (estimated)	Includes 25 of the 30 Provinces	390,475	10.9	60.2	15.54	10.6	89.3
2. Bangladesh	144,000	117.7	Chittagong Hill Tracts	13,295	0.73	9.2	1.14	0.77	0.96
3. Bhutan	46,500	0.71	Entire Territory	46,500	1.30	100	0.71	0.48	100
4. China	9,607,000	1208.8	All of Tibet and parts of Yunnan and Sichuan	1,700,266	47.7	17.7	25.50	17.3	2.1
5. India	3,287,300	918.6	All of 8 and parts of 3 Northern States	461,139	12.9	14.0	41.16	28.0	4.5
6. Myanmar	676,300	45.6	Includes all districts in the 4 States of Kachin, China, Shan and Rakkhain	317,629	8.9	46.9	10.10	6.9	22.1
7. Nepal	147,181	21.66	Entire Territory	147,181	4.1	100	21.66	14.7	100
8. Pakistan	796,100	126.6	NWFP, FATA, Northern Areas, AJK and 12 Districts of Balochistan	489,988	13.7	61.5	31.13	21.2	24.6
Total	15,352,381	2,457.07		3,566,473			146.94		

Source: 1) Sharma, P. 1998, "Revised Estimates of the Area and Population of the HKH," (internal)
2) Statistical Year Book for Asia and the Pacific, 1995, Bangkok: ESCAP, UN
3) Human Development Report, 1997. New York: UNDP

of the mountain environment are the main challenges to future development. Poverty is seen as the root cause of environmental problems such as soil erosion, soil fertility decline, flooding, landslides, and pollution of resources (HMG/EPC 1993).

Myanmar has a number of states in the HKH region. These are the four states of Kachin, Chin, Shan, and Rakhain. It has 8.9% of the area and almost 7% of the population (Table 2.4). A total of 135 ethnic groups are located in these states.They practise shifting cultivation, which is reported to be severely damaging to the mountain environment (NCEA n.d.).

Pakistan's mountain areas occupy more than half of the country. The HKH region in Pakistan, however, accounts for about 13.7% of the area and almost 21.2% of the total population in the region. Within the country itself, the HKH part of the population accounts for about 24.6% (Table 2.4).

The mountain areas of Pakistan are critical habitats for ecological balance in the country - especially for the sustainable use of water resources. The mountains of the North Western Frontier Province (NWFP), Northern Areas, and others comprise the watersheds of all the principal rivers of Pakistan and contain the entire hydropower and much of the water for irrigation in the country (ICIMOD 1997).

2.3 Environmental Overview

Environmental change is an inevitable consequence of active natural processes with or without human influence. These changes have resulted in fertile plains as well as deserts, mountains, and various types of water bodies as well as all flora and fauna. For a long period of time, humans, who were few in number, with only primitive tools had to adjust to the ebb and flow of natural cycles. At the best of periods they harvested huge surpluses that helped establish civilisations in fertile river valleys. At the worst of times, devastated and distraught by drastic natural events, they picked up their remaining belongings and moved on to new locations for a fresh start. As human numbers increased and technology and commerce grew, the adverse impacts on the environment resulting from overexploitation and misuse also increased. On the doorstep of the 21st century, humanity stands threatened by its own actions as environmental capital, consisting of species, habitats, ecosystems, and stock of different natural resources, is rapidly depleted. At present humanity is literally borrowing from future generations and once this crosses a critical threshold, depletion of environmental capital could result in unprecedented changes. Global warming may already be a natural warning to humanity!

However, there are also good reasons for hope. With an increasing improvement in understanding of natural processes and with measures to promote decentralised, participatory, equitable, and gender-sensitive development that is environmentally friendly, many degraded ecosystems are being turned around. While positive changes are still only a faint glimmer of hope in a vast sea of destruction, there are good reasons to believe that these isolated flickers will grow in the future.

The story of the change in mountain environments is also very similar. With more energetic natural processes, changes in mountain areas may be somewhat more dramatic in terms of both frequency and intensity. HKH mountain environments are characterised by steep slopes, active tectonics, heavy precipitation for limited periods with a long dry season, and marked seasonality. These conditions have given rise to frequent extreme weather and geophysical events such as earthquakes and regular flooding, landslides, mudflows, debris flows, and soil erosion. Water plays a dominant role in many of these weather events throughout the HKH region as witnessed by the floods, hailstorms; droughts, avalanches, glacial lake outbursts, river denudation, and mass wasting. The role of wind is limited to some parts in the west and the north. Tectonic activities are also spread throughout the HKH with many locations experiencing regular earthquakes.

Resource endowments

The rich endowments in mountain areas are often overlooked and undervalued (Banskota and Sharma 1999). Directly and indirectly the HKH mountains support 150 million people and many times this number in the plains.

Different types of natural resources are distributed widely throughout the mountains (Table 2.5), and many underground resources are not even well surveyed so far. For most of the population, the most precious resources are their agricultural land, the forests, the pastures, and the water. Mountain farmers over the centuries have carved out extensive systems of terracing. Where this is not feasible, different types of slope management practices involving various mixes of crop and water management have been used. Where agriculture is limited by climatic considerations, livestock-based farming systems have been developed to a very sophisticated level. More recently, as older systems have been unable to keep pace with the rapidly growing demand for food and other resources, the comparative advantages of mountain areas in horticulture, floriculture, and tourism are also being developed rapidly.

Water is life. Because it is not uniformly or easily available, high priority has been given to its proper storage, transport, and regulated use. Complex institutional mechanisms have been developed to facilitate the movement of water to where it is needed and to its allocation between users. While governments are preoccupied with discussions about rapidly harnessing the rich mountain waters, promising rich dividends, the financial and environmental costs of these proposals are likely to be huge and require careful examination. The priorities of the people ,however, are for meeting their immediate needs for water for both drinking and irrigation. Small water projects are readily beneficial to the local people, bot they are costly on a per unit basis. As water scarcity increases, the water debate is likely to be more sensitive and controversial, just as deforestation was in the seventies and eighties.

The limitations of arable land in the mountains have been well compensated by forest and pasture lands. It has been estimated that to support one hectare of farmland

Table 2.5: The geographical spread of the HKH region showing areas of forests, pastures (inclusive of national parks/protected areas), agriculture, population and livestock (area in '000 ha, population and livestock in '000 numbers)

Country (1)	Regions, Parts Included (2)	Geogra-phical Area (3)	Agricultural Area and % of (3) (4)	Forest Area and % of (3) (5)	Pasture Area and % of (3) (6)	National Parks/Protected Areas and % of (3) (7)	Approximate Population & Forest Area/ Per Capita (8)	Approxi-mate Livestock Numbers (9)
Afghanistan	25 Provinces out of 30	39,047	3905* (10.0)	1,138* (2.0)	17,970 (46.0)	85* (0.2)	13,800	21,037
Pakistan	2 Provinces and parts of 3 out of 6	44,438	3466* (7.8)	3,077 (6.9)	4,479 (10.1)	2,339 (5.3)	24,885* (0.12)	14,489
India	9 States, parts of 3 out of 32	52,819	4384* (8.3)	21,648 (41.0)	18,012 (34.1)	2,256 (4.3)	35,000* (0.61)	14590*
Nepal	Entire country	14,718	2653 (18.0)	5424 (36.9)	1,745 (11.9)	1,315 (0.9)	18,500 (0.34)	15,232
Bhutan	Parts only (3 districts)	4,700	356 (7.6)	2765 (58.8)	75 (1.6)	876 (18.5)	1,200 (2.30)	475
Bangladesh	Parts only (3 districts)	1,318	103 (7.8)	866 (65.7)	29 (2.2)	11 (0.8)	1,000 (0.89)	227
Myanmar	3 States out of 6	28,086	2159* (7.7)	14,297 (50.9)	76* (0.3)	354* (1.3)	5,600* (2.55)	1,627
China	1 Province and parts of 2 out of 31	168,907	2027* (1.2)	36,240 (21.5)	90,226 (53.4)	1613 (0.9)	20,269 (1.79)	2513
		354,033	19053 (5.4)	85455	132,612 (32.5)	8,849	120,254 (0.69)	70,190

Sources: Table prepared by B.R. Bhatta, ICIMOD, 1992 based on:

1. FAO (1989), Ahmadyar (1989)
2. Jan (1989), Spooner and Jones (1983)
3. Forest Survey of India (1989), Planning Commission Government of India (1985).

4. Master Plan for Forestry Sector, Nepal (1988)
5. Negi (1983), CSO (1988).
6. Bangladesh Bureau of Statistics (1983), FSI (1982).
7. Forest Department, Myanmar (1991).
8. Han Yufeng et al. (1988).

Notes*: denotes figures estimated on the basis of national/adjoining area figures.

- Population figures estimated for 1991, based on Sharma (1993), estimated figures vary because of varying geographical area coverage.
- Livestock numbers include cattle, buffaloes, goats, and sheep.

1. The 5 provinces excluded are: Kandahar, Helmand, Nimroz and Heart.
2. The 2 provinces are the Northern Areas: Azad Kashmir, parts of 2 Divisions- Hazara and Malkand - a Division of the North West Frontier Province; the Murree Hills of Punjab Province; the 4 Districts excluded are: Nasirabad, Kachi , and Lasbella and Guadur of Balochistan Province;
3. Nine provinces: Jammu and Kashmir (Western Himalayas), Arunachal, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, parts of 3 provinces are: North Cachar and Karabi Anglong Districts of Assam State; the Darjeeling district of West Bengal State (Eastern Himalayas); Uttar Kashi, Chamoli, Tehri Garhwal, Pauri Garhwal, Pithoragarh, Almora , Nainital, Dehradun- 8 Districts of Uttar Pradesh State.
6. Chittagong Hill Tracts, the 3 Districts of Rangamati, Khagrachari, and Bandarban
7. The 3 States of Kachin, Chin, and Shan.
8. One Autonomous Region of Tibet; 5 prefectures: Aba, Ganzi, Liangshan, Yaan and Dukou of Sichuan State; 6 prefectures: Lijiang, Diquing, Nuikjainag, Dali, Baoshan, and Chuxiong of Yunnan State.

at least three hectares of forest and grassland are necessary to sustain certain levels of productivity (Wyatt Smith 1982). Whatever this ratio, mountain people have used their forests and grasslands to the fullest extent possible. Today, excessive use of forest resources has become a serious problem. In response to these problems there are also examples of many mountain communities beginning to adopt practices that are more sustainable. The inherent diversity and genetic resource base of the mountains is increasingly being recognised to be of value globally. Materials traditionally used in mountain areas or available in mountain areas are finding new modern applications in medicine and in related fields.

Forest resources

Bhutan has over 15 forest species' types, China 80, India 221, Myanmar 43, Nepal 72, and Pakistan over 100. On the basis of ownership, forests have been classified as State or Government Forest, Community or Village Forests, and Private Forests. A separate category that is becoming important is that of National Parks/Protected Areas (ICIMOD 1994). Increasing pressures are being exerted on the limited forests and pastoral resources. Table 2.5 gives an idea of the remaining forests in different countries. In the past ,pressures were few and well within the renewed stock in terms of prevention of degradadtion - but today removals are much in excess and forest stocks are declining rapidly.

Biodiversity

The HKH flora and fauna are among the richest on this planet, given the wide range of micro-climatic variations within a fairly limited area. The mountains host rich forests of over a thousand different species of trees, shrubs, herbs, and grasses. The nature and type of the forests found vary according to the climate, altitudes, aspect, soil, and other biotic influences. More recently, human influence has become very significant.

In terms of fauna, the mountains are equally rich, hosting a large variety of mammals, reptiles, birds, and insects – ranging from wild asses of the cold deserts to the rhinoceros, the snow leopard, elephants, and tigers. Fauna are also distributed according to different geographic areas (Shengji 1995).

Many of the flora and fauna are under serious threat from different human activities-subsistence, development, and commercial. While various measures to reduce pressure on forests have been implemented and certain areas are experiencing some regeneration of forests (both natural and newly planted ones), other areas are still being rapidly denuded. The same is the case with fauna. As habitats become destroyed so do the animals. Protected areas have provided temporary respite in a few locations, but the overall pressure of human activities has taken a heavy toll on the rich fauna of the HKH region (Shengji 1995).

Agricultural systems[2]

Recent work carried out by ICIMOD (Mountain Environment and Natural Resources' Information Systems [MENRIS] and Mountain Farming Systems [MFS]) has resulted in new maps on regional agricultural systems. By translating the seasonal greenness classes into seasonal land-cover regions and regrouping or aggregating these, it is possible to derive map units for agricultural systems in the HKH. There are 183 distinct seasonal land-cover classes in the HKH region identified from a total of 255 seasonal land-cover classes. Out of the 183 classes there are 109 classes that represent the seasonal distribution of crop plantation. This clearly shows the diversity of different cropping patterns and agricultural practices throughout the region. Based on these seasonal attributes one can reclassify areas into a number of generalised groups to improve understanding of comprehensive cropping systems in the region. Five of these major classes were found to be significant in the HKH. These are: Shifting Agriculture, Irrigated Cropland, Rainfed Marginal Farmland, Fruit Plants/Orchard, Non-agricultural (Pasture/Range) (Figure 2.8).

The work at MENRIS/MFS has other interesting findings. By using a simple water balance model comparing data for precipitation and evaporation, information about humidity in the HKH can be obtained. The length of growing period is considered as the period (in days) during the year when precipitation exceeds half the potential evapotranspiration, but excluding the areas in which temperatures are too low for crop growth. The moisture conditions in the thermal zone with a mean annual temperature of more than 5°C was only considered for reference length of growing period. The growing periods were classified in groups of 30 days. The result shows that more than 43% of the HKH Region has a mean annual temperature of less than 5°C, i.e., unsuitable for crop growth, while only less than 38% of the area has a growing period of more than 150 days (Figure 2.9).

Increasing environmental problems

Barring a few exceptions, environmental problems, such as increasing loss of topsoil, deforestation, water shortages, flash floods, and degradation of large tracts of agriculture, forest, and pasture lands have increased considerably over the years.

The overall trends in almost all key aspects of mountain resource depletion may be summarised as follow.

Cultivated land

- Declining fertility, increasing soil erosion and landslides, problems of water management, reduced cropping intensity, increased monocropping and loss of crop diversity, increasing use of chemical inputs, and deteriorating soil quality in accessible areas

[2] I am grateful to Iftikar Uddin (formerly of ICIMOD-MENRIS) for contributing this section and Figures 2.5, 2.8 & 2.9.

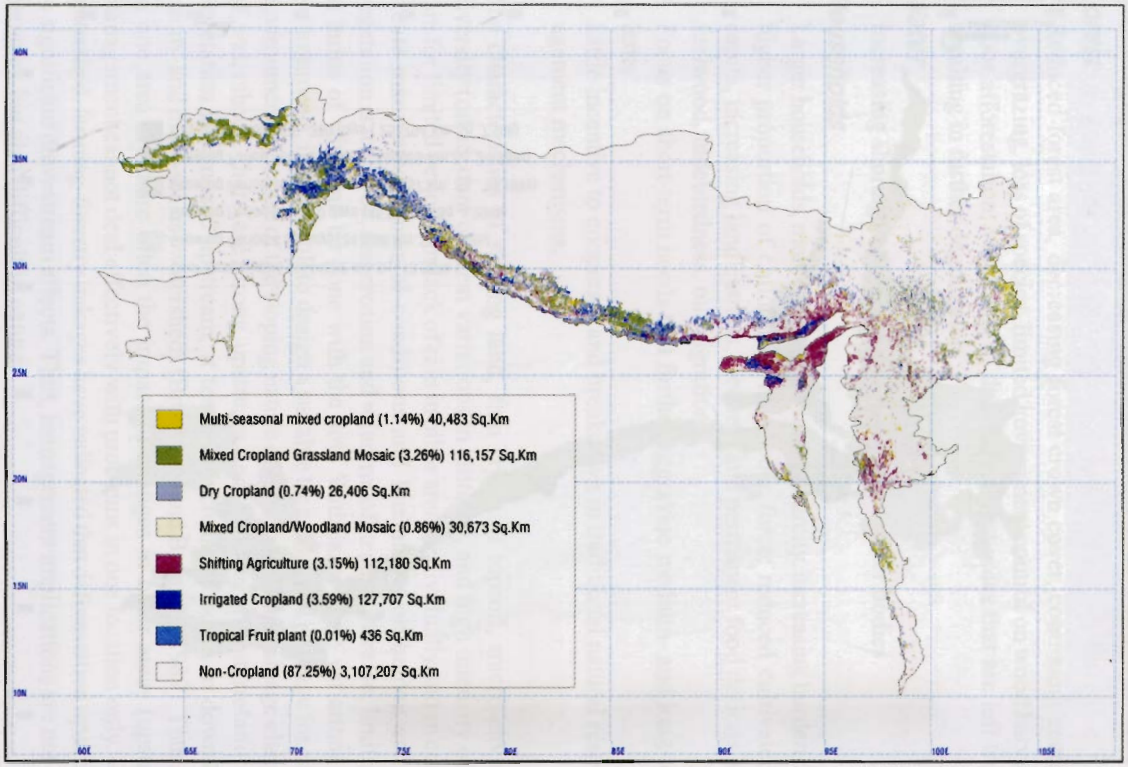


Figure 2.8. Cropland distribution in the Hindu Kush-Himalayan Region

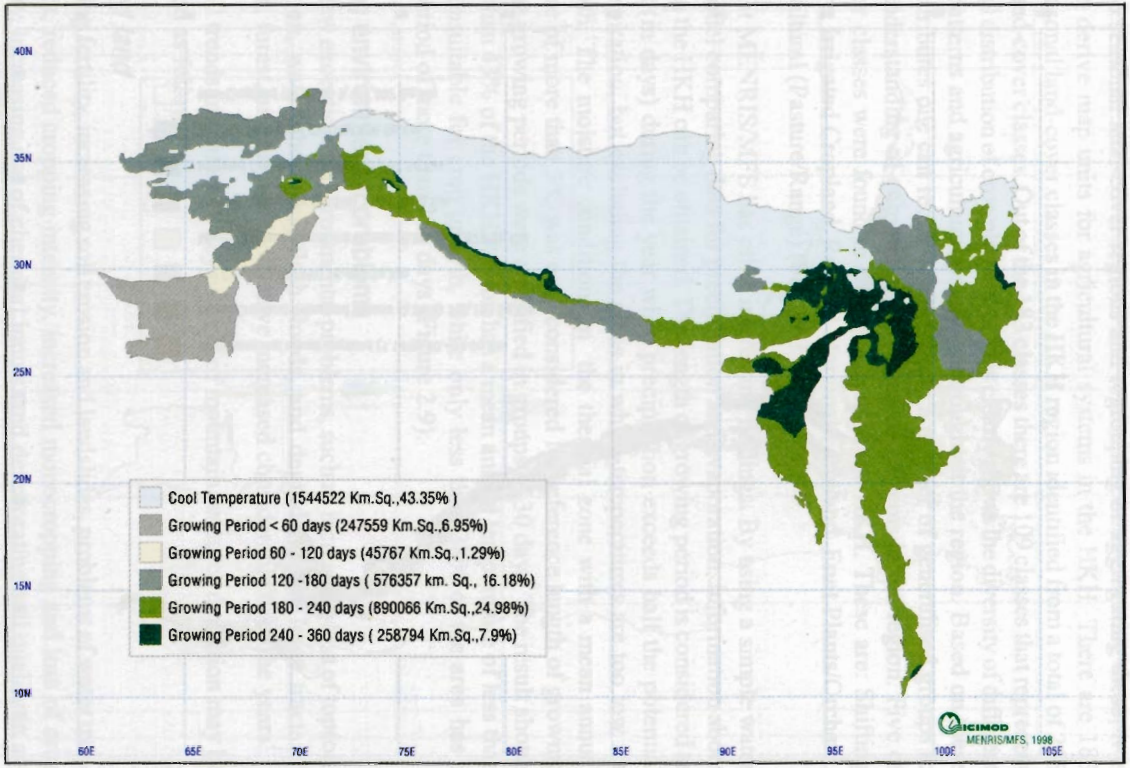


Figure 2.9. Length of growing period in the HKH

Pastures

- Large-scale overgrazing and degradation of pastures, livestock management focussing on numbers rather than on quality, breakdown in traditional rotational grazing systems, and management of common grazing lands

Forest

- Reduced forest area, decreasing forest crown cover, continuing encroachment, overgrazing, loss of species, limited government control on wood harvested, very poor afforestation; vast areas of degraded forest areas that are left unmanaged, resulting in further degradation

Water

- Increasing shortages, flash floods, pollution of water bodies

Households

- Larger households, more dependents, labour scarcity, increasing burden on women, higher proportion of children in the labour force, reduced cultivated area per capita, increasing landlessness, frequent and permanent food deficits, scarcity of fuelwood, indebtedness, outmigration
- Focus on short-term needs that further aggravate medium- and long-term problems
- Little incentive to cooperate and breakdown in traditional natural resource management mechanisms.

The characteristics of sloping land, thin layers of topsoil, micro-environmental diversity (on account of great variations in altitude), and high intensity of monsoon rain for limited periods, or lack of rain in other areas individually and in combination create many environmental conditions and limitations on human activities. As vegetation is removed, soil erosion and water runoff tend to increase, limiting options in terms of what can be done with the soil. With large-scale variations in micro-environments, it is difficult to design a suitable technological package for each micro-environment. Because of the sloping nature of terrain and the drainage characteristics of watersheds, there are strong upstream and downstream interrelationships. As vegetation is removed upstream, it tends to increase flooding in downstream (on micro- and meso-scales) watersheds (Bruijnzeel and Bremmer 1989). Thus, problems in one area are more often the impact of changes in other areas (upstream) and management cannot deal effectively with problems in one location only. Within one watershed, farming-forestry linkages have indicated that deforestation upstream results in significant downstream effects. Thus, management implications are not only more complex but also difficult in nature.

The environmental consequences of construction activities that are not properly planned and managed in mountain areas are becoming more and more evident. Soil erosion, landslides, and damage from rapid runoff have created serious maintenance problems for roads and power projects. Without far greater care in construction

activities in the hills, huge investments can be and have been easily damaged. There is a critical need for greater understanding of mountain geology, geomorphology, and bio-engineering approaches in construction activities in mountain areas (Li Tianchi 1998).

It is generally agreed that forest areas in the mountains are disappearing rapidly. Many factors have been responsible for deforestation. Historically, with the rise in population, the area under cultivation has been expanded by clearing forest land. This is still continuing in many mountain areas. Collecting firewood and fodder is common throughout the mountains, not only because of the lack of other energy alternatives (particularly for cooking and heating) but also because of the nature of agricultural practices.

Cutting timber and collecting other forest products have taken place to an extensive degree. Timber has been one of the main exports from many mountain areas until recently. Efforts to harvest forest products scientifically have been limited. The amount harvested often greatly exceeds the licensed figures (Bhatta 1992). Uncontrolled grazing is another serious contributory factor to the degradation of forest areas and ranges that occupy large portions of mountain areas. Stall feeding of livestock is limited. Uncontrolled grazing destroys all the young plants and grasses, allowing little or no regeneration and damaging plant genetic resources. Most of the feed also comes from the forests, wherever forests still exist. Loss of biodiversity through depletion of natural resources, such as native plant species and wildlife, has also been noted to be significant, but this has not been well documented.

Toxic pesticides and other chemicals are being used widely without restriction throughout the mountains, and these are already reported to be causing serious problems in many areas. Pesticide management programmes are ineffective and patchy. The dangers posed to all categories of suppliers and users are very real, as few of the needed precautions are observed (Schreier 1995).

Natural resources' related disasters, such as forest fires, landslides and floods, debris flows, and so on have been reported to be increasing (Li Tianchi 1998) (Table 2.6). It is not clear to what extent these are due to various actions upstream, but their overall effects are far reaching. While it is well known that natural hazards are common in mountain areas, population pressure, poverty, and development activities are forcing people to move into high risk zones, increasing their vulnerability to many of these naturally occurring events. There has been little effort to look into this problem, and it warrants greater attention in future.

The Living Planet Index (LPI) of WWF measures the area of the world's forests and populations of different marine and freshwater species. The LPI declined by 30% from 1975 to 1995, implying that the world has lost 30% of its natural wealth in the space of one generation. For the HKH region, it declined by about five per cent on the average for India and less than one per cent for the other countries. The number of threatened plant species was 1,236 for India, 23 for Bhutan, 20 for Nepal, and 14

Table 2.6: Deaths and damage from (debris flows, landslides, floods, avalanches) natural disasters in parts of the HKH region

Period/ Countries	China (Sichuan & Yunnan)	India (NE/Jammu & HP)	Nepal (Entire Country)
1990	332 Sichuan and Yunnan	30 Nilgiro	307
1991	24	300 (Assam hills HP Road closed for 40 days)	93
1992	NA	Road and property damaged in Nilgiri	71
1993	NA	40 Nilgiri Hills 200 houses destroyed in Nagaland	1,336
1994	50	Kashmir highway damaged	49
1995	NA	63	246
1996	Over 200	NA	262
1997	Over 356	NA	87

Source: Li Tianchi 1998

for Pakistan (WWF 1999, 2-3). The figures for the loss of original forest cover are even more striking. Pakistan has lost about 90% of its original forest cover, while the percentage for other countries is between 80-90% for China and Bangladesh, 70-80% for India, and less than 50% for Bhutan, Nepal, and Myanmar (WWF1999, 4-5).

Environmental approaches

It will not be an exaggeration to say that there are as many environmental positions as there are different environmental problems. Rapid population growth and the increasing demand for natural resources have been considered a major factor behind environmental degradation. However, given instances of resource deterioration, even in sparsely populated areas and where population growth has been fairly negligible, poverty has been considered as an even more important factor. In many of the HKH countries poverty is considered to be a critical factor behind both rapid population growth as well as the changes in the condition of the environment. Additional research and studies have introduced other factors such as inequality of access to resources and lack of empowerment. Both of these appear to contribute to all three aspects of population growth, poverty, and environmental deterioration. With few mountain households possessing or having access to livelihood assets, the majority of people are forced to depend upon their own resources and public resources such as forests and grasslands. Conditions of inequality, whether in the context of income, wealth, assets, access to natural resources, or gender, will not alter without substantial changes in the empowerment of weaker, poorer, and underprivileged groups. The influence of such factors makes it both complex and extremely difficult to separate environmental problems from the issue of overall development. The problem with regards to most environmental problems is not the absence of technical solutions: it

is more related to social, economic, political, and institutional factors. Even when finances are available or can be mobilised, problems on the social and institutional sides have proven to be quite intractable. Increasingly, solutions are being examined from this multi-dimensional perspective. There are a few instances in which some degree of success has been seen, at least for the time being (ICIMOD 1994).

2.4 Development Overview: Transition of the HKH

Mountain economies are displaying a mixture of traditional and modern activities. Ranging from subsistence agriculture to sophisticated tourist resorts, mountain areas are not only making the most of their age-old technologies and practices, but are also quickly exploiting new opportunities. The key word is change. In the past also, there were changes, but these were over long periods of time. This slow pace of change was determined by nature and natural cycles. Only occasionally did humans make important breakthroughs such as introduction of irrigation, fertilisation, or crops from the new world – potatoes and maize. Today, the pace of change is driven by development of human resources, the wheels of technology, the skills of organisations, and external linkages. Many new projects in mountain areas are feasible only because of the new linkages with larger economic systems. If mountain households desire to catch up with the rest of the world, there is also a concern that this rapid change is having undesirable impacts on the mountain environment and the rich cultures of mountain people (Sharma 1995).

Encouraging signs of change

The most **visible change** has been **population growth** (Table 2.4). Mountain areas have been registering growth rates of above two per cent. The mountain population is predominantly young. The population of 15 years and younger accounted for over 30% in China's HKH and about the same per cent in Nepal (Sharma and Partap 1994). For a long time populations in mountain areas were virtually stable or grew only slowly. However, with the health revolution brought about by the control of killers like smallpox and malaria, improvement in hygiene and sanitation, and better health facilities, particularly for childbirth, populations have increased rapidly.

While there is a lot of debate about the causes of population growth, the growing scale of demand in mountain areas has become a matter of serious concern. In response to this, efforts are being made to expand economic opportunities and educational and health services in the region (NPC and UNICEF 1996). In the early years of development, the priorities were for controlling the main killers, today the priority is on reducing overall population growth rates and improving the quality of life in the Region. South Asia as a whole ranks lowest in the scale of human development in the whole world with the exception of Sri Lanka. Mountain areas in these countries are the most deprived in terms of all the major indicators of quality of life.

The **second aspect** of change is seen in the increasingly poor performance of **traditional agriculture and livestock activities**. If agriculture is suffering from

declining productivity, livestock receive inadequate nutrition, and there are problems of inbreeding and disease (ICIMOD-MFS 1990). Improved technologies have been introduced in many areas, but the extent of diffusion has been strongly influenced by the availability of access, markets, and related support services (Chand 1997). Wherever these factors have been reasonably well established, mountain farmers have switched over to the use of high-yielding varieties of rice, wheat, and maize and use many different types of external inputs. The primary concern is how to provide access to sufficient food. There was little awareness of the consequences of the increasing use of chemical inputs. Today, as we see the impacts of these chemicals, the emphasis is more on balanced use (Schreier et al. 1995). Nonetheless, people seem to be more concerned about increasing food outputs at any cost. Some mountain areas are beginning to show signs of heavy soil and water pollution (Brown 1998). Despite this rather dismal performance of the agricultural sector, there are also some positive developments in specific sub-sectors.

Horticultural development has radically transformed some mountain areas (Teaotia 1993). Mountain areas provide ideal climatic conditions for a variety of crops such as fruit, vegetables, potatoes, mushrooms, flowers, spices, and medicinal plants. So far, only fruit and vegetables are being grown commercially. Apples grow well above 2,000m and have received high priority. The principal citrus fruits cultivated are mandarin oranges. On account of the high initial investments needed, small and marginalised farmers do not find these crops attractive. Improved dairy farming on smallholdings has also become a significant source of income for many mountain households. Rearing livestock has always been important. In the colder climates at high altitude, livestock herding is the main economic activity. At lower altitudes, livestock are important for draught power and manure. Today, much of this is changing and the supply of fresh milk from stall-fed cattle is becoming very popular as well as economically rewarding across the region (Tulachan and Neupane 1999). In all of these developments, access to markets and support services has played a critical role (Banskota 1993).

The **third** aspect of change is the **development of urban areas**. Urban areas in the mountains were few and far between for a very long time in the past. In recent years, however, the pace of urbanisation has accelerated (ICIMOD 1986). This has been brought about by many 'rural-push' and 'urban pull' factors. The most important urban pull factors have been the expansion of education, infrastructure, availability of basic services, and an expanding urban economy providing new economic opportunities.

Urban development has been important in generating some of the new economic activities in mountain areas (urban pull factors). Government jobs and establishment of industries and services have mostly been in urban areas. Easy access to education and health services in urban areas has been a very important factor in attracting rural people. In addition, there are various opportunities for both unskilled and skilled people from rural areas (Shrestha and Manandhar 1994). They also play a key role

in rural development as markets for food and other rural products. Most rural areas close to growing urban areas appear to be doing fairly well in economic terms. Urban areas will continue to be the hub of future mountain development activities, providing their immediate hinterlands with opportunities for many high-value activities and specialised services.

Urban areas in mountain locations are beginning to impinge on renewable natural resources (NPC/IUCN 1991). Many urban areas are already facing shortages of water. Mounds of garbage and pollution of rivers are a common sight. Mining and uncontrolled land use have created many problems (Bandyopadhyay 1989). Efforts to contain and manage these problems are quite inadequate as continued pollution of air, water, and soil is severely threatening the quality of life in urban areas in the mountains.

The **fourth** aspect of change in mountain areas is the **development of tourism**. People have found a wide variety of tourism-related products to sell to the rest of the world - religion, culture, adventure, sports, health, wildlife, and (most definitely) the mountain peaks. Mountain resources are being packaged to suit different pockets and tastes. Development of physical infrastructure has been a critical factor in the development of tourism. Without reasonable access, by air or otherwise, the tourism industry suffers from uncertainty in terms of numbers of visitors. From barely a trickle in the 60s, the numbers of tourists are now reaching such levels in certain areas that special management efforts are called for (Banskota and Sharma 1995). There is also some concern about the benefits received by the local community. Different measures have been identified to improve the retention of local benefits from the growing tourism sector (Sreedhar 1995). Tourism will remain a powerful force for development in mountain areas. Experience indicates that marked seasonality itself is a unique mountain product that can be marketed innovatively in various parts of the world. Many countries can also tap their own domestic tourist market which may be fairly big.

The **fifth** dimension of change and one that is underlying most of the other changes is the growing extent of **external linkages**. External linkages are provided by markets, new technologies, new resources, opportunities for commuting and permanent migration, and communications with the rest of the world. Linkages with the outside—locally, nationally, and internationally are the biggest force for change in the mountain economy and environment. Most of the new physical and social infrastructure established in mountain areas reinforces these linkages. Clearly some of these linkages are quite beneficial to mountain people – particularly those that provide better economic opportunities, services, and markets. There are others that may not be so beneficial – those that only take away the resources of the mountain environment. Managing external economic linkages will be a difficult task for mountain communities in future (Banskota and Sharma 1999). The search for jobs outside the mountains and the remittances from these have been important in the past. Their significance has continued to increase as mountain economies are unable to absorb the vastly increased labour force.

The **sixth** aspect of change concerns **institutions.** Most mountain communities have moved from a condition of relative isolation to increasing interaction with the wider market economy. Governments have strengthened their presence in many ways – the introduction of various development interventions, transfer of certain types of traditional community-based authority to formal departments, use of administrative control, and making available development resources. The increase in the involvement of the private sector is also noteworthy. Commerce in mountain areas has always been limited. However, with the opening up of some areas, there has been a rapid increase in imports from the plains. Another important aspect of institutional change concerns the revamping of community organisations and their increasing role in local development and natural resource management.

Many mountain communities within countries are campaigning for recognition as separate entities, hoping to bring about advantages of specific entitlements of resources, institutions, identity, and independence in decision-making. In the countries of the Region, increasing attention is being given to mountain areas not only because of the important role of mountain resources, but also on account of the past neglect of mountain communities. To some extent this could be the result of an increasing awareness of and growing commitment to environmental problems. The UNCED Meeting in Rio provided a crucial impetus for the cause of mountain development, and this is now being sustained by a number of activities and organisations throughout the world (UN 1992), the most recent being the declaration of the Year 2002 as the International Year of the Mountains by the UN General Assembly.

Negative impacts of development: deforestation and road building?

Many of the changes in the mountains of the HKH have not been for the better. It was from the 70s onwards that the flow of information about the unhealthy state of the world environment started (Meadows et al. 1972, Schurr 1972, Roegen 1976). From agriculture to industry and from developing to developed countries, reports of both big and small environmental problems and hazards were brought to our attention. Among these – although not very prominent, was the so-called reckless destruction of mountain environments in the HKH Region, specifically in the Himalayas. Erik Eckholm's book 'Losing Ground' captures graphically the perception at that time: mass erosion of the Himalayas into the Bay of Bengal! Environmental catastrophes were being claimed throughout the mountain areas (Eckholm 1976).

The first of these environmental catastrophes was the reckless deforestation across the entire Himalayas. Mountain populations had grown so rapidly that large amounts of new land were needed to meet the agricultural needs of the population. There was a debate regarding whether the clearing of forests was for food or for fuel or for both (Bajracharya 1983). Researchers found good evidence for all positions. Many projections showed that most forests were being lost rapidly and that in ten to 15 years' time there would be no forests left (Eckholm 1976, Wyatt Smith 1982). How would poor people meet their energy needs? Use of available substitutes, such as

dung and crop residues, could adversely influence agricultural production. This was already being experienced in some areas (Makhijani 1975). With declining forests, decreasing productivity of agriculture, and increasing demand for food, the NeoMalthusians portrayed a hopeless scenario of large-scale famine and environmental collapse in mountain areas. Mountain areas needed draconian measures to control population and the destruction of forests (Rieger et al. 1976).

A related concern was the downstream impacts of reckless deforestation in mountain areas. Bangladesh experienced unprecedented floods in 1974 (Hofer and Messerli 1997). As experts began to look for reasons, many found the upstream damage in the Himalayas a plausible explanation (Hofer and Messerli 1997). As this view gained currency, further pressure was being generated internationally to control the rapid deforestation of mountain environments in order to reduce downstream floods and other adverse impacts. This resulted in a major effort to support the development of Forestry Master Plans (HMG/ADB/FINNIDA 1988). It also resulted in efforts to develop a better understanding of changing mountain environments, leading to the establishment of ICIMOD.

The next issue was based more on Nepal's experience and was concerned with the impacts of roads in mountain areas. One study raised some serious questions about the wisdom of road construction in mountain areas of Nepal. Roads were seen as facilitating exploitation, creating environmental damage, and accelerating economic crisis for a poor country like Nepal (Blaikie et al. 1976). Many donors, weary of the high costs of road construction in Nepal, found this confirming their own doubts about the wisdom of road construction in mountain areas. This was in stark contrast to intensive road construction activities carried out in other parts of the HKH – the 600km Karakoram Highway and many other roads in mountain areas of India, Bhutan, and China. Studies about the impact of mountain roads from countries other than Nepal have shown similar results—that building roads is very slow to bring about a positive effect in mountain areas (Joshi 1986).

As we review these issues, one finds that some of these are seriously questioned today. They appear to have been unrealistic extrapolations of events encountered in a few areas. Much of the evidence from the field does not confirm the prevalence of reckless deforestation and expansion of the plough on to marginal lands by mountain households. While deforestation in mountain areas continues, only some of it is caused by mountain households. There are other equally significant factors such as government policies, development projects, and commercial interests (Gilmour et al. 1988). Micro-level evidence indicates that mountain households are not only users of mountain resources but are also active protectors of the environment, with strong conservation ethics built into their everyday sociocultural lives (Chettri and Panday 1992). This fact has been known for a long time. It just took researchers a long time to discover it. Community forestry has been identified as a new type of development intervention, whereas many mountain communities have been practising it for a long time without much outside support (Karki et al. 1994).

New evidence indicates that rehabilitation and rebuilding of mountain slopes also take place. Some have argued that mountain communities have rehabilitated many landslide affected areas and made them productive once again (Ives and Messerli 1989). Areas abandoned by mountain households have been scarred extensively by runoff and erosion. What may be even more important is the identification of other actors, besides mountain households, who are playing an equally important role in changing the mountain environment. As one author put it some years back:

"the axe, the sickle and the plough appear to be far less dangerous for the mountain environments than the policies that design a scale of intervention never conceivable with the tools of the mountain households" (Banskota et al. 1991).

There was another area in which the findings were even more startling and seriously questioned some of the perspectives that are still being advocated even today. This is in respect to the downstream impact of upstream changes. It was commonly believed that flooding and sedimentation in the downstream Gangetic basin was the result of reckless destruction of the mountain environment in the upper Himalayas. Because of this connection, the downstreamers were portrayed as helpless victims of reckless upstreamers. Doubts developed when, in the late eighties, a research report revealed that, in downstream rivers, there was already a significant sediment load contributed by the river itself and not just from upstream areas (Bruijnzeel and Bremmer 1989). It found that peak rainfall periods in the upstream Himalayas did not match the periods of downstream floods. In other words, during the period of downstream high floods, the uplands had, in fact, received very little rainfall. It was therefore necessary to look closer at the distribution and amount of rainfall in the various catchments - the macro, the meso, and the micro. More recent studies have shown that, whereas there are strong up and downstream relationships in micro-watersheds, these become weaker as one moves to the meso and the macro- watersheds (Hofer and Messerli 1997). Relationships are always much stronger closer to home and weaken substantially with distance. These findings are based on a fairly long period of rigorous empirical research and suggest that more of these studies should be undertaken in order to avoid pursuing inappropriate policies and pinpointing convenient scapegoats.

Many silent crises emerging

As scholars began looking at mountain environments and communities more closely, they not only questioned some of the problems, but, in the process, discovered many silent crises in the mountain economy and the environment. Most of these were silent in the sense that there were apparently no visible signs of problems and, yet, the closer one examined them, the less acceptable the conditions became.

Poverty of mountain households

The first of these was the pervasive and entrenched poverty in mountain societies. Large sections of mountain people were relatively worse off in terms of the material standards of living than their counterparts in the plains. Mountain households had to migrate regularly in search of food, income, and employment opportunities outside

mountain areas. In addition, the physical hardships were also greater than in the plains ,and these took a heavy toll on the well-being of mountain people. Despite rich and dynamic cultures throughout the mountains, the levels of well-being in all the countries are quite poor in general and are even worse for the mountain areas of these countries. One of the most obvious gaps was in the access to infrastructure and services (Yanhua et al.1997). Because of the difficulties of the terrain, most of the basic services and infrastructures were very far apart, involving long travelling distances. This was a serious problem for many of the children going to school. It is only more recently that some attention is being given to locational aspects of services and infrastructure.

Other aspects of poverty in the region are distress employment, high levels of indebtedness, supplies of food for only some months of the year, and lack of education and skills (Singh 1992; SAARC 1992; Ruizhen 1992).

Burden on mountain women and children

The second dimension of this silent crisis was the pressure on mountain women. Pressure in terms of travelling long distances to fetch drinking water and collect firewood had been identified. However, mountain women were experiencing pressure in other aspects of life also. There was the pressure of frequent pregnancies along with the trauma of childbirth and shocks caused by the death of many children (UNICEF 1997). There was the pressure of day to day and dawn to dusk work in the household, some of which was extremely demanding. Next there was the pressure of farm work. Indeed it is only recently that careful attention is being given to the issue of mountain women as farmers (ICIMOD 1998). Despite so much stress and hardship, mountain women still find the time to engage in off-farm work, literacy programmes, and marketing and to continue to carry their children on their backs most of the time! Participation in economic activities, while important, is not enough and there are more demands for the empowerment of mountain women so that they can become equal partners in all aspects of development.

Children are also being involved in many subsistence and economic operations in order to support household needs when they should be in school or at play. More recently, the use of children in other activities, particularly in urban areas, has also grown and is now a source of great concern in the region (UNICEF 1997). All these items are aggravated by outmigration of male labour to the plains and urban areas.

Failure of government control of natural resources

While most of the attention focused on deforestation across the mountains, lesser known, but common to almost every village throughout the mountains, was the loss and degradation of communal natural resources. These included forests, grasslands, biodiversity, water, and open public lands (ICIMOD 1985, ICIMOD 1994, Schreier et al. 1995). Governments were using every possible source for generating revenue. In many instances, use of natural resources was arbitrarily removed from traditional managers and moved to departments that lacked both the expertise and the

commitment and support for managing these resources (Mahat et al. 1987). Government ownership and management were made to appear an inevitable part of development. It was argued that things would begin improving soon. However, the experience has been quite the reverse. It has taken the boldness of the community, or rather the helplessness of Government, to go back to the communities for their help in the management of many of these communal natural resources.

Another dimension in this process that has not been studied carefully is the privatisation of community resources. Outsiders have different ideas about use of resources from those of local communities. Loss of control over local resources has had adverse impacts on many of the poorer sections of the community.

Institutional gaps

The limited development efforts carried out in mountain areas have had little impact on poverty and worsened environmental conditions in many areas because of weak institutions. If there has been a failure to mobilise local community organisations, the expansion in central development bureaucracies has also been limited and has performed poorly. Strong local-level organisations are indispensable for successful management of development activities because of constraints in access and communications. It has been accepted that a decentralised and participatory organisational framework is needed, but efforts to promote these have not been sustained. The skills of the labour force are not well developed. Organisations working to develop education, functional literacy, and skill improvements; in accelerating women's access to education and training opportunities; and so on are still very limited. Situations in the fields of population, health, environmental sanitation, and other basic support services are also very similar. With few urban areas, agencies providing services for private business also need stronger development. Institutional gaps in many areas of development can therefore be seen as an important problem in mountain areas, meriting attention in future, as well as requiring commitment and support.

Given the numerous structural problems of the HKH Region that are not related to any specific deficiency in one sector, it is not surprising to find that many mountain areas are locked into a vicious cycle of rapid increases in population–poverty-resource degradation-marginalisation. While governments in the region have introduced various development interventions to spur socioeconomic development, changes in mountain areas are slow.

2.5 Increasing Vulnerability and Marginality

A critical concern about current development interventions in mountain areas and possibly in others also is that the very people who are supposed to be helped by development are becoming more and more vulnerable to economic, ecological, and socio-political changes. Changes have always occurred in every location and, with the exception of major disasters, people have adjusted reasonably well. However, at

present, even regular events appear to be creating problems of adjustment for some groups of people in the mountains – mostly the poor, those with limited or no assets, small farmers, artisans, women, children, and others who live in extremely remote areas. What are these shocks and why are they manifesting their impacts at present? Is this vulnerability on account of increasing frequency of non- regular ecological, economic, and socio-political events? Has the normal coping capacity of the mountain people been overstretched? Or are events more or less on a regular path and is it atrophy in terms of the capacity of mountain households (at least some of them) to deal with these events?

The first reason could be that in the past there was a 'news' blackout' for mountain areas. The media and the information brought have now reached mountain areas also. Previously mountain people lacked access to news and events, unless the crises were substantial in proportion. The second reason could be that more households are now living in areas with frequent occurrence of special events: near landslides or in areas prone to hailstorms or in the flood plains and so on. In the past there was enough space for people to be selective regarding their location. This may no longer be so. Why some people have to live in or close to dangerous areas may not be so much a matter of choice. It could be related to the socioeconomic factors responsible for population growth, environmental damage, unequal distribution of resources, and lack of empowerment of weaker groups.

Poverty has forced many mountain households to move into areas that could be considered sensitive. The extent of cultivation on the steeper, less fertile slopes by poor households appears to be increasing.

Development activities have also displaced many households for one reason or another. The opening up of areas and the resulting flood of cheap imports have adversely affected many artisan classes who are forced to find land for cultivation and depend even more on common property resources (CPRs). Construction of hydroelectric dams, roads, and government offices and urbanisation and industrialisation have displaced households. While some of the displaced households succeed in finding new jobs and some may also be compensated, there are many who end up as 'development refugees'. Many development projects appear to have displaced the poor and weaker sections, while conferring greater opportunities and benefits to those with skills and resources who are well off already. Thus, while in the past the poor had to adjust primarily to unexpected changes in biophysical forces, more recently adverse impacts of development forces have become additional problems for them.

The cumulative impact of these forces on the poor over time has been to make them more vulnerable to even slight increases in negative forces. In other words, security in a physical sense, i.e., safety of one's life and property; security in an economic sense, i.e., ability to access one's own resources; and security in a social sense, i.e., ability to access political and social resources appear to be decreasing for the poor.

The overall impact is on standards of living, which appear to be worsening over time. This is being seen in parts of Nepal with decreasing availability of food from subsistence agriculture , increasing dependence on handouts, and even greater susceptibility to health hazards. If adults are facing difficulties in coping with these problems because of deterioration in living conditions, the plight of children is much worse. The implications for the future of these children are even more distressing. It is said that this is happening at a time when development forces are supposed to be stronger than ever before. For some reason, development appears to be targetting others rather than the poorest.

Breakdown in security mechanism?

One important reason for increasing vulnerability may be the loss of different security mechanisms. Traditionally mountain households had different approaches to reducing risk. The agricultural household attempted to hold land in both the uplands and lowlands where different crops were raised. Events occurring on one type of land did not occur on another, providing a safety net. The cropping diversity on a parcel of land was often very high and, although it appeared uneconomical, it provided security against pests and diseases. Insofar as landless households were concerned, their lot was difficult and their aim was also to gain access to land whenever feasible. However, such households provided various types of services to the community – boatmen at river crossings, shoemakers, blacksmiths, tailors, and, at times, even temple priests, school teachers, and watchmen were paid in kind by all the households in the community. The amounts were not much but a minimum amount of cereals (and sometimes even other goods) was provided by the community. Some would look upon this as exploitation, but at present even this is not available.

The joint family system was an important mechanism in terms of providing security to the young, the old, widows, women, and children. However, it should also be noted that, if members of the households wished to live separately, there were legal provisions for separate ownership. If this had not been the case, one would not see the division and fragmentation of land that there is at present. There were community mechanisms as well for dealing with other social conditions such as death and other special occasions.

One by one each of these mechanisms has either disappeared or is in the process of doing so. In so many different ways, the bonds with the local community are breaking down, either because of the changed nature of work (from agriculture to paid office employment) or because of education in distant places, or seasonal migration, or new development activities, or the entry of new administrators and development people who lack familiarity with local conditions and introduce and establish new arrangements.

What is replacing these conventional practices? As a matter of fact, nothing. New forces have entered, but they do not support any of the security mechanisms that existed earlier. The most important new force is the market, and we know very well

how the market works. Individuals have to find security for themselves in the market and must be able to afford it. For those who lack the resources to afford these market services, they are without any security. It has little room for those who lack the means and resources to play by its rules. In many ways the market is quite ruthless.

The next important change has been the government and its rules. Most government presence in rural areas is largely negative in terms of new rules and regulations that are often overlooked for the rich but applied rigorously to the poor. There is a rule for everything these days and even for those activities that have been an integral part of their livelihood over the ages. There are a few development projects, but the impacts of most of these are limited. The other interesting aspect is that expansion in education has generated greater awareness about the poverty and differences in the community, including the feeling that it is government that should change the conditions.

Thus, while the breakdown in earlier security systems has affected the poorer sections of the community, the new forces have not succeeded in filling the vacuum created. As a matter of fact, some of the new forces are increasing the vulnerability of the economically weaker sections of the community by exposing them to the problems and not to the beneficial aspects that are usually limited and often taken over by those with skills, resources, and linkages.It is a tragic situation in which the economically weak sections are rapidly losing what they have (access to different types of security mechanisms) and the new forces of the market and development have failed to provide any help, but, in fact, exacerbated the insecurity of the poor.

What are the reasons for this growing insecurity of the poor? Why have they become more vulnerable to the negative impacts of socioeconomic change? Is this the inevitable price of development? Is this unique to mountain areas? Whose development are we talking about? How can we deal with these problems? Here it might be useful to refer to the process of marginalisation.

The Oxford Dictionary defines to marginalise as 'to make a person or group become or feel less important, powerful, and so on.' Certain groups of people are facing constant pressure that results in economic, political, social, and cultural marginalisation. Economic marginalisation results in loss of control over or access to assets over time, impoverishing the group. Political marginalisation is the absence of decision-making power over activities that influence their conditions or the environment. Social marginalisation is the inability of groups to participate in different community activities for one reason or another. Cultural marginalisation is a situation in which a certain group finds it difficult to express itself in terms of its cultural heritage, whether in terms of religion, language, music, or other social events.

In many instances, the different types of marginalisation generally work together, i.e., are mutually reinforcing. However, there may be instances in which one is more important than the other. One can find various groups experiencing all or some type of marginalisation process in Nepal.

The Chepang are a small group of forest dwellers. For a long time they have survived as nomads of the forests in the hills practising slash and burn agriculture. Today, as forests are cleared (by others) their traditional space and resources are rapidly declining. While their plight has been voiced, it is by and large ignored and the only option for them is to become dependent on the goodwill of the wider community, the government, and international donors. This can be seen as a process of economic marginalisation (loss of access to resources) leading to sociocultural and political marginalisation.

Political marginalisation is most evident in the case of women in which, in spite of declared statements about representation, different types of rights, and various support, little is done and there is no way one can force the implementation of these statements. There are certain groups of women who face serious economic marginalisation as well.

Sociocultural marginalisation is probably the most subtle, most common, and also the most difficult to deal with, as many mainstream activities such as education and development may in fact be contributing to it. It is also possible that a group may not be economically or even politically marginalised, but continue to experience cultural marginalisation. There are many groups who are struggling to preserve their languages, religious customs, and folk traditions in the process of national integration, commercialisation, and modernisation. Clearly this is an aspect that should receive greater attention in future.

2.6 Experiences of Mountain Areas in Advanced Countries

There are some similarities between the mountain areas of Europe and the HKH Region. First, mountain areas in both regions are endangered (Messerli 1984). Different types of pressure on the ecosystem are changing the mountain environment in many ways. Most of the pressure is on resources and fragile habitats. This pressure is coming from overuse to meet subsistence needs or to meet the needs of tourism. Both systems need to find ways of adjusting. In the advanced countries, mountain areas experienced rapid population growth during the 18th century and conditions at that time were quite similar in the two areas – factors such as subsistence agriculture, male outmigration and the key role of remittances from outside, important role of crafts, a strong dependence on livestock and forests, and heavy use of marginal lands were seen in the European mountains also. During the 18th century, Switzerland experienced large-scale floods that resulted in strong legal measures to protect upstream forests (Mauch n.d).

The main differences are related to external linkages. In the HKH Region, linkages are with those areas that are only marginally better off and are still considered to be in the early stages of development. In Europe in the late 18th and early 19th century, the linkages of the mountains were with those areas that were on the verge of an

industrial revolution and had already experienced a far-reaching agricultural revolution. In the non-mountainous areas of Europe, industrialisation had already begun to change production relationships and mountain areas benefited from this change.

Development in transport, both navigation and railways, facilitated long-distance trade. Large-scale outmigration to the new world helped to reduce demographic pressures to some extent. Unlike in most of the developing countries today, Europe at that time experienced faster growth in income than in population, permitting real standards of living to grow over time. Mountain areas of Europe had linkages with areas that were experiencing rapid growth in income and employment. This had a favourable impact on many aspects of the mountain economy, particularly on infrastructural development, employment opportunities for mountain people, and the development of education, skills, and tourism. Obviously, not all areas benefited to the same degree. However, the stronger the linkage with economically growing areas, the more favourable the effects on mountain areas. One crucial difference between the Alps and the HKH Region is the availability of infrastructure that helped mountain people to move out and also helped them to develop mountain resources fully.

While this is a generalised picture of a complex pattern of development over a hundred- year period, there are important variations in the underlying processes. Depending on the nature of the mountain area, even in Europe one finds both depressed and dynamic mountain areas (Batzing et al. 1996).

Areas of agricultural decline and depopulation

There are still some areas that are holding on to traditional agricultural systems, because alternative development innovations have not been forthcoming. As a result populations in these areas have been declining for a long time (French Alps, Italian Alps) and still continue to do so. If there were development possibilities, for example, in tourism and industry, these would have been in evidence already. The future for these traditional agricultural areas appears to be fairly dismal. In some areas, livestock-dominated agriculture is still practised. However, subsidies are being provided to them.

Areas with tourism development

Agriculture and tourism have co-existed in many areas. With the increase in mass tourism (both summer and winter) because of favourable locations, agriculture has gradually declined. Intense competition has been experienced between similar areas. There is constant pressure to modernise and create more attractive facilities. Over time the entire region has experienced a process of urbanisation induced by tourism. Tourism is growing and is relatively profitable. With intense competition, this almost total reliance on tourism is risky, as tourism is also a highly sensitive industry. In many areas, commuting to jobs in nearby urban areas has been increasing.

Industrialisation

Apart from small-scale agro-processing, which is seen in all agricultural communities, modern industrialisation in the Alps has been closely related to the development of hydropower, i.e., hydropower-based industries. During the Second World War(WWII), some areas benefited because of the overall shortage of labour. In some areas, continuing innovation and development of commercial services generated new jobs. In most areas, the industrialisation seen in the forties and fifties in mountain areas declined drastically. Commuting has become common in these areas also.

Urban and peripheral urbanisation

Urban development is probably the most significant change throughout the Alps. More than 50% of mountain people now live in urban areas. Urbanisation in the Alps is quite old, beginning in Roman times. The key impetus occurred with the development of railways and this increased rapidly after WWII. Today urban and suburban areas are common throughout the Alps. Some of these areas are also tourism centres, while other areas linked to big cities have large commuter communities.

Two important conclusions about the changes in the Alps are as follow: first, all traditional activities have declined and innovation and development have taken place and are playing a key role at present, although all the modern activities, such as services and tourism, are extremely dynamic and competitive.

Second, mountain areas have become peripheral regions of large metropolitan areas Mountain development is today greatly influenced by external forces, such as commerce, financing, and processing, generated from large urban and suburban areas.

2.7 Priority Areas for the Future

Mountain areas are not all the same in terms of opportunities and problems. Development approaches must be flexible enough to promote the available opportunities. At the same time, they should also be effective in containing and, in some cases, eventually reversing some of the current trends. In this respect, mountain areas of the HKH, although structurally different from the mountain areas of Europe, can still learn from the latter's experiences. First, the situation is dynamic. Economic activities are changing all the time. Old, profitable activities that demand too much labour are dying. New ones are surfacing throughout the mountains, but they require a different type of environment. These environments are those with better infrastructure, better services, and skilled human resources. As a matter of fact, with the revolution in information technology, the huge investments in transport infrastructure seen in the development of European mountain areas might not be needed. Probably a different mix of transport, communications, and service infrastructure will be needed in which the emphasis will be on human resources rather than on physical infrastructure alone.

Development of new opportunities

The **first** priority is to develop the opportunities available. The opportunities are evident in small pockets throughout the mountains depending on altitude, climatic conditions, access, and possible comparative advantages along with the appropriate support services and infrastructure.

- There are areas with the potential for increasing agricultural production in low-lying areas through use of improved seeds, irrigation, and integrated pest management. In many areas, better irrigation and improved seeds have helped to double outputs. Most areas with this type of potential are low-lying valleys and flat lands. The main needs are water for irrigation and good planting materials. Although markets for cereals are relatively well organised, occasional gluts and erratic prices will occur.
- **Livestock development** has gone hand in hand with improved agriculture. Improved livestock species are in great demand in the mountains. In the past, the main problems have been inadequate supplies of good feed and a poor marketing and service infrastructure.
- The **third potential** area is commercial gardening. The options available here are as varied as the climatic conditions and the markets. As most of the production of fruit, vegetables, nuts, and flowers, including many herbs and wild fruit, are for non-local markets, access to markets and delivery of products in good condition are very important. This makes modern support services and infrastructure far more essential for development of this area than for the first two. Experience again shows that this is a very dynamic situation with products changing all the time in response to new market conditions. Investment costs are quite high. Participation by many of the poorer farmers as hired workers may provide better rewards than working on their own farms.
- Mountain areas all over the world have been **sources for fresh water**. The development costs for using fresh water in downstream areas are quite substantial. Sometimes poor mountain households cannot even afford the electricity provided from harnessing mountain rivers in their villages. While the potentials for development of mountain water resources are vast, the technical, economic, social, and environmental dimensions must be carefully studied with the full participation of the local people.
- Another area that is intrinsically mountain specific is **mountain tourism**. These days it can be packaged to meet any taste and pocket. The more complex issues are those of local benefits and costs. However, these are not insurmountable issues and tourism in mountain areas should be developed, as it is among the few relatively clean industries that can be established in the mountains.
- The next area of development is in **urbanisation** and **industrialisation.** There are already many rapidly growing cities in the mountains. These urban areas are critical for the creation of non-agricultural jobs for mountain people. Urbanisa-

tion will continue to become an even greater force in the future and countries will have to find ways to create jobs for those leaving mountain agriculture.

Expanding basic infrastructure and communications

The **second** area of priority is the expansion of basic infrastructure, and it is clearly related to the development of opportunities.

Without improving communications substantially, mountain people will always find it difficult to participate in new development activities. Lack of infrastructure will also adversely affect various development opportunities in agriculture and natural resources, including tourism. Careful analysis of the emerging spatial dynamics and settlement patterns must be carried out in order to identify priority areas for infrastructural linkages. Reliable connections to markets are crucial for development of gainful employment opportunities in both agricultural and non-agricultural activities. The process of urbanisation has already begun, and it should be guided by a policy to promote a hierarchy of different urban areas. Infrastructural investment should be used to optimise the development of these urban areas in the mountains.

Human resource development

The **third** priority area is human resource development (HRD). Without expansion in basic physical and social infrastructure this is difficult. Innovation in communications, education, and adult learning should be emphasised to support the development of human resources.

Regeneration of mountain resources

The **fourth** priority area is improvement in the condition of natural resources in mountain areas — particularly soil, forests, and water. For many years into the next century, availability of natural resources will be critical for sustaining the livelihoods of many mountain households. The loss of these resources will lead to a process of mountain desertification.

Capacity building

The **fifth** area is improvement in the capacities and capabilities of organisations and communities in mountain areas. Such improvements can take many forms, ranging from better management of mountain economies and environments to promotion of appropriate skills and technologies and greater participation and empowerment. In the longer term, the capabilities of these local communities and organisations will determine whether or not mountain communities can live in harmony with their environment. This was achieved in the past at low levels of subsistence and population density. Today, the situation has changed. Whether it will change in the future depends on the skills of development organisations in the mountains. Thus, while there are many opportunities in mountain environments and for mountain people outside mountain environments, the road so far has gone uphill for mountain environments and downhill for most mountain people.

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Chapter 3
Socioeconomic Status and Development of Chittagong Hill Tracts (CHT) of Bangladesh: An Overview

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3.1 Introduction

The processes of growth, poverty alleviation, and sustainable resource management in the Chittagong Hill Tracts' (CHT) area of Bangladesh were seriously obstructed by 20 years of insurgency and armed conflict in the region which lasted until recent times. This period of insurgency in the Chittagong Hill Tracts of Bangladesh was brought to a formal end on the 2nd December 1997 with the signing of a peace agreement between the Bangladesh National Committee on the Chittagong Hill Tracts, representing the Government of Bangladesh, and the 'Parbatya Chattagram Janasanghati Samity' (PCJSS), representing the political wing of the insurgent 'Shanti Bahini', (Peaceful Sister(s) composed mainly of the militants among the tribe of the Chittagong Hill Tracts (CHT). The two sides affirmed their full and firm allegiance to territorial integrity, sovereignty, and the constitution of Bangladesh.

The agreement was the outcome of a political process of peaceful dialogues and negotiations that extended over the tenures of three successive governments, dating from the eighties. Drawn up, finalised, and signed within a year and a half of the inception of the tenure of the Awami League Government of Prime Minister Sheikh Hasina, the peace agreement accommodated the demands for cultural, religious, and economic autonomy and equity of the hill people within the framework of sovereign

Bangladesh and hence successfully put an end to the armed violence in the strategic and economically promising territory. The process and the context in which a mutually agreed upon peace accord was brought to the region were democratic and peaceful. This was a natural outcome of the historical processes pertaining in Bangladesh.

Now that the peace agreement has been signed and democratising and participative measures have thrown open the doors of full participation to the hill people of the CHT at large, one can look forward to a future marked by peace and development in the CHT area.

The CHT peace agreement took as many as 25 meetings between the three successive governments of Bangladesh and the 'Parbattya Chattagram Janasanghati Samity' (PCJS). These meetings, records have it, were held five times during the government of former president H.M. Ershad, 13 times during the regime of Begum Khaleda Zia's BNP Government, and seven times between the National Committee of the Chittagong Hill Tracts (NCCHT) and 'Parbattya Chattagram Janasanghati Samity' (PCJSS). The present Awami League Government led by Prime Minister Sheikh Hasina had worked hard for what it perceived as an 'innovative, landmark achievement' that would bring peace and prosperity and facilitate the cause of national integration.

The real perspective of the historic peace agreement in the CHT would be missed, if one did not take into account the cooperation extended by India in the entire peace process. Scholars and researchers have pointed out time and again that India had an undeniable security interest in the political developments in the CHT. Many writers who have followed the developments in the CHT region of Bangladesh have stated that it was in Indian strategic interests that CHT tribal groups remained well disposed to the Indian government and did not establish a coalition with rebels in the seven Indian states neighbouring the Hill Tracts of Bangladesh. These scholars and writers have predicted, and quite rightly, that, with implementation of the peace accord and the delegation of more administrative powers to the tribal leadership, the economic, political, and military clout of Bangladesh in the CHT might wane.

It should be mentioned that, true to the prediction of some CHT watchers, the CHT peace agreement has not been accepted by all the ethnic groups in the region that had taken up arms against the government. Scattered incidents of violence have been taking place in the area ever since the signing of the peace agreement. Nevertheless, it is being increasingly felt that the government of Bangladesh has a genuine interest in bringing the hill people of the CHT region into the mainstream of national life. The hill leaders, on the other hand, seem to have realised by now that they will need the Government of Bangladesh (GOB) to enforce their newly secured authority. The government, on the other hand, will have to remain cautious so that the armed activists in the CHT do not misuse the new institutional structure to the benefit of those who have, in the past, harboured secessionist designs.

One cannot overlook the fact that the CHT, comprising three districts situated between 21.25 and 23.45 north latitudes and between 91.45 and 92.50 longitudes, have a landmass of 13,181 square kilometres (5,089 sq. miles) and account for about one/ tenth of the total territory of the country, and that, with nearly half a million hill people and an almost equal number of Bengali settlers, it is an area of strategic importance from more than one perspective.Among the reasons for the importance of the hill tracts are the potentials of the maritime port of Chittagong, industries, Chittagong city, and the power generated by the hydroelectric resources located in the CHT. Navigation and irrigation through such rivers as the Karnaphuli, Sangu, Matamuhuri, Halda, and their tributaries also depend on the CHT ambience. Observers have also welcomed the CHT peace agreement on the basis of the continued exploration for gas and oil in the region.

The CHT peace accord provided for the formation of a 22-member Chittagong Hill Tracts' Regional Council (CHTRC) to be headed by a hill person with the status of a State Minister. One third of the council members are to be from the non-hill people, mainly Bengalis from Bangladesh settled in the CHT. The members of the hill district council are responsible for electing the CHRTC Chairman and members.

On 6th September 1999 the government formed a 22-member interim CHT Regional Council with PCJSS leader, Jotyrindra Bodhipriya Larma, alias Santu Larma, as its Chairman. This fulfils a provision in the CHT Regional Council Act 1998, legislated in Parliament on May 6, 1998. Meanwhile, Jotyrindra Bodhipriya Larma raised an objection to the formation of the interim council, accusing the government of 'violation of the peace treaty'. PCJSS sources in Khagrachari said the tribal leaders disapproved of inclusion of three Bengali leaders in the interim body. On the other hand, officials of the CHT Ministry refuted such allegations stating that there was nothing in the agreement about the list.

So the institutionalisation of peace arrangements in the Chittagong Hill Tracts faces teething troubles. One can only hope that these initial obstacles will be soon overcome with understanding and cooperation from both sides and that enduring peace and sustainable development within a framework of autonomy for the inhabitants of the hill region will be eventually ensured.

It is against the backdrop of these latest developments in the Chittagong Hill Tracts of Bangladesh that the present paper examines the growth, poverty alleviation, and sustainable resource management in the region.

Perspectives

Although Bangladesh is a young country, the Bengali nation has a long history. The region comprising Bangladesh was first inhabited by an Austric race who were followed by the Dravidians. Later, the Aryans from central Asia settled in the fertile region. The Mongolians, Persians, Turks, and Afghans added further diversity to the ethnic roots of the Bengalis. Hindu and Buddhist kingdoms flourished until the 12th

century A.D. Muslim conquerors appeared on the scene in 1201 A.D. and ruled the region until the 18th century. At times, there were independent rulers of the Hussain Shahi and Ilyas Shahi dynasties, while at other times the region came under direct Mughal rule. From the 15th century, Portuguese, Dutch, French, and British traders exerted economic influence over the region. British rule began in 1757 A.D. when the last Muslim ruler of Bengal was defeated at Palassey. After almost two hundred years of British rule, the subcontinent was granted independence and partitioned into India and Pakistan in 1947. Bangladesh won its freedom from Pakistan in 1971.

Bangladesh currently has a population of about 126 million, making it one of the most densely populated countries in the world. The population is evenly distributed throughout its 64 administrative districts, except for the three hill districts which are relatively less populous. Almost seventy per cent of the population live in rural areas. The capital city, Dhaka, has a population of around 10 million. Muslims constitute a majority in Bangladesh. Hindus comprise the largest minority, followed by Buddhists, Christians, and animists. Almost all have Bengali as their mother tongue, although there are several dialects. The educated are bilingual and use both Bengali and English as mediums of communication.

There are about one million tribal people in the country, the majority of whom live in the Chittagong Hill Tracts. The problem in the Chittagong Hill Tracts of Bangladesh was often misperceived. Outside perspectives tended to be simplistic. The problem was seen merely as one of ethnic insurgency that could be solved with the military might of a relatively new-born nation-state, itself struggling against poverty and underdevelopment.

In reality, however, the roots of the problem lay deep in the past- both recent and remote. It was a problem that sovereign and independent Bangladesh did not create. In fact the struggle for the emancipation of Bangladesh during 1971 was dominated by a vision of political and economic justice principally stimulated by social democratic ideals. The basic commitment of Bangladesh to a liberal social democratic system has found strong reaffirmation in the nineties. A representative democratic order exists in Bangladesh. In such a dispensation the resolution of the problem in the Hill Tracts could not be and was not a function of armed might for resolution of conflict. On the contrary, the canons of this democratic polity encourage and compel the resolution of problems of sub-national and regional minorities through the democratic political process of peaceful dialogue and cooperation.

The problem that Bangladesh faced in the Chittagong Hill Tracts was not unique in the present day world. The challenge posed by assertive regional minorities is a widespread phenomenon shared by numerous states – both developing and developed. The problem of integrating them peacefully and equitably into the mainstream of national life through participation in democratic and socioeconomic participation is shared alike by many post-colonial developing and economically, technologically, and industrially developed states (Shelley 1992).

The Chittagong Hill Tracts of Bangladesh is a relatively small area in which this subcontinental drama has taken place. In this area, unlike in the South Asian subcontinent, there were even no original inhabitants. This land of hills and jungles, lush green valleys, and numerous rivers and streams, sprawling over the south-eastern part of Bangladesh was actually so inhospitable that it remained barren and unpopulated for a long time.

Records show that it was not until the 15th to the mid-nineteenth centuries that tribals, the Kukis being the earliest, moved into the area from regions now in present-day Myanmar (former Burma) and the Tripura region (now a part of post-colonial India). In time, among the 13 tribes of Sino-Indian descent, the Chakmas became most numerous and dominant. These tribes speak a wide variety of dialects, while the language of the Chakmas who constitute the largest community is heavily influenced by the Chittagong dialect of the Bengali language. Political developments in the region are comprehensible in reference to its economic links with the plains. Exchange of agricultural products between the hills and plains has a long tradition and, consequently, the rulers around the Hill Tracts used to fight for political power by using trade connections. On account of its geographical location, with easy access from Chittagong, the rulers in the plains found themselves in an advantageous position to make territorial claims over the hills. This was one of the main causes of strains in the relationship between the hills and the plains.

The Chittagong plains, punctuated by hills and jungles forming the same ecological environment as that of the CHT, had long been a bone of contention between three local centres of power: the Kingdom of Arakan to the south, the Kingdom of Tripura to the north, and Bengali rulers to the north-east. During the late 17th century, the influences of Arakan and Tripura were shattered by the Mughals. The stabilisation of Mughal power in the plains of Chittagong was followed by expansion of wet-rice cultivation areas to the east. The regular battles between the Chakmas and the Mughal forces gave rise to Chakma military might, but this was successfully contained by the Mughals by means of a peaceful settlement giving the Chakma military ruler control over the trade between the hills and the plains on payment of a fixed amount of cotton to Mughal agents. The Bengali movement into the CHT dates back to the 17th century when, braving the natural disadvantages, a small number of Bengalis settled in the inhospitable terrain of the region at the invitation of the Chakma chief.

British colonial rule had a number of impacts on the area. The rulers established themselves in the CHT and in 1860 separated it from the district of Chittagong to form the separate district of Chittagong Hill Tracts. The British rulers promoted inter-tribal conflicts as a means of retaining control over the area and tightened their administrative grip by promulgating the 'Chittagong Hill Tracts Regulation 1900'.

During the post-colonial era, after the departure of the British from the subcontinent in 1947, certain mainstreaming and modernising measures by the successor government of Pakistan affected the tribal people of Chittagong Hill Tracts in a

number of ways. A section of them perceived these development and modernising efforts as detrimental to their interests.

However, some of these socioeconomic development efforts of the pre-1971 government had a positive impact on the life of the tribal people. Thus the spread of education benefited all of them in general and the Chakmas in particular, and by 1970 the rate of literacy among them had risen to more than 50%. Consequently, political consciousness also developed among literate sections who began to harbour new hopes and aspirations that not only contradicted Pakistani rule but also their age-old feudal traditions.

With the signing of a peace treaty, a better environment for speedy development of the region has been created. Multiple programmes covering all facets of socioeconomic and institutional development have been undertaken and several projects are being implemented as fast track activities.

3.2 Physical Features and Topography

Location

The Chittagong Hill Tracts, consisting of the districts of Bandarban, Khagrachari, and Rangamati are situated in the southeast of Bangladesh. The Chittagong Hill Tracts' (CHTs) region is marked, in contrast to other regions of Bangladesh, by chains of hills running from the south to north-west and deep valleys formed by the rivers of Feni, Karnafuli, Sangu, and Matamuhuri and their tributaries. The rivers are subject to severe flash floods during heavy rainfall during monsoon. The scenery throughout the region is picturesque with alternative hills and valleys covered with forests, bushes, and other vegetation. The general elevation of the relief is higher in the south and lower in the north. The relative reliefs are about 457-884 metres above sea level (masl) in the south and 305-610m in the north. The maximum height is in the Keokradong hills at 1,230m, situated in the east of the region. In the north, there are three major valleys – the Chengi, the Myani, and the Kassalong – and together they provide the largest area of contiguous flat and fertile land in the region. Because of the Kaptai Hydroelectric Project's dam, a vast lake covering an area of 1,039 sq.km (400 square miles) has been created in the upper reaches of the River Karnafuli. In the south, there are three smaller areas of flat land in the valleys of Raingkheong, Sangu, and Matamuhuri. Table 3.1 lists the agricultural land according to the topography.

Climate

The climate in the Chittagong Hill Tracts is very similar to the climate in the rest of Bangladesh, and it receives monsoon rainfall during July-August and dry weather from December-February. The average precipitation appears to be marginally higher in the region than in the rest of the country, amounting to 2,700 mm. There are, however, wide fluctuations in annual rainfall in the region (1,836 to 3,043) as shown

Table 3.1: Distribution of agricultural land by topography (sq.km)

Area	Highland	Medium Highland	Medium Lowland	Lowland	Very Lowland	Total
Bandarban	4,506.3	12.5	0	0	0	4,518.8
Chittagong Hill Tracts	5,047.6	27.3	4.6	0	0	5,079.5
Khagrachari	2,568.3	69.3	0	0	0	2,637.6
Hill Tracts (Total)	12,122.2 (99.1)	109.1 (0.9)	4.6	0	0	12,235.9 (100.0)
Bangladesh	33,220.0 (27.0)	59,075.5 (48.0)	17,543.2 (14.3)	10,957.8 (8.9)	21,58.5 (1.8)	122,955.0 (100)

Note: Figures within parentheses indicate percentages.
Source: BBS (1993)

in Table 3.2. There is little difference in temperature between Bangladesh and the Hill Tracts. The maximum temperature ranges between 30^0 to 37^0C and the minimum from 12^0 to 21^0C during the period from 1986-90 (Table 3.3). Seasonal variations follow the same pattern observed elsewhere in Bangladesh. Some variations have, however, been noted in the minimum temperature in winter (December-February), but nothing significant. From the perspective of climate, we may conclude that the Hill Tracts enjoy the same type of climate as prevailing in other districts of the country and, thus, differences in crop practices, if found in the region, are due to factors like land, topography, soil characteristics, water availability, and the culture of the people.

Table 3.2: Annual rainfall during 1985-90 in Rangamati and the Bangladesh average*

(in millimetres)

	1985	1986	1987	1988	1989	1990
Rangamati	1,836	2,442	2,990	3,043	2,595	2,681
Bangladesh	2,268	2,627	2,778	2,543	2,235	2,660

* Estimated from BBS 1992

Table 3.3: Maximum and minimum temperature in Rangamati and Bangladesh average during 1986-1999

	1986		1987		1988		1989		1990	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Rangamati	37.4	12.5	30.1	21.1	33.4	19.1	30.1	20.9	33.1	17.6
Bangladesh	38.0	10.3	29.1	21.4	32.8	19.1	32.5	18.7	31.5	16.2

Source: BBS 1992b

Soils

The soil of Chittagong Hill Tracts was surveyed in 1964-65 by the Forestal Forestry and Engineering International Ltd., Canada, with a grant from the Colombo Plan, for and on behalf of the then East Pakistan Agricultural Development Corporation in order to prepare a comprehensive agricultural development programme of the Chittagong Hill Tracts.

According to the Forestal Report, the soils in the area can be classified into seven categories. The most important ones are clay loam, sandy loam, and silty clays. The most extensive is silty clay loam which covers 67% of the total area. The hill soils are mainly yellowish brown loams that grade at variable depth, usually from one to four feet. Over large areas, the hill slopes are steeper than 40%, rendering even tree cultivation difficult. The hill soils are very acidic and require relatively heavy use of fertiliser for sustainable agricultural production. The valley soils, consisting mainly of clay loams, sandy loams, and silty clays, are subject to seasonal flooding and are used for cultivation of rice.

Land capability

The Forestal Survey classified the land capability of the district by taking into account slope and other terrain characteristics, the water retention capacity, and fertility of soils. The system of land capability classification adopted by Forestal uses five classes, the limitations in use becoming progressively greater from Class A to D. A and B class lands are mostly agricultural lands and are used for paddy cultivation. Most of the C and D classes are unclassed forests and green vegetation.

Class A Lands have few limitations and can be used for a wide range of crops. They vary in slope from 0 to .5% and are not normally susceptible to erosion. The soils are deep, easily worked, and hold water well. The use of inorganic and organic fertilisers is necessary to maintain productivity, but other intensive management practices are unnecessary. Irrigation is a recommended practice on these lands.

Almost all areas of paddy land are included in this group. The predominant soil is the series and also, to quite a great extent, the Mogachhari (Karnafuli) series. Isolated patches of Class A land occur also in other soils, but are not extensive.

Class B Lands have moderate limitations which reduce the choice of crops or require certain conservation practices to reduce deterioration. Such practices are easy to apply. The limitations of Class B lands may include slopes of up to 20% and moderate susceptibility to erosion. Clean cultivation is not recommended and the use of fertilisers/ manures is necessary.

Class B areas are associated with non-dissected high and low ‘bumpy’ lands with the Teiabil series predominant. Irrigation may be possible in places and the use of terracing is usual on the slopes.

Class C Lands have severe limitations that reduce the range of crops or require the adoption of special, intensive conservation practices. Limitations may include slopes of up to 40%, high susceptibility to erosion, low moisture-holding capacity, and a shallow plant rooting zone. This class includes high 'bumpy' lands of the Hazaribak series. Soils are well drained or excessively drained: very susceptible to drought in the dry season and, because of their sandy nature, they may present problems for terracing. Clean cultivation is not recommended for these lands and terracing is essential but may only be possible in areas where soils are quite deep. Fertilisers/ manures are necessary to maintain or increase productivity.

Class C-D Lands are a complex class of soils that cannot be readily classified under C or D. The inferior Hazaribak soil is predominant.

Class D Lands have very severe limitations that restrict the choice of crops and require very careful management if used for agriculture. Conservation practices are difficult to apply. Slopes usually exceed 40%, erosion is prevalent, moisture-holding capacity is low, and soils are shallow. Clean cultivation should not be practised and terracing is difficult. Forest plantation may be the most economical use for this class.

3.3 Land Tenure and Land-Use Patterns

Land tenure

All lands in Chittagong Hill Tracts belong to the government, except for a few areas where settlement has taken place in the recent past and land has been leased out for commercial or industrial purposes.

Shifting cultivation is permitted only in unclassed state forests by traditional right. The 'Jhumias' (shifting cultivators) cultivate land on payment of jhum tax at a fixed rate stipulated by the Chittagong Hill Tracts' Manual 1910. For tax purposes there are three circles – Chakma, Bohmong, and Mogh – into which the CHTs are divided. Each circle is headed by a tribal chief on the basis of hereditary rights. Circles are divided into 'mouza'. Each 'mouza' is headed by a headman. Jhum tax is shared amongst the headman, tribal chief, and the government represented by the Deputy Commissioner, according to the proportion described in the CHT Manual of 1910.

The Jhumias enjoy perpetual right of cultivation on the land they first clear for cropping. A swidden size generally varies from two to four acres. The abandoned swidden may be cultivated by another person with the permission of the person holding the permanent right to cultivation.

Area under shifting cultivation was first reduced drastically in 1880 when a vast area in the CHT (3,23,886 ha representing nearly 25% of the total area of the CHT) was declared reserved forest where shifting cultivation was practised. Another major event leading to reduction in land under shifting cultivation was the construction of the Kaptai dam in 1963 submerging an area of 647 sq.km previously mostly used for

shifting cultivation. The gradual expansion of land under plough cultivation, especially since 1910 (and particularly after 1947) also significantly reduced the area under shifting cultivation. All these contributed to a greatly reduced jhuming cycle with consequential adverse impacts on the environment and ecosystem.

Community ownership of land has declined in recent years as a result of the development activities being pursued in the area. The rapid growth in population in general and concentration of land and resources in the hands of tribal elites and non-tribal businessmen contributed to increasing landlessness in the area.

Land-use pattern

Unlike other parts of Bangladesh, the CHT have a substantially higher proportion of land under forest (62.3% of the total land area in the CHT compared to 12.8% of the total land area of Bangladesh) and a substantially lower proportion of land under net cropped area (6.5% of the total land area in the CHT compared to 55.1% of the total land area of Bangladesh). According to the Statistical Yearbook of 1992 (BBS 1993), there were 3,285,000 acres of total area in CHT. Of this area, in 1990-91, around 23% was not available for cultivation, 62.3% was under forest, 5.2% was cultivable waste, 3.0% was under current fallows, 4.4 was under single cropped area, 1.7 was under double cropped area, and 0.5 was under triple cropped area. In 1990-91, the cropping intensity in the CHT was 140.2% compared to 172.7% in Bangladesh as a whole (Table 3.4). The cropping intensity was the highest in Khagrachari (152.4%), followed by Bandarban (142.9%) and Rangamati (133.9%). The area under forest was the highest in Rangamati (90.7%), followed by Khagrachari (55.6%) and Bandarban (27.6%).

3.4 Demography

Size, density and growth

Demographically little change is marked in the Chittagong Hill Tracts for the period from 1760 to the end of the 19th century. In 1760 the population was estimated to be approximately about 100,000. In the 1892 Census, the population was recorded to be 107,286. Immigration restrictions and high mortality account for this static position. The rate of population growth, however, started increasing from the beginning of the twentieth century. It had risen to 288,000 by 1951.

The population enumerated in 1961 in the district was 406,000 and 508,000 in 1974, implying a growth rate of 2.2% over the period from 1961-74. It grew at the rate of 3.98% per annum from 1974-81. The growth rate, however, declined to 2.66% from 1981-91. The population growth rate was lower in the CHT than the national average for Bangladesh from 1961-74, but the situation has been reversed in more recent years (1974-81 and 1981-91). In 1974 the CHT accounted for 0.71% of the population of Bangladesh; the percentage in 1991 was 0.93 (Table 3.5). In 1991, the population was 993,000, and in 1981 it stood at 754,000.

Table 3.4: Land-use pattern and intensity of cropping in the Chittagong Hill Tracts by district, 1990-91

('000 acres)

Land-use Pattern/ Intensity of Cropping	Bandar-ban	Khagra-chari	Rangamati	Chittagong Hill Tracts (2)+(3)+(4)	Bangla-desh
(1)	(2)	(3)	(4)	(5)	(6)
Land-use pattern					
Total area	1,107	667	1,511	3,285	36,670
Not available for cultivation	580	167	8	755	7,958
Forest	305	371	1,371	2,047	4,693
Cultivable waste	117	40	15	172	1,442
Current fallows	42	47	8	97	2,379
Single cropped area	41	24	78	143	8,140
Double cropped area	17	14	25	56	9,634
Triple cropped area	5	4	6	15	2,424
Intensity of cropping					
Total cropped area	90	64	146	300	34,784
Net cropped area	63	42	109	214	20,198
Intensity of cropping	142.9	152.4	133.9	140.2	172.7
Land-use pattern (% total area)					
Total area	100	100	100	100	100
Not available for cultivation	52.4	25.0	0.5	23.0	21.7
Forest	27.6	55.6	90.7	62.3	12.8
Cultivable waste	10.6	6.0	1.0	5.2	3.9
Current fallows	3.8	7.0	0.5	3.0	6.5
Single cropped area	3.7	3.6	5.2	4.4	22.2
Double cropped area	1.5	2.1	1.7	1.7	26.3
Triple cropped area	0.5	0.6	0.4	0.5	6.6
Proportion of the total area under					
Total cropped area	8.1	10.0	9.7	9.1	94.9
Net cropped area	5.7	6.3	7.2	6.5	55.1

Source: BBS1993

Table 3.5: Population and growth rate in CHT

Area	Population ('000)					Growth Rate	
	1951	1961	1974	1981	1991	1974-81	81-91
Khagrachari	93	135	189	278	342	3.95	2.09
Rangamati	124	185	203	301	401	4.05	2.89
Bandarban	71	86	116	171	230	3.95	3.01
CHT	288	406	508	750	973	3.98	2.66
Bangladesh	(0.69) 41932	(0.80) 50840	(0.71) 71479	(0.86) 87120	(0.93) 104766	3.28	2.17

Figures in brackets show the % of the population.
Source: BBS (1992b)

The density of population within the then district was the highest in Ramgarh – at that time a sub-division (of 448.07 sq.km) which comprises most of the Chengi and Myani valleys. It is estimated that Chengi, Myani, and Kassalong valleys supported almost the whole of the population of the Chittagong Hill Tracts. The population density for CHT and Bangladesh as a whole is given in Table 3.6.

Table 3.6: Density of population per sq.km

	1951	1961	1974	1981	1991
Chittagong Hill Tracts (CHT)	57	75	100	147	190
	(22)	(29)	(39)	(54)	(74)
Bangladesh	761	922	1286	1567	1884
	(294)	(356)	(497)	(605)	(728)

Source: BBS 1982, 1992a

The growth in population in the Chengi and Myani valleys and Kassalong Rehabilitation Zone are exceptionally high compared to the district as a whole. In Khagrachari and Mahalchari 'thanas', which form most of the Chengi Valley, the annual average growth rate in population from 1961-74 was 3.29%. Similarly in Baghaichari, Dighinala, and Langadu thanas, which are in the Myani and Kassalong valleys, the population growth rate was 4.76% from 1951-61 and 2.61% from 1961-74.

The tribal population is divided into as many as 13 tribes, of whom the numerically superior ones are the Chakma, Marma, and Tripura. It is well known that corresponding to the geological division of the hills into terrains of sometimes steep-sided hillocks and broad river valleys, the ethnic groups have chosen different habitats. The Chakmas, Marmas, and Tripuras are valley-loving groups, whereas the Khumi, Mro Lushai, Bawm, Khyang, Pankhu, Tanchangya, Chaak, Murung, and Riang live on the ridges of the hills. Most of the tribal people migrated from areas now in Myanmar between the 15th and the mid-19th centuries.

Age composition and life expectancy

An analysis of the age distribution of population indicates that the proportion of children is lower in the CHT than in the rest of Bangladesh, indicating a lower rate of natural increase in the CHT. This is so in spite of the fact that the ratio of women in the reproductive age groups (15 to 45) is larger in the CHT than in Bangladesh as a whole. Table 3.7 shows the age and sex structure of the population of the CHT.

Family size and age distribution of population

The average size of the family is 6.1, and this is very close to the national average of 5.8 members in a household, but in Bandarban district it is much lower (4.9 members); perhaps because of the higher incidence of child mortality there than in other areas.

Table 3.7: Age-sex structure of the population

Age Group	Percentage of Population			Sex Ratio (males per 100 females)		
	1951	1981	1991	1961	1981	1991
A. Hill Tracts						
0 – 9	32.4	31.0	31.5	102	105	108
10 – 19	19.0	21.2	20.3	116	114	112
20 – 39	31.3	29.8	30.7	143	128	122
40 – 59	13.5	13.2	12.8	145	149	145
60+	3.9	4.8	4.7	132	156	165
Total	100	100	100	123	120	118
B. Bangladesh						
0 – 9	37.0	33.2	–	101	102	–
10 – 19	16.8	22.7	–	112	110	–
20 – 39	22.3	25.9	–	104	100	–
40 – 59	13.7	12.5	–	122	116	–
60+	5.2	5.6	–	123	128	–
Total	100	100	–	108	106	–
Source: BBS 1982, 1992a						

The age distribution of population shows that infants (up to 5) comprise 11% of the population in the hill region, and this is significantly lower than the country's share (Table 3.8). This suggests that either child mortality is higher or birth rates are lower there. The former reason is more likely. In the region, the proportion of women to men is much lower than elsewhere in the country, the ratio for males and females being 100:90. This lower share is more noticeable in the adult population (15 to 60 yrs). Girls, on the other hand, outnumber boys in the minors' group (5 to 15 yrs). Such a pattern of population distribution, however, does not exist in all the communities uniformly.

Table 3.8: Family size and distribution of population by age group

Community	Size of the Family (no)	Distribution of Population (%)				
		Up to 5 yrs	5 to 15 yrs	15 to 60 yrs	60 yrs & above	Total
Chakma, Rang.	7.7	10.4	26.0	57.1	6.5	100
Tripura, Rang.	5.7	15.8	42.1	42.1	-	100
Marma, Khag.	6.9	7.2	30.4	59.4	2.9	100
Tripura, Khag	6.7	13.4	28.4	55.2	3.0	100
Marma, Bandar.	4.8	12.5	10.4	72.9	4.2	100
Murang, Bandar.	4.9	6.1	40.8	53.1	-	100
All Communities	6.1	10.9	29.7	56.4	3.0	100
Bangladesh (1991)	5.8	17.1*	29.9+	47.7	5.6	100

* (0-4 yrs), +4 to 14 yrs)
Source: BBS, 1992b.

3.5 The Ethnic Groups

The different tribes belonging to the Kuki group appear to have been the earliest arrivals in the area now known as the Chittagong Hill Tracts. They yielded to and were driven to the north-east by the invading Chakmas who had gained settlement in the southern portion of the district of Chittagong, having been ousted by the Marmas from Arakan during the time of the Burmese wars and forced to enter the Hill Tracts. They finally settled in the central and north-eastern portions of the Hill Tracts, while their former possessions were absorbed by the Marmas.

The tracts are at present inhabited by 13 tribes, each speaking its own dialect (Table 3.9). The three principal tribes are the Chakmas, Marmas, and Tripuras. In addition, there are the Mros, the Kukis, the Khyangs, and the Pankhos, all forming the Kuki group of inhabitants in the Tracts, and six other tribes.

Table 3.9: Different tribals groups of varying size, origin

Main Name	Alternative Names	Group Origin
Chakma	Thek, Tui-thek	Arakanese groups
Marma	Magh, Mogh, Maramgri	Bhyya
Tripura	Tipra, Tip (p) era	Tripura groups
Tanchangya		
Riang		
Murong	Murang, Mrung	
Lushai		Kuki groups
Panku	Panko, Pakhin, Pankho	
Bon	Bonjugi, Bawm, Bangogi, Banjogi	Mizo
Chak		
Khumia	Kumi	
M'ro	Mroung, Mru	
Kyang	Khayengs, Khanegas, Sho, Khuan	

The Hill Tracts tribesmen are ethnically different from the settled populace in Bangladesh. They have closer links with tribal groups from the vast region that extends from Tibet to Indo-China. They are short in stature, have black hair, prominent cheekbones, and narrow eyes; features that are generally known as typical of the 'Mongoloid type'.

The most important tribes, therefore, as mentioned previously, are the Chakmas, the Marmas (Moghs), and the Tripuras, and they account for nine-tenths of the non-Bengali ethnic population. The Chakmas are a Mongoloid race, probably of Arakanese origin, although they have intermarried, mostly with Bengalis. They are divided into three sub-tribes: Chakmas, Doingnak, and Tungijainah. The Marmas are, for the most part, descendants of the Arakanese. They were uprooted by the Burmese (who overran the country in 1784) and were given shelter in the territory now constituting

Bangladesh. They are divided into three sections. The Jhumia or cultivators of 'Jhums' (tracts for slash and burn cultivation), the Rohang or Arakan Marmas, and the Burma or Rajbansi Marmas. The Tripuras descended from the Hill Tripura. This tribe is divided into two classes, the Purana or Tripura proper and the Jamatiyas. Among the smaller groups are the Banjogi, the Pankho, and the Lushai who appear to be descendants of the oldest inhabitants of the area.

The Bawm and the Pankho claim to be of common origin, descended from two brothers, and in language, customs, and habits, they are very similar. These tribes are probably off-shoots of the Lais who occupy the Chin Hills between the Tashon country in the north and Zau country in the south. The tribal influences of the Lais extend from the Burmese (Myanmar) boundary on the east to the Lusahi county on the west. The Lais were probably formerly inhabitants of Arakan. Another small group is the Khyang. Principally, they live on the spurs of the hill range that separates the Chittagong Hill Tracts from Arakan. They call themselves Sho and are closely allied to the Chins. They are extremely shy, preferring to remain in the most inaccessible places. The tribe has no sub-castes or sects.

The Mro (Mrug), another group, usually live on the tops of the hills where they often fortify their villages. They are regarded as the true aboriginals of the region.

The Mrung and the Tripura seem to have the same origin, although they are now classified separately. The Tripuras migrated slowly from the Hill Tripura in the north. The Mrung, according to legend, were captured by an Arakanese king who brought them southward forcibly.

All these smaller groups have tended to intermingle, so that they cannot be classified properly as tribes but only as ethnolinguistic groups. On the other hand, the Marmas, the Chakmas, and the Tripuras are numerous enough and sufficiently organised to warrant being called tribes.

3.6 Literacy

A crude measure of the quality of manpower is the literacy rate. Table 3.10 shows the level and changes in the literacy rate among the population over five years of age. Only about one fourth of the population in Bangladesh is literate, with a marked improvement discernible over time, especially for women. The literacy rate in CHT was lower than the national average, but the 1991 census showed a literacy rate of 28% which is higher than the national average of about 25%. A district-wise breakdown of the literacy rate tends to show that the literacy rate in Rangamati is substantially higher at 38%, which possibly inflated the average for CHT. Another observation from Table 3.10 is that, whereas the male literacy rate in CHT has long been close to that of the country average, the female literacy rate has lagged far behind the national average. It thus follows that the literacy situation in CHT improved, although marginally, for men but substantially for women, over time, and that the rate is close to the national average.

Table 3.10: Literacy rate

Year	Hill Tracts			Bangladesh		
	Male	Female	Total	Male	Female	Total
1961	20.6	3.2	12.8	26.0	8.6	17.0
1974	24.1	7.5	16.4	29.9	1.7	22.2
1981	24.3	7.6	16.6	31.0	16.0	23.3
1991	34.8	16.8	28.0	-	-	24.82

Source: BBS 1981, 1992a.

3.7 The Economy of CHT

Major sources of income

The Population Census (Zila series) 1991 provides information on the main sources of household income, and these are presented in Table 3.11. Farming is the main source of income for the biggest proportion of households (39%), followed by agricultural labour. Thus farming constitutes the principal source of income for 55% of households, either through self-cultivation or wage labour. About one-tenth of the households' income comes from other employment and an almost equal proportion from business. About seven per cent of households earn their living by selling labour in the non-agricultural sector while three per cent of the households have forestry as the principal source of income. This pattern is similar in all three districts, except that in Rangamati agricultural labour constitutes a smaller and 'employment' a larger share than in other districts in household income.

The CHT has a predominantly agricultural economy. Its topography and climatic conditions make it imperative that the people have to fall back upon agriculture. Only a small percentage of the population is engaged in business, trade, professions, and government services. Owing to the subsistence economy, the tribal people, apart from farming, are involved in other productive activities to meet basic needs other than food. CHT is currently a food deficit area.

Table 3.11: Major sources of income 1991 (% of households)

Source	Areas			
	Khagrachari	Rangamati	Bandarban	CHT
Farming	37.0	40.0	41.0	39.0
Agricultural labour	19.0	12.0	17.9	16.0
Non-agricultural labour	9.0	5.0	6.8	6.8
Business	9.0	10.0	9.5	9.7
Employment	10.0	14.0	9.5	11.0
Forestry	2.0	3.0	4.0	3.0
Livestock	1.0	0.3	0.3	0.7
Others	13.0	16.7	11.0	13.8
Total	100	100	100	100

Source: BBS 1992b

Participation in the labour force (economically active population)

The labour force participation rate, defined as 'active' population (working and looking for work) as a percentage of the total population is observed to be higher (at 35%) in CHT than in Bangladesh as a whole (27%) (Table 3.12). The rate is much higher (57%) for men than for women (8.5%). Of the population aged 10 years and more, 51% are in the 'active' population category - the percentage is 81 for men but only 13 for women. The corresponding figures for the country as a whole are 40.5%, 73.2%, and 4.3%.

Table 3.12: Labour force participation rates (1981)

	Hill Tracts ('000)			Bangladesh (in millions)		
	Male	Female	Total	Male	Female	Total
Total population	412	338	750	44.9	42.2	87.1
Population over 10 yrs of age	290	227	517	30.6	27.9	58.2
Active population	235	29	264	22.4	1.2	23.6
Population in the active age group as % of total population	70.3	66.8	68.8	68.2	66.1	66.8
Active population as % of total population	57.0	8.5	35.1	50.0	2.8	27.1
Activity rate (active population as % of population above 10 yrs. of age)	81.0	12.8	51.1	73.2	4.3	40.5

Source: Hossain and Bakht 1985

Amount of land owned and land use

Land owned by a household in the tribal community is of three types: (i) individually owned; (ii) government owned but right to possession enjoyed by the individual — usually known as 'khas' land; and (iii) jhum land — government owned but may be used by a household or a community for some time without claiming right to possession. In the case of land ownership categories, all these lands have been given here. Khas land inclusive of jhum land accounts for 14% of the total land, the highest being in the case of the Murang community which literally speaking does not own any land. The community actually practises jhum cultivation on khas land. The average size of land owned is 6.1 acres, which is about three times the national average. Among the different communities, the Tripura in Rangamati own the smallest parcels of land (Table 3.13) but they own the largest parcels in Khagrachari.

Land cultivated by the communities accounts for about half (47%) of the total land owned, which includes pure paddy land as well as land used to grow fruit and spices. Of this land, paddy covers 36%. Homesteads occupy 2.2%, the absolute size being 0.14 of an acre per household.

The functionally landless (up to 0.5 of an acre) households comprise 15% of the community, but this is quite low compared to the Bangladesh average of about 40%.

Table 3.13: Land ownership and principal use of land by community

Community	Average size of land (in acres)	Khas land as % of total land	Cultivated land as % of total land	Land use (%)				
				Home-stead	Paddy	Fruit Gardens	Vege-tables	Forests & Fallow
Chakma, Rang.	10.38	4.2	50.8	1.7	27.7	19.8	3.3	47.5
Tripura, Rang.	2.78	7.4	47.5	4.1	37.6	7.1	2.8	48.4
Marma, Khag.	5.61	0.9	43.4	2.8	43.0	-	0.5	53.6
Tripura, Khag.	10.64	2.7	54.4	1.5	34.7	13.1	6.7	44.1
Marma, Bandar.	3.90	18.4	61.0	3.2	52.8	8.2	-	35.9
Murang, Banda.	3.28	100.0	-	2.4	35.4	47.0	-	15.2
All Communities	6.10	13.6	47.0	2.2	36.2	15.0	3.2	43.4

Source: GOB 1991

This is obvious as land is relatively abundant there. Big landowners (7.5 acres and above) are a much higher proportion than the national average (27%). Big landowners are predominant in three communities (the Chakma in Rangamati, Marma and Tripura in Khagrachari). In contrast functionally landless households are predominant in the Marma societies of both Khagrachari and Bandarban (Table 3.14).

The predominant land cover is forests (43%), followed by rice cultivation (36%). Rice has a larger share of land (above 40%) in one community only (the Marmas in Bandarban and Khagrachari). They have the least vegetable coverage. A survey by Farid and Ullah in 1987 (cited in GOB 1991) found more rice coverage in the foothills and in the plains, and it was absent on the slopes of the hills. Fruit gardens are found

Table 3.14: Distribution of households by land size

Community	Total house-holds (no)	Functionally landless (up to 0.5 of an acre)	Small land-owners (0.51 to 2.5 acres)	Medium land-owners (2.51 to 5.0 acres)	Large land-owners (5.01 to 7.5)	Very large land-owners (7.51+)
Chakma, Rang.	10	1	0	0	3	6
Tripura, Rang.	10	0	4	6	0	0
Marma, Khag.	10	3	2	1	0	4
Tripura, Khag.	9	1	2	1	1	4
Marma, Bandar.	10	4	1	3	0	2
Murang, Banda.	10	0	5	1	4	0
All communities (%)	59 (100)	9 (15)	14 (24)	12 (20)	8 (14)	16 (27)

Source: GOB 1991

to be more important for the Murang of Bandarban and the Chakma of Rangamati (Table 3.13).

In the hill tracts, land used for rice may be considered suitable for general crop cultivation and paddy producers considered as farmers. Total tenant cultivators in the whole community number 21% and half of them are owner-cum-tenants. They account for 13% of the rice land. Tenant farmers are predominant in Khagrachari. Owner operators (half of the rice producers) cultivate about three-fourths of the rice land (Table 3.15).

Table 3.15: Distribution of rice farmers by tenancy

Community	Owner Operators		Share-croppers		Khas Land Operators	
	Number	Rice Acreage	Number	Rice Acreage	Number	Rice Acreage
Chakma, Rang.	8	25.2	1	1.6	2	3.6
Tripura, Rang.	8	8.6	1	0.8	1	2.0
Marma, Khag.	6	24.1	4	7.8	-	-
Tripura, Khag.	7	36.9	3	4.0	-	-
Marma, Bandar.	3	13.8	3	4.0	2	6.8
Murang, Banda.	-	-	1	1.6	10	11.6
All communities (%)	32 (53)	108.6 (71)	13 (22)	19.8 (13)	15 (25)	24.0 (16)

Source: GOB 1991

Crops grown and the adoption of modern rice

From the agronomic perspective, cultivation of a crop is dependent primarily on the soil and land topography as well as climatic factors. In the selected hill tracts, rice is the only crop and other crops like sugar cane, jute, wheat, potato, mustard and pulses are not grown much there. Pulses and oil seeds are cultivated as jhum crops. Jhum cultivation has four main crop combinations. They are (i) 'Aus' paddy and banana (ii) banana and papaya, (iii) peas and cucumber (marfa) and other vegetables, and (iv) sesame, cotton, and millets. Aus paddy, grown as a jhum practice, has a coverage of more than one-third of the total Aus area in the region. Maybe Aus as broadcast paddy is very compatible with the other crops grown.

Levels of adoption of modern rice are higher in the region than in the country as a whole. The average coverage was 66% of the total rice area compared to the national achievement of 45% in 1991. In terms of seasonal achievement the levels of adoption in the winter rice season (Boro) are 90%, in the late summer rice season (Aman) 81%, and early summer rice season (Aus) 36% (Table 3.16). Modern rice is not grown by the Murang of Bandarban who practise jhum cultivation only. The Chakma of Rangamati cultivate all their lands with modern rice in both the summer and winter seasons.

Table 3.16: Rice production in CHT

Community	Area under (acreage)			Total Rice Area	Total Modern Rice Area (in %)	Modern Acreage of Total (early summer) (%)	Modern Acreage of Total (later summer) (%)	Modern Acreage as % of Total (winter) Acreage
	Early summer	Later summer	Winter					
Chakma, Rang.	8.0	11.6	15.0	34.6	81.5 (28.2)	20.0	100.0	100
Tripura, Rang.	5.6	-	5.8	11.4	47.8 (5.4)	-	-	93.2
Marma, Khag.	7.6	23.1	-	30.7	86.3 (26.5)	71.0	91.3	-
Tripura, Khag.	22.1	36.7	9.0	67.8	69.8 (46.8)	59.3	72.7	77.8
Marma, Bandar.	14.0	13.8	8.6	36.4	58.2 (21.2)	34.3	71.0	76.7
Murang, Banda.	11.6	-	-	11.6	-	-	-	-
All Communities	68.9	85.2	38.4	192.5	66.5 (128.1)	36.1	81.2	88.6

Source: GOB 1991

Jhum cultivation

Jhum is the name of the system of cultivation that is traditionally practised by the tribesmen of the Chittagong Hill Tracts. It is typical shifting cultivation and is declining gradually, although most tribals are still involved in Jhum cultivation.

The essentials of Jhum cultivation are the clearing and burning of surface vegetation before planting mixed crops of rice, millet, sesame, maize, vegetables, and cotton. The mixed nature of cropping ensures a supply of food for most of the year. At the end of an annual cycle, the land is left to revert to scrub and the cultivators move on to another area.

For centuries, Jhum cultivation worked effectively. There was no serious deterioration of the soil and the plots lay fallow for at least seven years. This allowed regeneration of the soil and natural growth of the forest. Fallow periods are essential for jhum, which is ecologically unharmful, but it demands large areas per family as only part of the land is under cultivation at any one time. If either the population increases or the land decreases, shifting cultivation is rendered unviable.

Land suitable for intensive field cropping accounts for less than five per cent and is confined to the bottom of river valleys; about two-thirds of the land is steep slopes and is considered suitable only for forests. Except for intensive crop farming in the alluvial plains, shifting cultivation is the most prevalent form of land use practised by the hill tribes, and it is allowed on all land outside the areas declared as forest reserves. This system of shifting cultivation has been practised for centuries with little effect on soil fertility, but as a result of heavy population pressure, in recent years the cycle of cultivation has become shorter than the optimum, causing imbalance in the system.

Livestock and farm implements

Only half of the households own cattle and the number owned by a household on average is 1.5, but this increases to four if only cattle-owning households are considered. Households owning sheep or goats are in the minority (30%), and this is contrary to our expectations as small ruminants can graze over wide areas in the hills. The proportion of households owning poultry is 70%. The average number of goats and sheep per household is four and 13 for birds, close to the average for Bangladesh. Pig raising is limited to two communities (theTripura of Khagrachari and the Murang of Bandarban). Among the communities selected, Khagrachari is observed to be better endowed with livestock, may be facilitated by the large land sizes there.

The average value of animals and farm implements (land excluded) is estimated to be Tk[1].13,000 per household out of which implements account for only 13%. The average price of a cow is found to be only Tk 3,278.

[1] There were 51 taka to the US dollar in December 1999.

Industry

In order to generate employment among the tribals, factories were established. They included paper mills, a plywood factory, and match factories at Chandraghona, Rangamati, and Kaptai. These industries, however, could not achieve their objectives, as they did not have labour recruiting policies that kept the special needs of the locality in mind. Moreover, the tribesmen were not considered suitable psychologically and technically to fill the ranks of the industrial labour force. The workers employed in these factories are mainly from the plains. The economic and technical considerations that motivated the expansion of industrial projects in reality failed to ensure the resettlement of the displaced Chakma people.

Most of the industries established in the Chittagong Hill Tracts are based on forestry resources. Karnafuli Paper and Karnafuli Rayon Mills are the two largest industrial units in the CHT. Located at Chandraghona, the two industries employ about 6,000 people. In addition there are five medium-sized industries: a cigarette factory, a textile industry, a match factory at Aziznagar, a woodwork factory at Kaptai, and a plywood factory at Shilchhari.

Several cottage industries have sprung up in Rangamati, Bandarban, and Khagrachhari, established with loans advanced under special schemes. Industrial estates are to be established to help establish more industries and create job opportunities in the area.

3.8 Major Development Projects: Two Case Studies

The Kaptai project

This project funded by the USAID was commissioned in 1963 on the River Karnaphuli near Kaptai. The reservoir created by the hydroelectric project submerged 250 square miles of prime agricultural land, accounting for 40% of the total cultivable land in the tracts. Some 100,000 tribespeople, mostly Chakma sedentary rice farmers, were displaced by the project. These people, one-sixth of the total tribal population, were promised both financial compensation and land. The compensation package did not work out well. Many left for India as refugees. Kaptai dam was to a) generate electricity; b) increase fish production; c) promote riverain communication; and d) bring more land under irrigation. The effects of the dam were the opposite: a) it displaced people, b) it shortened the jhum cycle to between five and seven years, c) it has resulted in shortened jhum cycles, declining soil fertility,and low yields, and d) due to inundation, pressure on the scarce land increased. A socioeconomic study carried out by a group of academicians revealed that 69% of Chakmas (interviewed) felt that they were better off before the project was commissioned.

The country's total production of electricity is 1,855 MW. Kaptai's five units produce 230 MW, 12.5% of the total production. The question of whether it was worth undertaking this project for a small quantity of electricity at enormous environmental and social costs arises. A survey published by Chittagong University in 1979 carried

out among the Chakmas found that 93% felt that the economic condition of the tribal people had been better before the dam was built (Ghafur et al. 1987).

Effects of the dam

With the construction of the Kaptai Dam and creation of the Karnafuli reservoir in 1962, resource allocation problems increased in the CHT. The direct and indirect impacts of this development have been felt in most parts of the CHT and in almost all sectors of the regional economy. The uprooted tribal masses were in need of resettlement. Consequently, competition for land became a most formidable problem. Decrease in the length of the cycle of shifting cultivation from 10 years to three to four years is the outcome of this.

The non-submerged hill and alluvial lands came under tremendous population pressure on account of displacement by the reservoir of about 10,000 families having land rights in the reservoir bed and 8,000 landless Jhumia families. It is estimated that 40% of the region's most productive land lies below the reservoir's full supply level.

The amount of non-submerged land of comparable quality available for allocation to these hapless tribal families was equivalent to less than one acre per family, while the average landholding of each of about 10,000 families having permanent rights to land in the reservoir bed was about six acres (2.43 ha). In view of the shortage of suitable land, a portion of Kassalong Reserve Forest was allocated for rehabilitation of the displaced persons. The addition of this land raised the acreage availability per family to only two acres (0.81 ha). The non-submerged lands of good quality that were put into the rehabilitation scheme accounted for one-third of the areas formerly held by the families in the reservoir bed. As a result, it was not possible to allocate lands of comparable quality to those families who had rights to land on the reservoir bed. By mid-1964, some 5,633 families were able to receive an average of approximately three acres (1.21 ha) of land: equal to about half the acreage held by the families earlier on the reservoir bed. About 4,500 families having productive lands on the reservoir bed could not be resettled on lands of comparable quality to their former holdings.

Upland settlement project

Funded by the Asian Development Bank (ADB), the Upland Settlement Project was taken up by the Government in 1979. The revised first phase (1979-1993) is over. The second phase (1993-2000) is in progress. The project implementation agency is the Chittagong Hill Tracts' Development Board (CHTDB) formed in 1976. The project area comprises of 12 mouza located in three valleys: the Chengi, Mayani, and Kassalong valleys in the northern hill region of Khagrachari and Rangamati districts. The main components of the project are: a) road networks, b) upland settlement, c) settlement and afforestation, d) cottage industry, e) health extension, f) agricultural extension, g) family planning, and h) horticulture (GOB 1993a).

The project, through its multi-sectoral approach, primarily aims to create conditions for socioeconomic development of CHT in order to improve the living conditions of the poor tribal people living there. During a tour of the project area, the researcher saw that upland settlement and afforestation programmes have made significant progress. It was too early to assess the rubber plantation project, as the gardens were young and needed four to five years to mature. Because of restrictions on movement and the overall security concerns of the area, the other project areas could not be visited (Dec.1992). The recommendations of the team are noteworthy. The team was of the opinion that, without proper protection and adequate security measures, some components of the project could not be implemented.

3.9 Development Programmes and Strategies

The Ministry of Chittagong Hill Tracts' Affairs (M/O CHTA) was established on 15th July 1998 according to the provisions of the peace agreement signed in December 1997. The activities relating to CHT were carried out by the Special Affairs' Division before the formation of the M/O CHT Affairs. The CHT activities that were under the Special Affairs' Division were included in the allocation of business of M/O CHT Affairs afterwards.

The area of Chittagong Hill Tracts is one-tenth of the area of the country. The agreement will play a meaningful and constructive role in implementing and fulfilling the expectations, hopes, and aspirations of those living in this undeveloped area. After the execution of the peace agreement, a congenial atmosphere for development has been created, the expectations of the people have risen, and a favourable situation prevails.

The expectations of the people in the area include the creation of physical infrastructure in rural areas, generation of employment opportunities for the unemployed, women's development, distribution of micro-credit facilities, programmes for income generation, and, above all, raising the standards of living. The government has given the development of CHT topmost priority. Foreign countries, donor agencies, and non-government organisations have extended their cooperation.

The development of CHT has gained importance during the last three years. The development allocations for this Ministry in the annual development plan (ADP) have been increased gradually. The allocations were Tk 43.47 crore in 1996-97, 56.85 crore in 1997-98, and 68.90 crore in 1998-99. Tk 112.65 crore was allocated for the financial year (1999-2000). In addition to this allocation different ministries/ divisions have taken up new projects in the area and their annual allocations have also been increased.

The construction of rural socioeconomic infrastructure has been implemented through the allocation made in favour of this Ministry. Development assistance is provided

to different sectors for poverty alleviation such as agricultural extension, rural development, electrification, education, health, water resources, and development of local government institutions. Comprehensive programmes to provide employment opportunities and extension of micro-credit have also been taken up for acceleration of poverty alleviation. Incomes have increased and extensive employment opportunities, including seasonal employment, have been created as a result of implementation of different development projects. A brief of development activities is given below.

Hill district council

The Hill District Councils in the three hill district of CHT were established in 1989. Annual block allocation is granted to these councils to implement development schemes/ projects and to run administrative activities. The councils implement projects on education, health, communication, agriculture, religion, culture, and social welfare with this allocation. Tk 67.13 crore have so far been spent on these activities. The three councils have implemented 2,654 small projects/ schemes. Tk 15.00 crore have been allocated in the current fiscal year for this.

CHT area is the only region in the country where local councils are constituted with public representatives as their members. The role of these councils has been increased to a great extent in the provision made under the amendment in 1998 of the Hill District Local Government Council Act 1989.

Chittagong Hill Tract Development Board (CHTDB)

Block allocation for CHTDB

The CHTDB was established in 1976. It implements projects for socioeconomic development, and these include projects for development of rural communication, agriculture, religion, drinking water, and sanitation. A sum of Tk 67.66 crore has so far been spent for the implementation of 1,230 projects.

Integrated community development project in CHT (UNICEF assisted)

The cost of the project is Tk 34.34 crore. The implementation period is from January 1996 to December 2000. As many as 4,103 community centres (‘Para Kendra’) are to be constructed by the project with a view to organising rural people for managing various rural development activities. A community centre consisting of 20-25 families will be the focal point for all development activities and will be looked after by a community worker. There will be a demonstration plot for vegetable and fruit gardening in each centre. In addition to that, education, health, and public health services will be provided at the centre level. One thousand eight hundred community centres have so far been established. Tk 10.55 crore have been allocated in the current fiscal year. Eight hundred thousand people will benefit from the activities of the project (GOB 1993b).

Sloping agricultural land technology (SALT)

With the technical and financial assistance of the International Centre for Integrated Mountain Development (ICIMOD), a SALT project has been implemented at a cost of Tk 4.55 million. Two demonstration farms have been established at Lama, Bandarban and Autila, Khagrachari for the development of appropriate and suitable technology for upland farming. Tk one million have been allocated for the project in the current fiscal year.

Projects under the block allocation for CHT

Eighteen projects under the CHT block allocation are now being implemented by CHTDB. Of these there are 12 projects for construction of 185 km of road, three projects for infrastructural development, and two projects for rehabilitation of shifting cultivators. One thousand families are being rehabilitated by providing 5.25 acres of land (homestead, rubber garden, and horticulture) through the project for shifting cultivators at a cost of Tk 300 million. In another project, 300 families from among those rendered homeless from the Upland Settlement Project (1st Phase) are being rehabilitated by providing the same facilities at a cost of Tk 73 million. The Khagrachari stadium at a cost of Tk 36.1 million and the seven kilometre Asambasti-Rangapari road at a cost of 36.1 million were completed under this allocation. Allocations for ongoing projects will be made very soon.

Micro-credit programme

A micro-credit project costing Tk 12.50 crore was undertaken during 1997-1999 to 1999-2000 with the block allocation of the CHT/Special Affairs' Ministry. Eighty thousand people will be enrolled in this project through formation of 8,000 cooperative groups. Twenty-one thousand six hundred people have been organised into 3,120 groups. In addition 8,075 people have been trained in different trades. The project envisages extending its credit programmes with the increase of development needs in CHT. Scope for self-employment of the poor has been created through project activities.

Agricultural extension programme

A project for extension of maize cultivation in Khagrachari district is being implemented during the period from 1998-99 to 1999-2000 at a cost of Tk 4.44 crore through the Department of Agricultural Extension (DAE); 4,000 maize plots will be demonstrated and training will be imparted to 4,000 farmers. A sum of Tk 50 hundred thousand has so far been spent on the activities. So far, 400 demonstration plots have been established and 400 farmers trained.

A project on commercial cultivation of vegetables and fruit at a cost of Tk 4.42 crore has been introduced in Khagrachari district through the Department of Agricultural Extension (DAE). There will be 7,000 plots with an area of 0.01 acre each. Tk 50 hundred thousand have so far been spent for establishment of 780 demonstration plots and for training 430 farmers.

In addition to crop-based activities there are projects under the block allocation of the CHT Ministry for the Bangladesh Agricultural Research Council (BARI), Cotton Development Board (CDB), and the DAE of the three hill districts.

Block allocation for the development of CHT

A special block allocation commenced for the multi-sectoral development of CHT from 1991-92. Tk 2.17 billion have so far been used for this activity. Under this allocation development projects are being implemented involving different development activities in communications, afforestration, sericulture, training and development of hand loom crafts, small cottage industries, electrification, fisheries, livestock, establishment of rubber and fruit gardens, and water and sanitation. Different ministries and divisions are involved in project implementation under this block allocation. At present there are 30 projects under this allocation. Tk 450 million have been allocated in the current fiscal year for this activity.

Block allocation for new projects in CHT

This block allocation began in 1998-99. One hundred million taka have so far been spent. Tk 350 million have been allocated in the current fiscal year. Projects include construction and reconstruction of primary schools, religious institutions, feeder roads, bridges,and culverts; establisment of fisheries, drinking water and sanitation, and electrification of Jurachari *thana* in Rangamati.

CHT cell

The Government has established a CHT Cell in the Planning Commission to process CHT projects. The Cell has established a process to accelerate project approval. It had by the writing of this paper (December 1999) held meetings for 42 projects and 11 projects have been approved by the Executive Committee of the National Economic Council (ECNEC).

Scope of foreign investment in CHT

From 5-15 May 1998, UNDP fielded a 'Need Assessment Mission'. The mission report recommended 48 specific projects at an estimated cost of Tk 21 billion and short-term, medium-term, and long-term measures to be undertaken and executed in the CHT area; sustaining the peace process through strengthening amity among the people, creation of awareness about the peace agreement, food for work,and housing facilities for the staff of CHT. A Regional Council, rubber cultivation, afforestation, extension of small cottage industries, establishment of a growth centre, construction of a bus terminal and jetty, extension of tourism, electrification of the area surrounding Kaptai Dam,and construction of thana link roads are notable among the recommendations. Already the Asian Development Bank and the Danish International Development Agency (DANIDA) have shown an interest in the development of CHT.

3.10 Concluding Remarks

The economy of the CHT area largely depends on agriculture. The biggest problem in the area is acute poverty, and as a result people have limited access to basic services. Underdeveloped communications, the terrain,and isolation of the communities in small settlements in different places make overall socioeconomic development difficult.

Thus, special attention for development of the CHT is necessary for the following sectors.

- Extensive road connections and telecommunication facilities
- Women's development
- Horticultural development
- Provision of safe drinking water
- Prevention of soil erosion
- Human resource development
- Housing and settlement for low income people
- Setting up fruit processing industries
- Extending agricultural extension services—including for fisheries and livestock
- Encouraging establishment of tourist facilities

All development projects in the CHT are to be examined from environmental aspects before their approval. Before approval of projects, it might be proper to incorporate the sociological/ anthropological aspects of the people there as an 'Ethnic Impact Assessment (EIA)'.

As the tribespeople are in a minority, accounting for less than one per cent of the total population of the country, they need to be assured that their rights as a minority will be safeguarded in all development projects in the CHT.

An integrated initiative by government and non-government sectors is necessary for overall development of the CHT. Hill District Councils, Chittagong Hill Tracts' Development Board under CHT Affairs, ministries, and other government organisations are trying to achieve this goal. Still the partnership of the private sector and active participation of NGOs are necessary to accelerate these efforts. Foreign investment has become necessary for the overall development of the different sectors: industry, agriculture, power, water resources, health, public health, communications, rural development, forestry, and fisheries.

Development is an ongoing process. The peace agreement was signed to accelerate development of CHT and to ensure a normal lifestyle for the people. The allocation for the development of CHT in the Annual Development Plan (ADP) has been increased in comparison with previous years. Importance has been given to project implementation in those sectors that are related directly or indirectly to social sectors

such as education, poverty alleviation, human resource development, and development of infrastructure such as communications and other related sectors. Development activities under the Ministry of the Chittagong Hill Tracts (CHT) are gaining momentum and playing a commendable role in reduction of poverty in the CHT.

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Chapter 4

Integrating Economy and Environment: The Development Experience of Bhutan

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4.1 Introduction: Growth, Poverty Alleviation and Sustainable Resource Management in Bhutan

Bhutan, in comparison to other Himalayan regions, exhibits both major differences and significant similarities. With regard to current status, Bhutan is not experiencing the aforementioned problems in 'crisis' proportions. The country has been able to maintain steady growth rates and achieve reasonable improvements in indicators of human development. The natural resource base remains relatively intact, the resource pressure eased by a comparatively low population-land ratio and the heavy state regulation of industrial exploitation. Although, for many, life remains tough, cases of absolute poverty are rare, and current conditions enable the majority to maintain an acceptable standard of living. However, regarding future trends, it must be noted that there is little room for complacency. With increasing access to a modern infrastructure, Bhutanese society is changing rapidly, and with rapid population growth and urbanisation, achievement of equitable growth across the economy remains problematic. Also problems of degradation in the environment are emerging in different areas. Unless the underlying causes of this degradation are addressed properly, a situation of chronic deterioration will ensue.

Formal development began in Bhutan in the early 1960s, when its isolation ended. Since then the development approach adopted by the Royal Government has been

cautious and pragmatic because of the many problems that can be caused by uncontrolled development. The principle behind the government's development strategies is that gross national happiness (GNH) is of greater importance than gross national product (GNP), and the emphasis is, therefore, on balance, stability, and social equity. The state plays a paternalistic role in the development of the country. It is the principal actor in promoting and implementing a series of development and regulatory policy interventions. This has led to a substantial degree of success in health and education, physical and institutional infrastructure, and in achieving steady economic growth whilst maintaining a relatively uncompromised natural resource base. Yet, as the country undergoes transformation, the challenges faced will become increasingly complex and the policy decisions far from easy. It is in this context that Bhutan can benefit from policy analyses based on our own and our neighbours' experiences in order to formulate appropriate strategies and policies for the future.

This paper provides an introduction to the situation in Bhutan in respect of central issues such as economic growth, poverty alleviation, and sustainable resource management. The second section describes the country's resource base and economic structure. Section Three summarises the principal challenges faced and opportunities available. Section Four outlines the main approaches and programmes adopted by the Royal Government of Bhutan. Since this is only a general picture many of the issues have been described only briefly, leaving many questions to be answered in a more analytical framework. Section Five, therefore, highlights the emerging issues and options for the development strategy in the context of the accounts given in preceding sections.

4.2 Resource Base and Economic Structure

Land

The Kingdom of Bhutan covers 46,500 sq. km, roughly 150 km north to south and 300 km east to west. It is bordered in the north by the Xinjiang (Tibet) Autonomous Region of China and in the south by the Indian states of Sikkim, West Bengal, Assam, and Arunachal Pradesh. The topography is diverse although predominantly mountainous, rising sharply from 100 to 7,550 masl. Bhutan has three distinct relief and climatic zones, from the sub-tropical lowlands, through the temperate central valleys, to the alpine high Himalayas. The terrain is characterised by diversity, with a great variety of particular locales, possessing specific mixes of climate and terrain. Rainfall is concentrated in the monsoon season, mid-June to September, and precipitation can differ significantly within short distances because of rainshadow effects.

Bhutan has a wealth of natural resources. Water is abundant, and variations in altitude creating steep slopes provide excellent opportunities to use water for electricity generation. While the exact amounts of mineral deposits are unknown, geological mapping has indicated that there are coal, limestone, dolomite, talc, marble, gypsum,

slate, zinc, lead, copper, tungsten, and quartzite deposits. The country has a very rich and diverse ecology. Seventy-two per cent of the land is under forest cover and over 60% of the endemic species of the Eastern Himalayan region can be found in the country. These include over 165 species of mammals, 770 species of birds, 50 species of rhododendron, and 300 species of medicinal plants. Because of the number of endemic species Bhutan has been declared one of the ten global 'hot-spots' for the conservation of biodiversity, potentially the last chance for conservation in the Eastern Himalayas.

As seen in Table 4.1, only a small proportion of land area in Bhutan is currently used for productive pursuits. The reasons for this are threefold: the area suitable for agricultural production is very limited; industrial resource extraction is heavily regulated; and currently there is no heavy population pressure on fragile, marginal lands. Agricultural land use is predominantly restricted to traditional, isolated self-contained farming systems, combining crop and livestock production and use of forest products. Such systems are being gradually modernised to integrate new technologies where applicable and introduce the cultivation of cash crops. Furthermore, certain lands have been converted into orchards, principally for large-scale production of apples and oranges for domestic use and export. Such changes depend on more efficient use of existing agricultural lands, rather than on increasing land under cultivation. Twenty-six per cent of the total land area is protected for conservation of the nation's biological heritage.

Table 4.1: Land-use pattern (1995)

Land type	Area (ha)	%
Agricultural	314582	7.85
Wetland	38760	
Dryland	97723	
Tseri (shifting cultivation)	88332	
Orchard	5741	
Mixed	84026	
Forest	2578617	64.44
Coniferous	1061621	
Broadleaf	1510570	
Plantation	6426	
Scrub	325812	8.13
Pasture	155346	3.88
Settlements	3128	0.08
Other	628946	15.70
Snow/glaciers	298859	
Rock outcrops	200753	
Land slips/eroded areas	95431	
Water spreads	30375	
Marshland	3528	
Total	4006431	100

Source: LUPP (1995)

Society

Bhutan is one of the least populated countries in South Asia, with an estimated population of 600,000 (1996). The population density is the lowest of all the Himalayan countries. However, because of the small area of productive land, population size is a critical issue. Most of the population is concentrated in the fertile southern and central valleys, while large areas at higher altitudes are virtually empty

except for nomadic herders. Most people live in villages. Social organisation is based on an extended family system and the average size of households is 5.6. Bhutan is one of the least urbanised countries in the South Asian region, with only 15% of the population living in urban areas. Thimphu is the capital city, with an estimated population of 35,000. The other major urban settlements are Gelephu, Phuntsholing, and Samdrup Jongkhar, all in the south, where industrial activity is concentrated. Towns are developing in all 20 'dzongkhag' (district) headquarters. Forty-four settlements with a minimum of 500 inhabitants have been recognised as urban.

Bhutan has a territorial and social mosaic of communities where self-reliance favoured the emergence of localised institutions and knowledge. There was little systematic effort on the part of the state to interfere in the activities of agro-pastoral groups. Today, the state plays a proactive role in governance. The rural districts and sub-districts are all accountable to the central government and, in turn, the central government is responsible for introducing and implementing development interventions that are all overseen by ministries at the central level who report to the national legislature. From being a collection of communities of scattered highland farmers and nomads, Bhutan is emerging as a nation state. Nevertheless, social activities remain a blend of traditional and modern institutional arrangements, particularly in less accessible areas. The Royal Government of Bhutan emphasises human development, most notably in the fields of physical infrastructure, health, and education. A basic health system has been established, and there is now universal primary health care. The health of the population has improved dramatically, with life expectancy at 66 years (1999). Modern educational institutions provide educational opportunities from primary to tertiary levels, with the gross primary enrolment rate estimated at 72% (1999).

Eighty-five per cent of the population depend on agriculture and other traditional activities in the rural sector. Employment in the modern sector is currently limited, predominantly to public service and small-scale trade; and this is limited to 7,000 jobs, around half of them occupied by expatriates. Unlike many developing countries unemployment is not yet a big problem, and the traditional sector is providing adequate employment. However, the creation of productive employment for an expanding rural and urban population is a crucial issue. Despite the progress made in the development of a modern sector and in the field of education, many young Bhutanese are neither given appropriate opportunities nor equipped with the skills required to fulfil their increasing aspirations.

Bhutanese society is predominantly equitable, both between social groups and gender. Serfdom was formally abolished and the serfs were freed in 1956. Land reform in 1959 involving legislation on land ceiling and redistribution of surplus land and subsequent state policy interventions have determined that land and other resources are distributed throughout society. The state maintains ownership and control of most of the national resource base. Bhutanese women enjoy equality with men, both before the law and in informal social arrangements. They are actively involved in all

areas of economic, political, and social life, as farmers, entrepreneurs, decision-makers, professionals, and homemakers. Within traditional society, gender roles afford equal status, power, and freedom, and the predominant inheritance laws are particularly favourable to women who head most households. Perhaps the area where women are currently underrepresented is in formal decision-making processes, although this situation is undergoing changes in favour of women.

Economy

Although considerable progress has been made in the development of the Bhutanese economy since the early 1960s, it remains rudimentary to date. The nation's economic structure is still predominantly agricultural, and the main inputs to economic growth come from the exploitation of hydropower potential and establishment of natural resource-based industries. The national per capita income stands at approximately US$551 (1999), with the average growth rate of around 6.8% over the decade from 1985-95. A GDP sectoral breakdown and GDP by kind of activity are outlined in Tables 4.2 and 4.3. The government exercises prudent macro-economic management, with deficit financing limited to sustainable levels and fiscal and monetary policy emphasising stability and gradual evolution of the tax base and financial sector. The Bhutanese currency is the 'ngultrum'[1], pegged to the Indian Rupee, which circulates freely, and interest rates are currently administratively determined.

The government has been and remains the driving force behind the country's economic development. In the non-farm sector, the state is both the principal producer and source of demand through infrastructural projects. Since 1987 there have been considerable initiatives to develop the private sector for future economic growth. Policies have been implemented to maintain macro-economic stability while

Table 4.2: GDP sectoral breakdown

	1985	1995	Growth (%)
Agriculture	54.9	38.0	2.9
Mining & quarrying	0.8	1.3	11.6
Manufacturing	4.9	9.1	13.5
Electricity	0.4	8.3	48.2
Construction	11.1	10.8	6.5
Trade	8.7	6.0	3.0
Transport & communication	5.2	8.2	11.8
Financial services	7.2	9.5	9.8
Community & social services	8.2	10.9	9.8
Less imputed bank service charges	-1.6	-2.1	-
Total	100	100	-

Source: Ministry of Planning (1996)

[1] There are 46.05 ngultrum to the US dollar - on a par with the Indian rupee.

Table 4.3: GDP at factor cost by kind of activity in 1980 prices

(in million Nu.)

Sector	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Comp. Growth (%) 1985-95
1. Agriculture	834	881	926	940	963	993	1025	1006	1045	1066	1119	2.9
– Agriculture proper	412	436	458	486	515	531	545	556	564	575	601	3.9
– Livestock	169	177	185	192	202	212	229	202	227	232	246	3.8
– Forestry & logging	254	267	283	263	247	250	250	249	254	259	271	1.0
2. Mining & quarrying	13	22	22	19	22	19	27	24	26	30	38	11.6
3. Manufacturing	75	71	105	110	129	158	187	209	217	224	268	13.5
4. Electricity & gas	6	60	229	225	222	204	200	210	232	230	245	48.2
5. Construction	169	142	152	129	136	137	116	157	182	280	317	6.5
6. Wholesale and retail trade	132	143	142	129	134	135	145	161	164	170	178	3.0
7. Transport, storage & communication	79	84	91	122	142	172	182	192	223	231	242	11.8
8. Finance, insurance and real estate	110	126	136	141	163	212	209	215	238	245	281	9.8
9. Community, social and personal services (government)	126	169	200	210	217	223	233	252	267	296	322	9.8
Less: Imputed bank service charges	-25	-24	-30	-32	-41	-29	-21	-28	-45	-55	-63	-
Gross domestic product	1520	1675	1973	1994	2087	2225	2303	2397	2549	2716	2946	6.8

Source: Ministry of Planning (1996)

Nu = Ngultrum 1 Nu = 1 Indian rupee

liberalising the financial system. Public sector industries have been privatised or corporatised. Industrial infrastructure is being developed in the form of estates and service centres. Special programmes have been set up to foster the development of cottage and small industries. However, in spite of such steps, the response from the private sector is below expectation.

Although Bhutan is considered among the world's poorest countries when measured in terms of GDP per capita, a UNDP Human Development Index rating of 0.510 (see Table 4.4) ranks the country within the medium human development bracket. Indeed, by the standards of the developing world, where the majority of the world's 1.1 billion poor are to be found, the Bhutanese case is unusual: underdeveloped, yet relative absence of visible forms of abject poverty and distribution of absolute poverty and unemployment. This has been possible largely because of a favourable population-resource ratio and community-based institutional arrangements. However the development process is likely to transform this situation, and it will become increasingly necessary to accommodate the needs of vulnerable and disadvantaged groups within the mainstream process of social and economic development.

Table 4.4: Bhutan's human development index: 1984 & 1994

	1984	1994
Life expectancy at birth (years)	47.5	66.0
Adult literacy rate (%)	28.0	46.0
Combined first, second and third level gross enrolment rate (%)	24.5	40.1
Real GDP per capita (PPP$)	1,652	2,418
Life expectancy index	0.373	0.683
Adult literacy index	0.280	0.460
Combined enrolment index	0.245	0.401
Educational attainment index	0.268	0.440
GDP index	0.290	0.433
Human development index	0.310	0.510

Source: Ministry of Planning (1996)

Infrastructure

The Bhutanese political system is monarchical. The King, H.M. Jigme Singye Wangchuck, is the head of state. The throne retains its status as the fulcrum of the system, although power and authority are shared with several other political and administrative institutions. Institutions of state are divided by function and responsibility into legislature (National Assembly), judiciary (courts), advisory (Royal Advisory Council), and executive (Cabinet of Ministers). Government administration consists of seven ministries (Foreign Affairs, Home Affairs, Trade and Industry, Agriculture, Health and Education, Finance and Communications), five commissions (Civil Service, Dzongkha Development, Planning, Environment and Cultural Affairs), army, police, bodyguard, and several autonomous bodies. Regional administration

is divided into 20 districts ('dzongkhags') under district administrators ('dzongdags') and further sub-divided into 196 blocks ('gewogs'), headed by elected community members ('gups').

Over the past decades, social infrastructure has expanded substantially (see Table 4.5) in keeping with the government's role as principal agent in the development process. High priority has been given to the promotion of a strong and professional civil service, and the transparency of a small community. Government interventions, in the form of regulatory and development policies, are administered through their respective ministries. Although the government now meets its recurrent expenditures, the financing of development programmes has been to a great extent dependent on external assistance. A system of decentralisation has been developed as an ongoing process, based around local institutions and customs, linking the central level to the local level in the decision-making process (Ministry of Planning 1993).

Table 4.5: Selected development indicators (1977) and most recent estimates (MRE)

Indicator	1977	MRE (1999)
Crude birth rate (per thousand)	43.6	39.9
Crude death rate (per thousand)	20.5	9.0
Life expectancy (years)	46.1	66.1
Immunisation coverage (%)	N/A	90
Infant mortality rate (per 1,000 live births)	N/A	70.7
Maternal mortality rate (per 100,000 live births)	N/A	3.8
Under-5 mortality rate (per 1,000 live births)	162	96.9
Number of hospitals	10	28
Number of dispensaries	38	N/A
Number of basic health units	31	145
Number of doctors	52	101
Number of primary schools	92	250
Number of junior high schools	14	44
Number of high schools	6	18
Number of tertiary and training institutions	N/A	10
Primary school enrolment rate (%)	N/A	72
Number of students in school	14,553	100,198
Students in tertiary education	866	2,004
Number of teachers	922	2,785
Adult literacy rate (pilot) (%)	17.5	54
Population served with electricity	N/A	31,639
Population (rural) with access to potable water (%)	31	58
Population (rural) with access to safe sanitation (%)	NA	80
Number of telephone exchanges	15	26
Number of telephone lines	N/A	9,314
GDP per capita (US$)	100	551
Human Development Index	N/A	0.510

Source: Planning Commission (1999)

Bhutan's total road network measures about 3,200 km, the main routes consisting of an east-west highway and four north-south highways connecting all the districts and the major towns. However, inhibited by the mountainous terrain, certain regions and the majority of villages remain unconnected. These can only be reached by foot-trails, mule tracks, and cantilever and suspension bridges. In such conditions, horses, yaks, and oxen are used for transportation. The country has one airport, at Paro in western Bhutan, from where the national airline, Druk Air, provides regular services to Delhi, Calcutta, Kathmandu, Dhaka, and Bangkok. Telecommunication services, viz., telephone, telegraph, telex, fax, e-mail, and internet access, are available in the main urban centres and all but a few dzongkhag headquarters. Civil wireless facilities are available in all the dzongkhags. Electricity is now much more widely available, with the development of more that 20 hydroelectric schemes as well as the installation of diesel generators. Thirty-nine towns now receive electrcity and five per cent of the population has access to electricity.

4.3 Challenges and Opportunities

Administration

Planning and policy

The nation has almost completed the first stage of social and economic transformation. Although the Royal Government has adopted a pragmatic policy of gradual and suitably controlled development and change, much has been accomplished in previous decades, as is illustrated in Tables 4.2 to 4.5. Nevertheless, although a strong foundation for the kingdom's future development has been built, past achievements must not divert attention from future challenges. Indeed, as the nation moves to the next stage of development, in which the processes become increasingly complex and efficiency becomes a priority, new issues surface that pose significant threats to the ongoing achievement of balanced and sustainable development, requiring trade-offs and compromises between competing and contrasting priorities.

The achievement of successful modernisation will require substantial state investment in the provision of a suitable enabling environment. The physical and social infrastructure still need significant improvements, and projects are extremely important as catalysts in the facilitation of the development process. Furthermore, in its dual role as developer and protector of the environment, the state's capacity to regulate the activities of society is of great importance. Bhutan currently relies heavily on external assistance for the financing of infrastructural and development projects. Domestic resource mobilisation is essential in order to reduce dependence, the advancement of self-reliance, and the promotion of a sustainable system. To this end, the Royal Government possesses the considerable advantage of central income generating possibilities from the nation's currently untapped hydropower potential. However, while the government now meets all of its recurrent costs, it will be some time before it will be able to finance development interventions entirely from its own resources. It will be necessary to strengthen the capacity for aid and financial

management, providing additional evidence to development partners and society that available assistance and government revenue will be used effectively and managed to the nation's best possible advantage (UNDP 1998).

Bhutan is now experiencing a period of restless change, ensuing from the development process, and this carries with it concomitant challenges, opportunities, and risks. Perhaps the greatest development opportunity afforded to Bhutan has been timing. The nation's delayed integration within world systems has allowed it to commence the process of transformation in which it can benefit substantially from observing the experiences of other countries and learning from their successes and failures. Furthermore, the current global climate appears far more sympathetic to the Bhutanese situation. Successful development is regarded as mutually beneficial to Bhutan and those helping its development, and the rise in ecological and spiritual awareness places increased value on some of Bhutan's current resource endowments.

Society

Social change

Bhutanese society has undergone significant change over the past decades with dramatic improvements in health and education and the ongoing development of a modern infrastructure (see Table 4.5). However, such progress carries with it several potentially negative side effects. One of the greatest challenges facing the nation is the rapid rate of population growth. If the current growth rate of 3.1% per annum remains unchecked, then the population will double in 23 years. The country's demographic transition, with 43% of the population currently under 15 years of age, will mean that growth in the demand for jobs will far exceed population growth. Indeed, it is estimated that a total of 267,000 jobs needs to be created in the next 20 years, even under the most favourable demographic assumptions. The requirements of a rapidly expanding population could have a destabilising effect with the need to support their changing ambitions, placing unsustainable pressures on the natural resource base.

With the development process comes increased expectations, potentially producing unsustainable pressures for future development. Rural-urban migration has been increasing rapidly, particularly to the principal urban centres, with some estimates suggesting that the population of Thimphu is increasing at 10% per annum. If the present trend continues, the nation's urban population could approach 400,000 within the next 20 years. Although rural-urban migration is a natural corollary of development and modernisation, such increases pose a great threat to stability. Many urban areas located in narrow valleys, are physically unable to absorb large numbers of new inhabitants, and do not possess the necessary physical and social infrastructure. Furthermore, rapid urbanisation could be environmentally and socially destructive, with unsustainable levels of localised natural resource use and many migrants unable to find the work they seek. The creation of suitable employment is already a critical issue, with an excess demand for jobs in the modern sector and a shortage of farm

labour. Urbanisation moves the challenge of sustainable development from rural to urban areas. It will become necessary to address both pull and push factors to achieve a suitable balance between rural and urban populations.

Bhutan used to be made up of a collection of dispersed and isolated communities living in diverse environmental settings. Such separation promoted self-reliance and sophisticated human adaptation mechanisms such as informal institutions and indigenous knowledge. If harnessed prudently, the elements embodied in such systems might constitute a valuable development resource. Indeed, where formal state institutions are still in the process of development, the perpetuation of such informal arrangements will help maintain stability and provide additional opportunities. Furthermore, in catering for the specific conditions of a particular community, a synergy of traditional and modern techniques could help generate appropriate localised strategies. Nevertheless, the relationship between traditional and modern systems is not necessarily mutual and can often be competing and contradictory, leading to supplanting the old with the new. The introduction of a partially developed, modern institutional infrastructure can have a disorientating and destabilising impact on traditional institutional arrangements with consequential implications on related social behaviour. Institutional changes, therefore, need to be carefully planned in order to ensure the incorporation of positive elements of both the new and the old.

Equity

Equity issues pose fundamental challenges for the efficient and effective development and stability of the nation. Income differentials are a natural product of modernisation, but it is important that these remain within acceptable boundaries, and that access to resources and related opportunities are distributed fairly. Redistributive and regulatory policies, such as a progressive system of taxation, will help promote this. Furthermore, fair, suitable, and universally accessible infrastructural arrangements will help maintain an equitable society. Although the physical and institutional infrastructures have improved dramatically, and the vast majority of the population has benefited in very tangible ways, the benefits have thus far not been distributed equally between social groups and regions. In remote and isolated areas, in particular, lifestyles remain characterised by vulnerability, uncertainty, and drudgery, and legitimate expectations and aspirations are not being met. Ensuring that such vulnerable and disadvantaged groups are able to benefit from the process of economic and social development is a challenge that must be met in the years ahead.

Although gender equality is the norm within traditional Bhutanese society, there is the possibility that this situation might change under the different working environments brought about by modernisation. Traditionally the different roles allocated by the sexual division of labour afforded equal status and importance to men and women. However, in changing circumstances, there is the possibility that women's roles remain the same, whereas men's roles are altered. Such a change might have an impact upon the division of power within the household, and thereby compromise gender equality in the future. Moreover, given the shortage of labour

(particularly skilled labour), it would be socially disadvantageous if valuable contributions to national development initiatives were excluded on the basis of gender. It will be important to monitor gender roles in society, ensuring that these remain equitable and opportunities are distributed evenly.

Culture and development

Bhutan has a rich socioreligious heritage that has maintained its integrity because of the small, isolated, and homogenous communities who share firm common beliefs and a common identity. Bhutanese culture, therefore, plays a crucial role in the provision of spiritual and emotional needs, the maintenance of social stability, and the ongoing sovereignty of the nation state. However, assets and values are never static, but are always subject to a continuous process of redefinition as they adapt to the needs and aspirations of a society in development. The modernisation process is both a powerful creator and destroyer of values, typically substituting the traditional and indigenous with the modern and universal. It will be a formidable challenge to distinguish between positive and negative changes and preserve those traditional values that are recognised as precious to the majority.

Economy

Growth

The achievement of balanced and sustained economic growth presents a major challenge. Indeed, it is growth that underpins the modernisation process and is the critical factor for successful transition. Reasonably high growth rates have been achieved to date, and Bhutan's economy has undergone a major transformation, no longer entirely dependent on basic agricultural production. The key to this growth has been the prudent harnessing of the natural resource base, especially for the generation of hydropower, and considerable potential remains for further development of these resources. Of the 16,280MW of the hydropower potential that can be technically exploited to economic advantage, only 355MW have currently been tapped, dominated by the 336MW Chukka scheme. This situation is changing rapidly with the construction of the Kurichu (45MW), Basochhu (60.8MW), and Tala (1020MW) hydroelectric projects. Mineral extraction remains relatively limited, with only 30% of the country geologically mapped and much of the potential commercial exploitability yet to be determined. The industrial extraction of timber for export in an unprocessed form is emphatically discouraged because of the risks to the environment. The availability of a cheap and reliable supply of energy will facilitate establishment of efficient, processing industries based on natural resources.

Given its landlocked and mountainous character many forms of enterprise are at a competitive disadvantage in Bhutan. However, the uniqueness, wealth, and diversity of the ecological and cultural environments in Bhutan open up the possibility of developing products that cater to specialised markets. Niche markets for low-volume-high-value trade suited to a situation in which transaction costs are high can be explored. Examples include markets in genetic resources and rare foods. Perhaps

the area of greatest potential is the tourism industry. Concern for the preservation of ecology and culture has led to the careful and gradual exploitation of this considerable asset. However, given appropriate investments in infrastructure, the expansion of the industry and the promotion of such markets as eco-tourism and cultural tourism would be entirely consistent with other development objectives.

Economic structure

While significant progress has been made, the nation's economic structure remains underdeveloped and overly dependent on a few sources of income. It is of great importance that opportunities are provided and promoted that are applicable to all segments of society. Furthermore, given the potentially destabilising trends in population growth and urbanisation, all available employment opportunities need to be explored and promoted. In this respect the development of the traditional rural sector is of fundamental importance for the achievement of balanced growth. In the agricultural sector a far-reaching system of agricultural services has made increases in yields and diversification of production possible, particularly in the context of cash crops. However, the potential for increases in productivity within this sector is somewhat limited compared to the other sectors, implying the need for gradual and fundamental restructuring. There is a risk of a dual economy emerging, with a small modern, export-oriented enclave set in a sea of micro-enterprises producing low-value products with simple technologies for the domestic market, with few interactions between them.

The continued emergence of the private sector in both rural and urban areas will be of fundamental importance, integrating the population as stakeholders in the development process, increasing options and opportunities, and creating channels for the fulfillment of changing aspirations. Efforts to improve the nation's economic structure are confronted with formidable obstacles. These include lack of semi-skilled and skilled labour, the small and still fragmented domestic market, the poor purchasing power of the population, and severe diseconomies in production and distribution, translating into high production costs. The development of entrepreneurial skills and the creation of an environment conducive to productive business ventures are of critical importance to the expansion of domestic and export markets and the restructuring of the economy according to comparative advantage. Indeed, the harnessing of individual initiative will be a sine qua non for successful economic development.

Environment

Resource pressures

Bhutan has thus far been relatively successful in meeting the imperative for sustainable resource management, being able to resist current impulses for either large-scale industrial resource extraction for industrial use or consumptive needs of an increasing population. Nevertheless, although Bhutan's natural resource base remains largely intact, this cannot be taken for granted. Future pressures on the natural environment

will be fuelled by a complex array of forces, arising from both the traditional and modern sectors. As a product of both development and underdevelopment, these include population growth, unemployment, agricultural modernisation, hydropower and mineral development, industrialisation, urbanisation, tourism, competition for available land, road construction, and the provision of other physical infrastructure associated with social and economic development. The commercialisation of the economy is also having an impact on traditional land management systems, based on the principles of participation and cooperation.

Localised unsustainable resource pressures are already emerging and are threatening environmental stability. In certain vicinities extraction rates for fuelwood, timber, and other forest products are already approaching unsustainable levels. In areas close to population centres an estimated 10% of the forest area is degraded as a result of heavy natural resource use. The progressive removal of vegetation cover, especially in critical watershed areas, is beginning to affect the hydrological balance, leading to the localised drying up of perennial streams and flash flooding (National Environment Commision 1998). The determination of the inevitable trade-offs required will be of fundamental importance to the achievement of an acceptable degree of sustainable resource management in future. The pressures will certainly increase, and these increases will occur in one of the most fragile ecosystems to be found anywhere in the world.

Resource management

Bhutan enters the 21st Century with an immense wealth of natural resources. The reasons for this are fourfold: traditional resource management systems, underpinned by Buddhist values, have encouraged long-term sustainable resource use; a low population-land ratio has led to avoidance of excessive resource pressure at the grass roots; delayed integration within global processes and gradual development, thereafter, have forestalled intensive pressures for resource extraction; and government commitment to sustainability has mitigated the temptation to indulge in short-term economic gain. Bhutan, therefore, undertakes the ongoing challenge of sustainable development with the considerable advantages of a relatively uncompromised natural resource base and currently sustainable practices, coupled with the continued commitment and emphasis of the government on sustainability. If harnessed wisely, such opportunities could greatly facilitate effective resource management.

4.4 Approaches and Programmes

Approach

Gross national happiness

Guiding principles for the future development of the nation are complemented by a single unifying concept of development that enables the identification of future directions that are preferred above all others. The unifying concept for the nation's long-term development is the distinctly Bhutanese notion of maximising 'Gross National Happiness'. Although first propounded by His Majesty the King in the late

1980s, some of the principles have guided the nation's development over a much longer period, being rooted in the country's cultural heritage. In Bhutanese culture the original definition of development was based on the acquisition of knowledge. In a similar vein, the process of communal enrichment was based on a process through which those who possessed superior knowledge imparted that knowledge to others. In the Buddhist religion this concept of personal development was further refined to entail overcoming the delusions arising from ignorance, aggression, and the desire for consumption and acquisition.

The concept of Gross National Happiness (GNH) was articulated to indicate that development has many more dimensions than those associated with Gross National Product, and that it should be understood as a process that seeks to maximise happiness rather than economic growth. Although economic growth remains a precondition for the achievement of self-reliance, improved standards of living, and enlarged opportunities and choices, Gross Domestic Product is perceived as insensitive to issues such as personal disenchantment, social problems, and natural resource depletion. For Gross National Happiness, the individual is placed at the centre of all development efforts, recognising that people have material, spiritual, and emotional needs. It asserts that spiritual and emotional development cannot and should not be defined exclusively in material terms. The aim of maximising Gross National Happiness, as a Bhutanese basis for development planning, promotes several important values. However, to provide direction to the Kingdom's long-term development, the concept must be translated into tangible goals. Towards this end, five thematic headings are identified, providing powerful objectives for steering the process of change: human development, the promotion and preservation of culture and heritage, balanced and equitable socioeconomic development, good governance, and environmentally sustainable development.

Human development aims to maximise the happiness of the population, enabling the fulfilment of its innate potential. Concerted efforts to produce sustainable improvements in the standard of living, quality of life, choices, and opportunities need to take place within a framework of traditional values and ethics. The benefits of development should be shared equitably between different income groups, genders, and regions, in ways that promote social harmony, stability, and unity and contribute to the maintenance of a just and compassionate society. The system of governance needs to be developed to reduce dependence on others, to manage an increasingly complex process of development, and to increase opportunities for people at all levels to participate more fully and effectively in decisions that affect them. Development choices must embody the principle of environmental sustainability, protecting the biological productivity and diversity of the natural environment in the interests of present and future generations. The continuing challenge resides in the articulation of an ongoing balance between material and non-material components of development, incorporating new ideas and principles, where appropriate, to give still firmer substantive content to the concept.

Policy interventions

The Royal Government of Bhutan remains the lead agent in the development of the country, and a pragmatic approach is evident in the nature of development policy. The state maintains tight control over the national natural resource base, with the 1969 Forest Act and 1979 Land Act, defining all land not owned privately and all forests as the property of the state. Policy interventions, essentially paternalistic, can be split into development and regulatory policy. Whereas development policy is predominantly focused on the majority, rural agrarian population and the development of physical and institutional infrastructure, regulatory policy is generally aimed at limiting the activities of the more modernised urban and business communities. Regulatory policy styles may be interpreted as either hard or soft, generally regarding urban and rural populations respectively, and corresponding to the state's different priorities and capabilities for policy intervention. The role of the state has and is being redefined from that of provider to that of enabler, thereby focusing on conditions that mobilise the energies and imagination of the people. This is evidenced in the 1995 Forest and Nature Conservation Act, shifting the emphasis from the policing of state-owned property to the development of social resource management systems (Ministry of Trade, Industries and Forests 1969; ROGB 1979; ROGB 1995).

Since 1961,the government has initiated the development process through a series of Five-Year Plans, outlining broad objectives and then specifying sectoral strategies and policies. The first three Five-Year Plans (1961/2-1975/6) emphasised the development of basic physical infrastructure, with other significant disbursements being in the provision of social services (notably education and health facilities) and agricultural inputs. In the Fourth and Fifth Plans (1976/77-1986/7) the distribution of outlay became more balanced, with a greater emphasis on the development of industry, and the objectives of national and regional self-reliance and decentralisation. The Sixth Plan (1987-92) introduced the objective of the preservation of national identity, and the Seventh Plan (1992-97) that of sustainability (Ministry of Planning 1991). The broad objectives of the Eighth Plan (1997-2002) are as follow.

(a) Self-reliance
(b) Sustainability
(c) Preservation and promotion of cultural and traditional values
(d) National security
(e) Regionally balanced development
(f) Improving quality of life
(g) Institutional strengthening and human resource development
(h) Decentralisation and community participation
(i) Privatisation and private sector development

Plan objectives represent the major macro-level preoccupations of policy-makers in response to the situation within the country and frame all policy interventions where applicable. Although they only provide a partial insight into the actual policy practices that shape material outcomes, they are enlightening with regard to the issues perceived

as being of principal importance to the continued successful development of the nation. These objectives are pursued through a series of sectoral strategies and policies. Table 4.6 outlines the principal areas of development policy interventions and their respective shares in budget outlay for the Eighth Five-Year Plan period. This highlights the large share of infrastructural projects and social service provision in government expenditure. The state is judicious in its acceptance of donor assistance, anxious to promote long-term self-reliance. Of the total government expenditure of Nu 35,169.28 million, Nu 20,893.32 million is donor financed, of which the Government of India provides Nu 10,178.34 million.

Table 4.6: Projected eighth five-year plan budget outlay (million nu)

Organisations	Recurrent	Capital	Total	%
His Majesty's Secretariat	35.17	1.47	36.64	0.1
National Assembly of Bhutan	31.28	3.06	34.34	0.1
Royal Advisory Council	21.39	0.53	21.92	0.1
Council for Ecclesiastical Affairs	259.98	32.49	292.47	0.8
Special Commission for Cultural Affairs	81.63	207.99	289.62	0.8
Judiciary	123.16	118.19	241.35	0.8
Royal Audit Authority	61.78	21.02	82.80	0.2
Royal Civil Service Commission	40.79	2035.18	2075.97	5.9
Bhutan Olympic Committee	26.49	43.72	70.21	0.2
Dzongkha Development Committee	13.96	3.11	17.07	0.0
National Environment Commission	5.25	120.17	125.42	0.4
Police, Jail & Fire Services	688.29	355.01	1043.30	2.9
Ministry of Home Affairs	208.09	366.65	574.74	1.6
a. Secretariat	63.17	335.65	398.82	1.1
b. Registration Division	36.32	0.00	36.32	0.1
c. Survey & Land Record Division	108.60	31.00	139.60	0.4
Ministry of Finance	5498.69	552.10	6050.79	17.2
a. Secretariat	693.10	236.20	929.30	2.6
b. Debt Financing	2149.53	0.00	2149.53	6.1
c. Common Public Services	406.06	315.90	721.96	2.0
d. Reserve for Pay Revision	2250.00	0.00	2250.00	6.4
Ministry of Foreign Affairs	734.01	22.42	756.43	2.1
Ministry of Health & Education	3662.79	2607.49	6270.28	17.8
a. Secretariat	49.70	0.45	50.15	0.1
b. Education Services	2089.00	1203.65	3292.65	9.4
c. Health Services	1524.09	1403.39	2927.48	8.3
Royal Institute of Management	50.41	137.08	187.49	0.5
Ministry of Agriculture	1453.98	2844.95	4298.93	12.2
a. Secretariat	163.39	137.05	300.44	0.8
b. Research, Extension & Irrigation Division	263.66	535.80	799.46	2.3

Table 4.6 Cont….

a. Crop & Livestock Services Division	226.16	420.87	647.03	1.8
b. Forest Services	275.70	794.99	1070.69	3.0
c. Area Development Projects	525.07	956.24	1481.31	4.2
Ministry of Trade & Industry	1077.40	3638.12	4715.52	13.4
a. Secretariat	30.65	9.38	40.03	0.1
b. Tourism Authority of Bhutan	12.29	24.50	36.79	0.1
c. Trade Division	67.66	39.93	107.59	0.3
d. Geology & Mines' Services	70.37	40.49	110.86	0.3
e. Power Services	896.43	3397.59	4294.02	12.2
f. Industries' Division	0.00	126.23	126.23	0.4
Ministry of Communication	1451.09	5664.04	7115.13	20.2
a. Secretariat	55.34	16.84	72.18	0.2
b. Postal Services	203.89	36.08	239.97	0.4
c. Telecommunication Services	273.14	1149.58	1422.72	4.3
d. Roads' Services	650.46	3218.26	3868.72	11.0
e. Works & Housing Services	228.38	1099.78	1328.16	3.5
f. Civil Aviation	24.29	35.54	59.83	0.2
g. Surface Transport	15.59	42.93	58.52	0.2
h. Thimphu City Corporation	0.00	65.02	65.02	0.4
Ministry of Planning	55.47	61.86	117.33	0.3
Dzongkhag Administration (Civil)	495.84	255.69	751.53	2.1
Total	16076.94	19092.34	35169.28	100

Source: Ministry of Planning (1996)

Governance

The Bhutanese state evolved from the traditional institution of monarchy, with its implied hierarchies, reciprocity, and top-down style of rule. Although such a system has proved particularly appropriate for the initial stages of transition, it is accepted that fundamental changes in the requirements of society and correspondingly the responsibilities of the state necessitate a dynamic and increasingly inclusive style of governance. Policy interventions essentially attempt to facilitate and gradually accommodate change within a functioning system. In 1998 major changes occurred in the constitutional set-up, including the following important alterations: ministers are to be elected for a term of five years by the National Assembly (previously they were appointed by the King for an indefinite period); the Cabinet of Ministers is vested with full executive powers, and the Chairman of the Cabinet (on a one-year rotation among elected Ministers) functions as the Head of Government (before the King was Head of Government and Chairman of the Cabinet); and the National Assembly can register a vote of no confidence in the King.

Table 4.7 outlines the principal approaches and programmes adopted by the Royal Government. A fair, effective, and trusted legal infrastructure underpins the system of governance. On the technical level, appropriate planning procedures might be encouraged through developing capabilities and capacities within state and society.

Table 4.7: Approaches and programmes – governance

Priority area	Management of development
Policy	Ongoing capacity building and adaptation of development management practices to accommodate to the changing needs implied by the development process
Main policy instruments	Revised Decentralisation Guidelines (proposed) Human Resources' Development Master Plan (existing) Long-term Manpower Development Plan (proposed)
Selected 8th FYP programmes	Institutional strengthening and capacity building Human resource development Decentralisation
Future direction	Reduction in the role of the state Devolution of new powers and responsibilities to regional and block levels Strengthen capabilities for development management within state and society Development of new planning and management instruments Promotion of a professional and talented civil service Improved information systems for informed decision-making Sensitise development planning procedures to correspond more effectively to maximisation of Gross National Happiness
Priority area	Human resource development
Policy	Development of appropriate skills, targets for establishment of institutional facilities
Main policy instruments	Human Resources' Development Master Plan (existing) Long-Term Manpower Development Plan (proposed)
Selected 8th FYP programmes	Establishing national manpower planning capabilities Career counselling Institutional development Scholarships and training opportunities
Future direction	Overseas' training opportunities in strategic areas Factoring in demand-side considerations in training programmes Manpower planning based on a long-term vision of the nation's development Development of national educational institutions
Priority area	Decentralisation and participation
Policy	Targets for increased capacities of regional and local institutions, operationalising of local development funds, establishment of monitoring and evaluation systems
Main policy instruments	DYT (district development committee) Chatrims, 1981 (existing) GYT (block development committee) Chatrims, 1992 (existing) Decentralisation Guidelines, 1993 (existing) Revised decentralisation guidelines (proposed)
Selected 8th FYP programmes	Human resource development and capacity building Institutional strengthening and procedures

Table 4.7 Cont……

Future direction	Enlarged autonomy and strengthened capacity at district and block levels Reorientation of line ministries to support the process of decentralisation Devolution of financial responsibilities to district and block levels Transfer of administrative and financial powers to districts Strengthening the office of the gup (local administrator) Mechanisms to enlarge the development issues, decision-making powers of GYTs on local mechanisms developed to eventually enable local communities to take charge of the development process Ongoing review of main policy instruments
Priority area	Resource mobilisation and development financing
Policy	Increased self-sufficiency and domestic resource mobilisation, sound and sustainable economic, financial, and aid management
Main policy instruments	N/A
Selected 8th FYP programmes	Fiscal and monetary policies External assistance Management of public finance
Future direction	Enhanced capacities for domestic resource mobilisation Tax reform Privatisation of certain public services Further development of relationships with development partners
Priority area	Law and jurisprudence
Policy	Further development of national law and the judicial system
Main policy instruments	N/A
Selected 8th FYP programmes	Human resource development and capacity building Research and analysis
Future direction	Maintain independence of the judiciary Continued evolution of systems of law and jurisprudence Proactive, as opposed to retroactive, response to changing needs Guiding principles: equal and unimpeded access to the law and the legal process swift and efficient dispensation of justice professionalism within the judiciary law accepted by the population as being fair, responsive, and relevant

Sources: Ministry of Planning (1996), Planning Commission (1999)

Regarding politics, the decentralisation of state functions to the local and district levels, affected in 1981 and 1991 respectively, will mitigate a possible polarisation of power, help formulate and implement appropriate policies, and allow the population to retain control over decisions that affect their lives. The prudent financing of development interventions will give state and society the ability to maintain their options and room to manoeuvre in development strategy.

Social

Human development

Guided by the unifying concept of Gross National Happiness, the Royal Government emphases human development. Since the inception of planned development, policy interventions have focused on the provision of social services and physical infrastructure. The vast majority of the population have thus benefited from modernising processes in very tangible ways. However, to successfully transform society, individuals will require the appropriate opportunities and the necessary capacities and capabilities to fulfil their innate potentials and meet their perceived needs.

Table 4.8 highlights the principal approaches and programmes in the field of human development. These seek to create an enabling environment, whereby individuals within society are afforded opportunities and equipped with the appropriate skills.

Table 4.8: Approaches and programmes – human development

Priority area	Population
Policy	Targets for the reduction of population growth
Main policy instruments	Royal Decree of Population, 1995 (existing) National Population Policy (proposed)
Selected 8th FYP programmes	Raising awareness Supply/access to contraceptives Strengthening of existing maternal and child health services Quality of care Supporting special programme for adolescents Beyond family planning measures (educational attainment and population growth) Greater participation of the community Legal measures (vital registration) Multi-sectoral approach (define role of each sectoral ministry) Institutional framework (coordination committee) Research Human resource development Data collection
Future direction	Policies extended to cover the whole country Increased coverage of population education programmes Target districts with high population growth rates Target males and adolescents as well as women Positive synergies with policies and programmes in other areas
Priority area	Education
Policy	Targets for enrolment, adult literacy, curricula, and institutional development
Main policy instruments	Education Sector Master Plan (proposed) Youth Welfare Trust Fund (launched)

Table 4.8 Cont…..

Selected 8th FYP programmes	Enhancing educational coverage (primary and secondary) Curriculum development Improving educational facilities Improving the education process Higher education Technical and vocational education and training Education for the disabled Rigney (dzongkha grammar and traditional arts) education Monastic schools and Sanskrit pathshala Non-formal education
Future direction	Improved access to education Improved quality and relevance Teacher-centred approach Technology and educational innovation Reduction in the costs of education
Priority area	Health
Policy	Targets for mortality rates, life expectancy, doctor/population ratio, technological introduction, private health care development
Main policy instruments	Health Trust Fund (launched) Health Sector Master Plan (launched)
Selected 8th FYP programmes	Health infrastructure (hospitals, basic health units, outreach clinics) Disease control (immunisation, tuberculosis, acute respiratory infection, diarrhoeal, leprosy, eye care, STD/AIDS, malaria) Non-disease programmes (information, education and communication, reproductive health and population development, transport and communication, human resource development, community-based rehabilitation, nutrition, laboratory and institutional development)
Future direction	Improved access to primary health care services Improved quality Respond to the needs of special groups (disabled, elderly, mentally ill) Role for traditional medicine Issues requiring multi-sectoral solutions Future requirements: financial sustainability manpower development technology and innovative practices
Priority area	Transport, communications and information
Policy	Targets for infrastructural development (construction, access and improvement to roads, 'dry port' construction, domestic and external air services, intranet, internet, e-mail, television and post office access)
Main policy instruments	Telecommunications' Master Plan (existing) Postal Services' Master Plan (existing) Road Sector Master Plan (in preparation) Surface Transport Master Plan (in preparation) Civil Aviation Master Plan (proposed)

Table 4.8 Cont.....

Selected 8th FYP programmes	Communication sector: digital micro-wave network development rural communication institutional capacity building (reliability, sustainability, efficiency) provision of value-added services Road sector: new road construction road maintenance (resurfacing) routine maintenance/monsoon damage restoration widening and improvement realignment bridges institutional capacity building mechanisation of road works privatisation of road works Surface transport sector: creation of physical infrastructure institutional capacity building (expansion of National Driving Training School, computerisation, training) Introduction of Thimphu city bus service Civil aviation sector: institutional capacity building maintenance of existing infrastructure Postal services' sector: create mail transport network set up sorting centres purchase postal equipment human resource development
Future direction	Further development of the network of national trunk roads Further development of district and feeder roads Expansion and improvement of public transport 'Dry port' development Environmental and social impact assessments Cooperation with neighbours Development of domestic air services Improvement and strengthening of international airport facility Improved access to telecommunication services Promotion of IT

Sources: Ministry of Planning (1996), Planning Commission (1999)

Equity

The social change effected by policies aimed at human development is both inevitable and necessary. However, such changes, if not effectively managed, might prompt potentially destabilising trends. Whereas development policies seek to expand the opportunities available to the individual and society, it is also necessary to regulate such opportunities within acceptable boundaries. Poverty is the product of a lack of

access to sufficient resources. Past policies have aimed at maintaining the equitable access to resources within an environment of changing opportunities. Tight regulation of the modern sector and the nationalisation of much of the country's resource base aims at placing limits on the opportunities open to an emerging elite. Furthermore, the 1979 Land Act forbids the household ownership of in excess of 25 acres of land (orchard land is exempted) and the sale of landholdings of less than five acres. Although gender equality is currently in evidence, the equal access to resources between genders is monitored and promoted, and the National Women's Association of Bhutan and the Bhutan Development Finance Corporation place a particular emphasis on women's needs.

Towards the maintenance of an equitable society, the Royal Government aims at particularly addressing certain pertinent issues, as illustrated in Table 4.9. Policies aim at maintaining the relatively even distribution of the facilities contributing to human development and where necessary specifically target certain groups or environments that are seen to be particularly vulnerable.

Culture

The concept of Gross National Happiness emphasises the critical role played by the nation's cultural heritage in the provision of the non-material needs of society. Furthermore, in advocating a compassionate climate, responsible practices, and a sense of unity, the continued adherence to traditional values may be purposefully translated into the achievement of balanced and sustainable development. Culture might prove highly efficacious in the promotion of good governance, environmental management, and poverty alleviation. The Royal Government has been particularly aware of the potential undermining of cultural practices. This is reflected in past policies that place limits on the numbers of tourists entering the country and encourage adherence to traditional practices and values. Table 4.10 summarises the approaches and programmes adopted towards the conservation and promotion of Bhutan's rich cultural heritage.

Economic

Modern sector

Although development cannot be gauged entirely by the ability to achieve steady national economic growth rates, growth is an inherent part of human development and undeniably a precondition for successful transformation. Indeed, changes in the social environment need to be translated into concomitant increases in economic mobilisation, productivity, and, thus, growth. Past policies have emphasised across the board human development. This is reflected on the gradual expansion of key industries and the significant limitations placed on the activities of the modern sector. However, social pressures necessitate the promotion of an enabling environment to expand economic opportunities, spur sustained growth, and create suitable employment.

Table 4.9: Approaches and programmes - balanced and equitable socioeconomic development

Priority area	Urbanisation
Policy	Targets for a growth centre strategy and urban development plans
Main policy instruments	Long-term Human Settlement Development Master Plan (launched)
Selected 8th FYP programmes	Urban development and housing (urban management, housing, private sector participation, municipalities, city corporations) Drinking water supply and sanitation (rural and urban water supply and sanitation, water resources' management master plan) Suspension bridges and mule tracks Institutional strengthening and human resource development
Future direction	Prepared to meet the challenge posed by rapid urbanisation Measures that respond imaginatively to push and pull factors Identify alternative urban growth centres
Priority area	Equitable access to basic services and infrastructure
Policy	Targets for the enlarged access to basic services and infrastructure
Main policy instruments	Royal Decree on Water and Sanitation, 1992/3 (existing) Rural Electrification Master Plan (proposed)
Selected 8th FYP programmes	Integrated approach
Future direction	Increased infrastructure coverage Appropriate representation
Priority area	Vulnerable and disadvantaged groups
Policy	Specific targeting for vulnerable and disadvantaged groups
Main policy instruments	N/A
Selected 8th FYP programmes	Integrated approach
Future direction	New initiatives to specifically target vulnerable and disadvantaged groups Potential resettlement for small and isolated groups Appropriate representation
Priority area	Inequalities
Policy	Preventing the growth of inequalities
Main policy instruments	Personal income tax (launched)
Selected 8th FYP programmes	Integrated approach Taxation Gender and development: integrated approach National Women's Association of Bhutan
Future direction	Maintenance of an equitable society Development of a progressive system of income tax that contains the growth of inequalities without discouraging the most able and talented entrepreneurs Awareness of unintended outcomes of other policies Maintain traditions and customs promoting and rewarding alternative values

Sources: Planning Commission (1999), Ministry of Planning (1996)

Table 4.10: Approaches and programmes – culture and heritage

Priority area	Inventory of Bhutanese culture and heritage
Policy	Target for and inventory of culture and folklore of Bhutan
Main policy instruments	Heritage Fund (launched)
Selected 8th FYP programmes	Inventory and photographic documentation
Future direction	Recognising the value in the diversity existing within the nation Listen to laymen and take stock of location-specific knowledge Inventory, understand, and learn from what has been lost or is in danger of being lost
Priority area	Conservation and promotion of culture and heritage
Policy	Targets for the preparation of a Culture and Heritage Act and Construction Code
Main policy instruments	Heritage Fund (launched)
Selected 8th FYP programmes	Consolidate and strengthen Ka-Nying Zung Drel spiritual tradition Promote Driglam Choesum and its relevance to contemporary national life Monastery and temple renovation Preserve ancient documents and literature and computerise records Strengthening cultural centres and institutions Promote culture through shared knowledge, publications, activities, seminars, and workshops
Future direction	Education of cultural custodians (youth) Making heritage accessible Conservation and protection of Bhutanese heritage Promotion of traditional arts and crafts Culture conscious institutional adaptation Promotion of traditional architectural styles
Priority area	Promotion of dzongkha
Policy	Continued promotion of the national language
Main policy instruments	N/A
Selected 8th FYP programmes	Integrating dzongkha within educational systems (development of school curricula, teacher training) Translation of acts, rules, and regulations Writing of dictionaries and developing computer systems Research into local languages of Bhutan
Future direction	Continued promotion, ensuring that it is responsive to the future as well as the past
Priority area	Monastic bodies and other religious institutions
Policy	Promote religious institutions as distinctive and indispensable contributors to national happiness, well-being and peace
Main policy instruments	N/A
Selected 8th FYP programmes	Uphold liturgical practices and maintain purity of monastic discipline, practices, and studies Improving accommodation, health and sanitation facilities Enhancing monastic welfare schemes Encouraging the participation of the monk body in the development process Improving the living quarters of the central monk body
Future direction	Continued promotion of religious institutions Strengthening of the fabric that weaves together monastic institutions, secular organisations and civil society

Sources: Ministry of Planning (1996), Planning Commission (1999)

Table 4.11 outlines the approaches and programmes adopted by the Royal Government for the achievement of economic growth within the modern sector where the greatest opportunities for expansion and increases in productivity exist. Towards this end, certain strategic industries are identified that possess the greatest potential for development. Furthermore, the continued emergence of a private sector is viewed as critical to the necessary transformation in economic structure and the efficient and effective harnessing of the available opportunities.

Table 4.11: Approaches and programmes – modern sector

Priority area	Economic growth and development
Policy	Targets for installation of hydropower, increased shares of tourism and manufacturing in GDP
Main policy instruments	Hydropower Development Master Plan (existing) Tourism Master Plan (in preparation) Industrial Development Master Plan (in preparation)
Selected 8th FYP programmes	Trade and Industries' Sector: institutional strengthening trade development (training, export services, Bhutan Chamber of Commerce and Industry) international trading environment (preferential trade relationships, WTO, SAARC) improved trade and transit facilities consumer protection de-monopolisation small industries' development industrial development industrial monitoring industrial estate development development of essential oil industry Tourism Sector: Master Plan for Tourism Development training facilities (hotel management and tourism) Mineral Sector: geological mapping institutional development (capabilities for mines' planning and design, environmental management, inspection, evaluation and regulation) Energy Sector: power generation (construction) power transmission line (improvement, upgrading and new lines and sub-stations) dzongkhag power distribution (rural electrification, urban electrification, improvement of existing supply) hydropower feasibility studies institutional development

Table 4.11 Cont.....

Future direction	Taking account of the nation's comparative advantages — the production of hydropower natural resource-based processing industries niche markets small and cottage industries tourism Industrial development strategy projecting an image of 'sophistication and civilisation' (sophisticated economic activity from a distinctive and unique cultural and ecological environment)
Priority area	Private sector development
Policy	Private sector to become a more active partner in the nation's future development
Main policy instruments	Long-term Strategy for the Development of the Private Sector (proposed)
Selected 8th FYP programmes:	Enabling environment: access to credit (access and competitive interest rates) foreign investment (20% for joint venture projects) labour requirements (expatriates) human resource development incentives (share allotment schemes, subsidised credit) fair and equitable tax structure improved power supply further divestment of public sector enterprises where appropriate Financial sector: institutional development interest rate liberalisation reduce non-performing assets further development of the capital market gradual elimination of foreign exchange restrictions when appropriate
Future direction	Removal of impediments to private sector growth (legal framework) Increased attractiveness of private sector to the young Expanded opportunities for small businesses Encourage long-term outlook Increased access to capital, technology and know-how Continued cautious approach to foreign direct investment

Sources: Ministry of Planning (1996), Planning Commission (1999)

Traditional sector

The vast majority of Bhutanese earn their living within the traditional sector of the economy. Although the continued expansion of the modern sector will facilitate a gradual change in the employment structure, this situation is unlikely to change in the near future. Balanced development and stable transition necessitate the achievement of steady growth rates within this sector, and its continued modernisation and evolution. Indeed, as the lowest common denominator, such progress fulfils important economic and social roles, providing the majority of the population with a basic living. Past policies have aimed at developing the physical and institutional

infrastructure, introducing new technologies, skills, and thereby creating an enabling environment for sustained improvements. Given the nature of the landscape, potential opportunities for increases in productivity lag behind those in other areas of the economy. However, most increases will have an impact on people in the less developed sectors of society and potentially raise the welfare base.

Table 4.12 outlines the approaches and programmes for achieving economic growth and development within the traditional, primarily agricultural, sector. Possessing a particular renewable natural resource focus, policies seek to facilitate the gradual evolution of agricultural practices and the development of small and cottage industries.

Table 4.12: Approaches and programmes – traditional sector

Priority area	Economic growth and development
Policy	Targets for growth in farmers' income and horticultural development
Main policy instruments	Horticulture Master Plan (existing) Master Plan for Cottage, Small and Medium Industries (existing)
Selected 8th FYP programmes	Renewable Natural Resource Sector: Management and planning services (programme management, policy and planning activities, budgeting and financial management) farm systems development (research, irrigation, extension) crop and livestock production services (animal health, livestock breeding, artificial insemination, agricultural inputs, mechanisation, agricultural credit, agricultural marketing) Forest management services (sustainable forest management, nature conservation and protected area management, social forestry and forestry extension) Export horticultural development Human resource development
Future direction	Taking account of the nation's comparative advantages: horticulture off-farm employment and rural industrialisation niche markets small and cottage industries

Sources: Ministry of Planning (1996), Planning Commission (1999)

Environmental

National environmental strategy

In 1998 the National Environment Commission released a National Environmental Strategy for Bhutan, clarifying a development path to minimise potentially negative environmental impacts. The National Environmental Strategy outlines three main avenues for sustainable development - hydropower expansion, increased self-

sufficiency in food production, and industrial development — all framed by concerns about environmental and cultural preservation. It is noted that environmental degradation may occur in conditions of extreme poverty and through the exploitation of natural resources for the generation of significant wealth. Furthermore, the environment possesses economic, social, cultural, and inherent values that may differ between social groups. The strategy aims at pursuing a 'Middle Path', understanding that accomplishing goals within different sectors will involve necessary compromises (National Environment Commission 1998).

The state is to play a central role in the sustainable development of the nation and in the regulation of the behaviour of different social groups, and particular emphasis is given to the preservation of the country's rich and diverse ecology. The cross-sectoral nature of environmental issues is reflected in the responsibilities within individual ministries for the sustainability of their development initiatives. Most direct environmental policy aims to strengthen the capabilities of government institutions and state-society relations. To this end, five key cross-sectoral needs are identified.

(a) Information systems and research
(b) Institutional development and popular participation
(c) Policies and legislation
(d) Training and education
(e) Monitoring, evaluation and enforcement

Through the promotion of an efficient and inclusive system of environmental governance, informed decisions may be effected that adequately represent popular environmental values and successfully resolve potential conflicts. Solutions will eventually depend on the form of future social pressures and the nature of popular sentiment.

Sustainable resource management

The National Environmental Strategy serves to highlight the complex interplay of forces that could potentially compromise the goal of environmentally sustainable development. Of the three avenues of development, there is a focus on both the traditional and modern sectors of the economy, reflected in the emphases on food production and industrial development respectively. Clearly revealed are the inter-sectoral nature of environmental pressures and the need for an integrated approach towards resource management. Past policies have placed an emphasis on top-down conservation measures, reflected in the demarcation of an extensive network of protected areas and a conservative approach to industrial resource extraction. However, as the margins narrow, with pressures from both the traditional and modern sectors, it will be increasingly important to develop a participatory and representative style of governance and refine the systems of environmental information and analysis. Table 4.13 refers to several approaches and programmes that are seen as key to the achievement of environmentally sustainable development.

Table 4.13: Approaches and programmes-environmentally sustainable development

Priority area	Forest regeneration and biodiversity
Policy	The promotion of ecologically sensitive approaches to forest management
Main policy instruments	Forest and Nature Conservation Act, 1995 (existing) National Forestry Master Plan (existing) National Biodiversity Action Plan (existing) National Environment Strategy (existing) National Environmental Action Plan (in preparation)
Selected 8th FYP programmes	N/A
Future direction	Increased sensitivity to the maintenance of biodiversity Informed trade-offs
Priority area	Greening national accounts
Policy	The greening of Bhutan's system of national accounts
Main policy instruments	N/A
Selected 8th FYP programmes	N/A
Future direction	Account of the value to the economy of the environment and ecological services Quantitative indicators on the importance of the environment to the economy Contribution to the quantification of Gross National Happiness
Priority area	Institutionalising capacities for environmental impact assessment (EIA)
Policy	Environmental Impact Assessment institutionalised and extended to the district and block levels
Main policy instruments:	EIA legislation (proposed)
Selected 8th FYP programmes	N/A
Future direction	EIAs to help ensure: development projects are environmentally and economically sound in the long run the minimisation of environmental, economic, cultural and social impacts of development projects prior evaluation of environmental impacts on ecologically fragile systems systematic assessment of the effects of development pressures on the natural resource base, communities and culture

4.5 Conclusion: Emerging Issues and Options in Development Strategy

Bhutan enters the 21st Century with a cautious sense of optimism for the ongoing achievement of growth, poverty alleviation, and sustainable resource management. The resource base remains relatively uncompromised, and there are considerable

Table 4.13 Cont.....

Priority area	Watershed management
Policy	Preparation of master plans for all watershed areas
Main policy instruments	Watershed master plans
Selected 8th FYP programmes	N/A
Future direction	Effective systems of watershed management as a key tool to: maintain biodiversity, soil fertility, biological productivity of natural systems, combating erosion and other forms of degradation Impacts of policies on: hydropower development, farming, livestock, settlement, timber and logging
Priority area	Environmental legislation
Policy	Consolidate and build upon existing legislation and provide new enforcement measures
Main policy instruments	Forest and Nature Conservation Act, 1995 (existing) National Environmental Protection Act (proposed)
Selected 8th FYP programmes	N/A
Future direction	Development of accepted environmental standards Balance between modern legislation and informal social arrangements
Priority area	Conservation and development
Policy	Complete full inventory of the country's biodiversity resource base
Main policy instruments	N/A
Selected 8th FYP programmes	N/A
Future direction	Inventory of biodiversity resource base Exploring potential comparative advantages

Sources: Ministry of Planning (1996), Planning Commission (1999)

opportunities for an expansion in productive resource use. Society has maintained stability, whilst accommodating significant modernising changes in social and physical infrastructure. The economy has realised steady and balanced growth rates that have been distributed relatively equitably and achieved without generating significant, unsustainable resource pressures. Furthermore, the nation possesses a strong and well-functioning state system that has managed the modernisation process through forty years of planned development.

As Bhutan looks to the future, however, and seeks to effect the necessary transformations in economy and society, challenges emerge to the ongoing achievement of balanced and sustainable development. Social pressures deriving from a society in transition are seen in terms of rapid population growth, urbanisation and inequality, and the gradual erosion of informal institutional arrangements and cultural practices. Although the nation has valuable opportunities for growth in the expansion of natural resource-based industry and the development of niche markets, the economy requires restructuring to correspond to the country's comparative

advantages, increase private initiative, and bridge the gap between traditional and modern sectors. Localised unsustainable resource pressures are appearing, which, if not properly addressed, may exacerbate. Indeed, as the nation enters the next stage of transition, there is little room to manoeuvre, and delicate balances and trade-offs will be required between alternative interests, priorities, and needs. To generate appropriate policy interventions, the system of governance requires ongoing evolution to accommodate the changing requirements of society.

The Royal Government of Bhutan has assumed the lead role in the development of the nation, and the maintenance of a stable, equitable, and sustainable system. Guided by the concept of maximising Gross National Happiness, policies aim to achieve a balance in the plethora of forces and related issues embodied in complex modernising processes. State interventions are characterised by pragmatism and gradualism, seeking to effect measured development and change at a pace that society is able to suitably accommodate. Approaches and programmes are distributed over the fields of human development, the promotion and preservation of culture and heritage, balanced and equitable socioeconomic development, good governance, and environmentally sustainable development. These seek to facilitate a trajectory for the transformation of society through which the continued achievement of growth is tempered by responsible social, cultural, and environmental practices. This style of development management has thus far proved relatively successful in meeting its stated objectives, and the government continues to receive popular support. However, as the nation proceeds along its new development path, issues emerge in development policy of an increasingly complex and potentially conflicting nature.

The Royal Government of Bhutan basically pursues an integrated approach towards development. Activities are spread over a broad range of relevant areas. Development planning has sought to proactively mitigate certain undesirable outcomes, rather than to react to them. However, as society evolves, potentially destabilising trends inevitably emerge and sectoral pressures increase, the efficient and effective use of available resources will become increasingly important. Furthermore, the identification of suitable trade-offs between respective complementary and competing objectives will become more complex and critical. In response to such changing requirements it will be of fundamental importance that technical capabilities are developed and refined within both state and society in order to generate the most well-informed decisions at all levels of policy. For the guiding concept of Gross National Happiness to develop beyond a rhetorical device, it requires ongoing articulation and translation from the abstract to the material domain, so that it may inform policy decisions. This will involve the problematic issue of the quantification of non-material elements and the specification of necessary compromises. The evaluation of the returns to various interventions and the potential externalities will generate significant theoretical and practical difficulties. Furthermore, assessing the efficiency of the alternative policy instruments available to address stated objectives remains a complicated challenge.

The future of development in Bhutan resides in the manner in which decisions are made and implemented, and therefore in the nature of power relations. Thus far, a 'paternalistic' government has sought to internalise politics within the state apparatus. However, although a relatively effective system of representation has been achieved, as policy decisions become increasingly complex and clear-cut technical solutions more elusive, it will become critical for all segments of society to become actively involved in the decisions that will have a direct bearing on their lives. Furthermore, there are significant limitations on the power of the state to successfully implement all policy decisions. Poverty is the product of a lack of power and access to sufficient resources. Unsustainable practices generally result from either insufficient or excessive and under-regulated access to resources, and thus an imbalanced power structure. Therefore, the outcomes of the ongoing initiatives at decentralisation, participation, and empowerment will play a decisive role in the continued achievement of balanced and sustainable development in Bhutan.

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Chapter 5
Development Experience in the Himalayan Mountain Region of India

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5.1 Introduction

This paper is an attempt to describe and analyse the development experience in the Himalayan region of India and its interface with environmental issues. The Himalayan region of India covers, from west to east, the states of Jammu and Kashmir, Himachal Pradesh, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya, the twelve hill districts of Uttar Pradesh (known as Uttaranchal), Darjeeling district of West Bengal, and two hill districts (Karbi Anglong and North Cachar) of Assam. Development experience, for the purpose of this paper, includes both economic development and growth as well as social and human development. Economic development and growth have been analysed on the basis of familiar indicators like growth rates and composition of state domestic product, workforce distribution, and poverty profile (head count ratio). The indicators of social and human development used in this paper are also the usual ones such as literacy, education, and health. The analysis of the environment has been carried out mainly from the perspective of natural resources, especially land, forests, and water.

A caveat is called for at the very outset. This relates to the unavailability of data on a comparable basis across states and Himalayan districts of states on many crucial issues. The Himalayan region of India, as pointed out above, consists of two categories of political–administrative unit – fully fledged states of the Union of India and parts of larger states, ranging from one district in West Bengal and two in Assam to 12 in

Uttar Pradesh. Data on important indicators such as state domestic product are compiled only at the state level, which means that comparisons in these respects cannot be made with hill districts of larger states. This shortcoming is particularly evident in the case of Uttaranchal, the population of which is second only to that of Jammu and Kashmir among all Himalayan states and areas. A second problem relates to the unavailability of data on important dimensions of development for many Himalayan states, mainly on account of the small size of their population. This is especially the case in respect of indicators that are based on data collected through sample surveys (e.g., poverty ratio) or composite indices like the Human Development Index. Data on many of these indicators and indices are available only for the 16 or so large states of India, defined as states having a population of 10 million or more. The only concession made sometimes is to include the larger Himalayan states, such as Jammu and Kashmir and Himachal Pradesh, even though their populations are less than 10 million. In this paper we have tried to make the best possible use of available data to make a comparative analysis of the development experience of the different states and parts of states in the Himalayan region of India.

The paper is divided into five parts. Part one is the introduction. The second part provides a brief profile of the Himalayan region of India in terms of area, population, and characteristics of the population like rural-urban distribution, sex ratio, and literacy. The third part focuses on the development experience in the realm of economic growth as well as social and human development. The fourth part takes up analysis of the environmental issues, especially related to land use, forestry, and water resources. The fifth and final part attempts to relate the development experience to environmental issues, especially as they relate to management, use, and conservation of natural resources in the Himalayan region of India. In particular, it tries to see how, and to what extent, these twin concerns of development policy have been understood, conceptualised, and reconciled at the levels of policy and programmes.

5.2 Himalayan Region of India: A General Profile

The Himalayan region of India is a vast complex of varied geo-political, socioeconomic, cultural, and political–administrative sub-systems spread over an area of 594,437 sq.km According to the 1991 census, the population of India's Himalayan region was about 43 million, with an overall density of about 72/km^2. The area, population, and density of population in the Himalayan region are given in Table 5.1. It will be seen that there is considerable variation in the area and population of the different states/parts of states of the Himalayan region. At one extreme we have Sikkim with an area of 7,096 sq.km and a population of 406,457 in 1991 (estimated to be half-a-million in 1997), while, at the other extreme, we have Jammu and Kashmir with an area of 222,236 sq.km and a population of 7,718,700 in 1991 (estimated to be 9.3 million in 1997). As per the 1991 census, three states, viz., Arunachal Pradesh, Mizoram, and Sikkim, had a population of less than one million. By 1997, Arunachal Pradesh was estimated to have crossed the one million mark,

Table 5.1: Himalayan region: area and population, 1991

State	Area[1]	Population	Density[2]	Growth Rate 1981-91	Population (1997)[3]
Arunachal Pradesh	83,743	864,558	10	35.9	1.1
Himachal Pradesh	55,673	5,170,877	93	19.4	6.2
Jammu & Kashmir	222,236	7,718,700[4]	35	28.9	9.3
Manipur	22,327	1,837,149	82	28.6	2.3
Meghalaya	22,429	1,774,778	79	31.8	2.2
Mizoram	21,081	689,756	33	39.0	0.9
Nagaland	16,579	1,209,546	73	56.9	1.5
Sikkim	7,096	406,457	57	27.6	0.5
Tripura	10,486	2,757,205	263	33.7	3.5
Assam Hills	15,322	813,524	53	-	-
Darjeeling	3,149	1,299,919	413	26.91	-
Uttaranchal	51,125	5,926,146	116	21.5	-

Notes: 1.sq.km
2. Persons per km^2
3. Estimated mid–year population in millions
4. Projected since census was not held in J&K in 1991

Sources: CSO 1998
Thukral (1998)
Dhar and Gupta 1992
Statistical Abstract India 1997

while Mizoram was just short of it. It is noteworthy that the population of Uttaranchal[1], is second highest in the region after Jammu and Kashmir and exceeds that of Himachal Pradesh which is slightly larger in area. Similarly, the 1.3 million population of Darjeeling district in West Bengal exceeds that of states like Arunachal Pradesh, Mizoram, Nagaland, and Sikkim while its area is only 3,149 sq.km – the smallest among all the Himalayan units in India. The density of population in the different states/areas also varies considerably – from 10/km^2 in Arunachal Pradesh to 413 in Darjeeling district.

The population growth rate has been consistently high in the states of the Northeast. It was in excess of 30% during 1981-91 in five states, viz., Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, and Tripura. In Nagaland it was as high 57%. In the two Assam hill districts of Karbi Anglong and North Cachar the rate of growth of population was a phenomenal 73 and 96% respectively during 1971 and 1991 (the 1981 census was not carried out in Assam). In three other states, viz., Manipur, Sikkim, and Jammu and Kashmir[2] it was in the region of 28-29%, which was higher than the all-India rate of 23.5%. Only in Himachal Pradesh, Uttaranchal, and

[1] The region was a part of the state of Uttar Pradesh at the time of writing this paper. Since then the Indian Parliament has enacted a legislation making it a separate state of the Indian Union to come into existence with effect from November 1, 2000.

[2] As per the 1981 census since the 1991 census did not take place in the state.

Darjeeling was the rate of population growth lower than the national average. It is interesting to observe that the natural population growth rate in the Himalayan region has been lower than the all-India figure of 19.3% as the following figures show (CSO 1998).

Arunachal Pradesh	-	17.8%
Himachal Pradesh	-	16.5%
Manipur	-	13.9%
Meghalaya	-	20.1%
Nagaland (only urban)	-	11.8%
Sikkim	-	15.6%
Tripura	-	11.2%

The relatively low natural population growth rate would imply that the high rate of population growth in these states could be attributable to the high rate of inmigration. This inference is supported by the analysis of 1981 census data which showed a rather high proportion of migrants (ranging from 7 to 24% compared to 5% for India as a whole) in the population of all states of the Northeast, except for Manipur (Dhar and Gupta 1992).

A high degree of variation is also to be seen in the levels of urbanisation in the region (Table 5.2). The percentage of urban population in the total population in 1991 ranged between 8.7 and 9.1 in Himachal Pradesh and Sikkim respectively at the lower end, to 46.1 in Mizoram at the higher end. This may be compared to the all-India figure of 25.7%. A noteworthy feature of the data in Table 5.2 is the very high growth of urban population visible in certain states between 1971 and 1991. Thus, in Arunachal Pradesh and Mizoram, urban population as a percentage of total population almost doubled in each of the two decades from 1971-81 and 1981-91. Manipur witnessed a similar spurt only during the period from 1971-81. Nagaland saw a relatively large increase, (5.5%) in the proportion of urban population between 1971-81, while a similar process occurred in Tripura (4.5%) in the subsequent decade. In Darjeeling district, on the other hand, urban population as a proportion of the total population has been higher than the national average in all of the last three censuses. The growth in urban population has also been quite steady without any spurts. The pattern in Sikkim has, however, been quite uneven and erratic – a fairly rapid increase during the first decade and a rather swift decline (7%) during the second decade. This is quite baffling and needs to be investigated.[3] In the other states/areas the growth in urban population seems to have been more gradual and not too different from the all-India pattern. A general conclusion emerging from Table 5.2 is that the percentage of urban population to total population has grown at a moderate rate between 1971 and 1991 in the more populous states/areas of the Himalayan region,

[3] One possible explanation for this is that many villages that had formed part of Gangtok urban area till 1981 were taken out by 1991. Thus the population of Gangtok declined by 32% between 1981 and 1991.

Table 5.2: Percentage of urban population to total population: 1971-1991

State	1971	1981	1991
Arunachal Pradesh	3.70	6.56	12.80
Himachal Pradesh	6.99	7.61	8.69
Jammu& Kashmir	18.59	21.05	23.83
Manipur	13.19	26.42	27.52
Meghalaya	14.55	18.07	18.60
Mizoram	11.36	24.67	46.10
Nagaland	9.95	15.42	17.21
Sikkim	9.37	16.15	9.10
Tripura	10.43	10.99	15.30
Assam Hills	-	-	12.90
Darjeeling	23.1	27.5	30.47
Uttaranchal	-	18.30	21.70
India	19.91	23.34	25.71

Source: CSO 1998

viz., Himachal Pradesh, Jammu and Kashmir, Tripura, and Uttaranchal, whereas in the less populous states/ areas the growth has occurred in spurts, with bursts of very high growth in certain periods. The latter pattern of urban growth can be quite destabilising and can stretch urban infrastructure and facilities almost to breaking point. As there are only one or two urban centres in the less populous states, they have become victims of runaway and unregulated growth during the past two or three decades.

A special characteristic of the population in the Himalayan region of India, especially in the Northeastern part, is the predominance of the tribal population. In India, tribal population constitutes eight per cent of the total population. In the Himalayan states of the Northeast, however, tribals are the predominant group, with their share in the total population varying from a low of 22% in Sikkim, 31% in Tripura, and 34% in Manipur to a high of 64% in Arunachal Pradesh, 86% in Meghalaya, 88% in Nagaland, and 95% in Mizoram. In Himachal Pradesh and Uttaranchal, on the other hand, tribals constitute only 4 and 3.5% of the population respectively.

High levels of immigration, as noted earlier, into a predominantly tribal area can lead to social unrest. Unrest is bound to affect development activities and programmes, creating further alienation and dissatisfaction among the people, especially the youth for whom sufficient employment and income-generating opportunities are not available. This, unfortunately, has been happening all too frequently in much of the Northeast.

5.3 Development Experience in the Himalayan Region

Economic development and growth

Any rigorous analysis of economic development and growth in the Himalayan region of India is hampered by the lack of comparable data, especially time-series' data,

across the states/parts of states in the region. We have, nevertheless, tried to make the best use of available data to get a general idea of the economy of the Himalayan region of India. A few qualifying statements need to be made at the outset. Many states in the Himalayan region are either facing disturbed conditions at the moment or have been through such experiences in the past. Thus, Jammu and Kashmir in the Northwest and Nagaland, Manipur, and Tripura in the Northeast are at present in the throes of serious problems of insurgency and disturbed law and order situations. In the recent past, Uttaranchal has gone through a brief but intense agitation for a separate state in the early nineties, while the Darjeeling hill areas faced a similar situation for a longer period in the eighties. These disturbances have inevitably taken their toll on development activities in the affected areas. Depending on the intensity and duration of the disturbances, development has been set back by periods ranging from a few years to a few decades in different states/areas. In some of the worst affected states like Jammu and Kashmir, the economy of the state has come under such severe pressure that it is finding it difficult to maintain the tempo of normal governmental activity, let alone take up new responsibilities in the field of development. It is important to bear in mind that, in the Himalayan region of India, state initiative and public investment will continue to have to play a leading role as a catalyser of development and provider of public services because the economies are still fairly underdeveloped in much of the area. In such a situation, the market cannot be expected to reach out to large sections of the population if the state withdraws (due to lack of resources or exigencies of law and order) from crucial economic and social sector activities.

The economies of the Himalayan states/areas in India are largely agrarian or agro-pastoral in nature. There has not been much industrialisation even in the somewhat better-developed states like Himachal Pradesh. The low level of industrialisation in the region can be attributed to the isolation and remoteness of much of the area and the poor state of infrastructure like power, roads, and communication. The region also does not have the advantage of a large enough local market that could act as an incentive for industries to be established there. The few industries and industrial areas that do exist in some states like Himachal Pradesh, Jammu and Kashmir, and Uttaranchal are located in areas adjoining the plains which are better served by rail and road networks. Even agriculture in much of the region is heavily oriented towards cereal cultivation for home consumption. Though largely subsistence-based, agriculture in the hills is unable to supply sufficient cereals to the local population. The Himalayan states, by and large, are net importers of cereals. There is also very little diversification of agriculture. As one study of development in the Himalayan states of India points out:

"While agriculture is the main source of income (in the Himalayan states), this source is largely inelastic because of poor agricultural and livestock yields. This is a limitation imposed by topography, soil conditions, climatic factors, very limited irrigation, and poor land productivity. It may also be remembered that in the hill states only about

one-tenth of the total land is available under cultivation." (Dhar and Gupta 1992, 238-39).

The Himalayan areas have a natural and comparative advantage in horticulture (Jodha and Shrestha 1994) and even in the production of some horticultural crops and medicinal plants. Unfortunately, apart from the isolated example of Himachal Pradesh, not many Himalayan areas have been able to exploit this factor for economic gain. On the other hand there are indications that in some cases the niche itself may be facing a threat, largely because of globalisation and the opening up of trade in horticultural products. Already protests are being heard from apple growers in Himachal Pradesh about permitting relatively free import of apples and other fruit by placing them in the Open General Licence (OGL) category. A niche, it may be pointed out, does not carry a permanent advantage. It has to be protected and nurtured.

For analysing the economic growth performance of the Himalayan states of India we have used two sets of data: per capita net state domestic product at current prices for selected years between 1980-81 and 1996-97 and its comparison with per capita net national product (Table 5.3); and rate of growth of net state domestic product at constant (1980-81) prices between 1991-92 and 1996-97 (Table 5.4). From Table 5.3 it can be seen that between 1980-81 and 1996-97, relative to per capita net national product per capita, state domestic product declined in five Himalayan states, viz., Himachal Pradesh, Jammu and Kashmir, Manipur, Meghalaya, and Tripura. The decline was especially large in Jammu and Kashmir, Manipur, and Tripura. In all these states, as also in Himachal Pradesh and Meghalaya, the decline in growth rate has been particularly marked during the 1990s, although the process seems to have commenced in Jammu and Kashmir and, to some extent, in Tripura as well after 1985-86. In two states, viz., Mizoram and Nagaland, per capita state domestic product as a proportion of per capita net national product actually increased during this same period, no doubt with ups and downs in different years. The 1990s appear to be the period in which Mizoram performed well, while in the case of Nagaland it is the decade of the eighties that shows better performance. In Arunachal Pradesh and Sikkim, on the other hand, the performance relative to the national level has been more or less even with some fluctuations in individual years.

Data on the growth of the economies of the Himalayan states during the decade of the nineties (Table 5.4) lend support to the view that most of them have been growing at a rate slower than that of the national economy, especially after 1991-92. It is noteworthy that, in 1991-92, all the Himalayan states had a rate of economic growth higher than the national average, which was a low of 0.2%. Arunachal Pradesh and Manipur had particularly high rates of growth of 14.3 and 8.4% respectively. Himachal Pradesh and Jammu and Kashmir had rather low rates of growth of 0.6% and 1.9% respectively in that year. Between 1991-92 and 1996-97, on the other hand, the rate of growth of the national economy increased significantly, while that of the Himalayan states, except Nagaland and Tripura, settled at a lower level. At the same time, economic growth seems to have picked up in all states except Meghalaya and Jammu

Table 5.3: Per capita net state domestic product at current prices in Himalayan states: 1980 to 1995-96

(in IRs)

State	1980-81	1985-86	1990-91	1995-96	1996-97
Arunachal Pradesh	1,571 (96.38)	3,403 (124.65)	5,397 (108.31)	10,205 (96.96)	12,032 (104.14)
Himachal Pradesh	1,704 (104.54)	2,649 (97.03)	4,910 (98.54)	8,747 (83.11)	–
Jammu& Kashmir	1,776 (108.96)	2,874 (105.27)	3,625 (72.75)	6,181 (58.73)	6,658 (57.63)
Manipur	1,419 (87.06)	2,322 (85.05)	3,976 (79.79)	6,914 (65.69)	7,510 (65.00)
Meghalaya	1,361 (83.50)	2,250 (82.42)	4,375 (87.80)	7,662 (72.80)	8,474 (73.34)
Mizoram	1,289 (79.08)	2,658 (97.36)	4,135 (82.98)	9,570 (90.93)	13,360 (115.63)
Nagaland	1,448 (88.83)	2,591 (94.91)	5,498 (110.34)	9,758 (92.71)	11,174 (96.71)
Sikkim	1,571 (96.38)	3,023 (110.73)	5,302 (106.40)	9,472 (90.00)	–
Tripura	1,307 (80.18)	2,025 (74.18)	3,370 (67.63)	5,083 (48.29)	5,432 (47.01)
India (NNP)	1,630 (100.00)	2,730 (100.00)	4,983 (100.00)	10,525 (100.00)	11,554 (100.00)

Figures in parentheses represent% of all-India Net National Product per capita at current prices.
Source: MoF (1999)
MoF (2000)

and Kashmir. The case of Tripura however is quite intriguing. The data for the state in Tables 5.3 and 5.4 lead to contradictory inferences: a rather high rate of average annual growth of 7.3% of net state domestic product between 1991-92 and 1996-97, and a sharp decline in per capita net state domestic product relative to per capita net national product. It is difficult to reconcile these two conclusions. Overall it would appear that, except in a few cases like Jammu and Kashmir, Tripura (with some reservations), Meghalaya (more recently), and to some extent Himachal Pradesh, growth of SDP per capita in most of the Himalayan states has been fairly steady and consistent, although lower than the national average. Jammu and Kashmir, Manipur, and Tripura may perhaps have been paying the price for insurgency and a disturbed internal security environment. Another general feature that emerges from the data in Table 5.4 is the fact that the growth of SDP per capita has been lower than the all-India growth in all states except two (Nagaland and Tripura) during the period from 1991-92 to 1996-97. This, incidentally, is also the period when structural adjustment, liberalisation, and economic reform policies were introduced into the country. The first stage of reform polices was implemented at the national level. It is by now well known that, after the initial economic stagnation in the first two years, the economy of the country entered a higher growth pattern of six per cent plus growth rate by the

Table 5.4: Growth rate of net state domestic product at constant (1980-81) prices in Himalayan states: 1991-92 to 1996-97

(in per cent)

State	Average Annual Growth Rate	
	1991-92	1991-92 to 1996-97
Arunachal Pradesh	14.3	4.9
Himachal Pradesh	0.6	4.3
Jammu & Kashmir	1.9	3.9
Manipur	8.4	5.2
Meghalaya	4.9	2.8
Nagaland	3.9	6.4
Tripura	3.3	7.3
India	0.2	5.6

Mizoram has not been included as it prepares SDP estimates at current prices only.
Source: RB (1998).

middle of the decade of the nineties. A similar growth pattern, however, has not been visible in the Himalayan states.

While states that have adopted reform and liberalisation policies have improved their growth performance, not all of them are so favourably placed. Hence it is now being argued that the second phase of economic reforms must be implemented by the states.

The Himalayan states appear to be especially ill equipped to cope with the consequences of economic reforms. As we have seen, the absence of proper infrastructure and a generally low level of industrialisation hamper them. These states are still heavily dependent on primary economic activities; mainly agriculture, animal husbandry, forestry, and similar activities.

The picture of the Himalayan region as an area largely dependent on agriculture and other primary activities is supported by data on the work force (Tables 5.5 and 5.6). One notable feature of the workforce evident from these tables is the generally high worker participation rates, even among women. Table 5.5 shows that in all the Himalayan areas, except for Tripura and Darjeeling, participation rates – both general and female - are much higher than the all–India rates. Worker participation rates are in excess of 40% and women's work participation rates are in excess of 35% in all areas except the above two.

The distribution of main workers in the primary, secondary, and tertiary sectors shows that between 64 to 75% of the main workers are engaged in the primary sector, and this is not very different from the position at the all-India level. However it needs to be pointed out that the vast majority of main workers in the primary sector in the Himalayan region are cultivators. The proportion of cultivators among main workers

ranges between 56 and 68% in these states (with the exception of Tripura where it is only 38%), compared to the national average of 39%. On the other hand, the proportion of agricultural labourers among main workers is rather low in the Himalayan region compared to the country as a whole. It ranges between 3.5 and 13% (again excluding Tripura where it is 24%), compared to the all-India figure of 26.15%. The proportion of main workers engaged in the tertiary sector is also quite similar to the all-India figure of 20.5%, ranging between 20 and 30%. Secondary sector employment, however, tends to be lower in the Himalayan states than the national average. In only three states – Sikkim, Himachal Pradesh, and Manipur with 11, 10, and 9.7% respectively – does it come close to the all–India figure of 12%. In the other states it ranges between 3.5 and 8.7%.

Table 5.5: Percentage of workers in the Himalayan region, 1991

Arunachal Pradesh	Persons	47.46
	Male	54.21
	Female	39.61
Himachal Pradesh	Persons	42.27
	Male	49.72
	Female	34.79
Jammu & Kashmir	Persons	41.51
	Male	45.36
	Female	37.50
Manipur	Persons	41.51
	Male	45.36
	Female	37.50
Meghalaya	Persons	43.06
	Male	49.09
	Female	36.69
Mizoram	Persons	49.36
	Male	54.37
	Female	43.94
Nagaland	Persons	44.20
	Male	48.61
	Female	39.25
Sikkim	Persons	53.20
	Male	53.60
	Female	52.74
Tripura	Persons	31.36
	Male	47.48
	Female	14.31
Assam Hills	Persons	41.94
	Male	51.91
	Female	30.89
Darjeeling	Persons	33.77
	Male	46.07
	Female	20.44
Uttaranchal	Persons	41.91
	Male	58.99
	Female	41.01
India	Persons	37.68
	Male	51.56
	Female	22.73

Source: Census of India 1991

Poverty

Data on poverty are not very satisfactory for the Himalayan region. The basis for calculation of population below the poverty line is the periodic (five-yearly) consumer expenditure surveys undertaken by the National Sample Survey Organisation (NSSO). The NSSO sample, unfortunately, does not give adequate representation of the small states, especially of those in the Northeast. Hence we find that poverty estimates for these states are not very accurate. Estimates of the

Table 5.6: Percentage distribution of main workers in primary, secondary and tertiary sectors in the Himalayan region, 1991

State	Primary Sector	Secondary Sector	Tertiary Sector
Arunachal Pradesh	67.4	8.7	23.9
Himachal Pradesh	69.3	10.0	20.7
Jammu & Kashmir	NA	NA	NA
Manipur	70.0	9.7	20.3
Meghalaya	74.8	3.7	21.5
Mizoram	66.0	5.1	28.9
Nagaland	75.3	3.5	21.3
Sikkim	68.4	11.1	20.5
Tripura	64.1	6.4	29.5
India	67.5	12.0	20.5

NA: Not Available
Source: CSO 1998

percentage of population below the poverty line in 1993-94 are given in Table 5.7. It will be seen that the urban and rural poverty ratios are identical for all the Northeastern states, on the one hand, and for Himachal Pradesh and Jammu and Kashmir on the other. This is because the poverty ratios for Assam are used for all the Northeastern states and of Himachal Pradesh for Jammu and Kashmir Based on this assumption the combined (rural and urban) poverty ratio shows the incidence of poverty in these states to vary from about 25% (J&K) to 41% (Sikkim), compared to the all-India average of 36%. Separate poverty estimates are not available for Uttaranchal as it is a part of Uttar Pradesh. Yet, if in an analogy of the procedure followed for the above states we use the rural and urban poverty ratios of 42.28 and 35.39% respectively for Uttar Pradesh, we get a figure of 40.78% as the combined poverty estimate for Uttaranchal. However, as pointed out above, the accuracy and reliability of these estimates are questionable. Hence their utility in drawing any definite conclusions or making any analysis also may be limited.

Social and human development

If the situation in the Himalayan region is not all that good relative to the country as a whole in terms of the economy, the area of social and human development provides a refreshing contrast. Even though we are hampered by the lack of reliable data covering the whole region, whatever data are available show the region in a favourable light vis-à-vis the rest of the country on important indicators of social development.

Looking first at literacy and education, Table 5.8 provides data on literacy for 1991 and 1997. The former are drawn from the Census and the latter from the National Sample Survey. Both these data show considerably higher levels of literacy in the Himalayan region than in the country as a whole. The only exceptions are Arunachal

Table 5.7: Percentage of population below the poverty line in the Himalayan region: 1993-94

State	Rural	Urban	Combined
Arunachal Pradesh	45.01	7.73	39.35
Himachal Pradesh	30.34	9.18	28.44
Jammu & Kashmir	30.34	9.18	25.17
Manipur	45.01	7.73	33.78
Meghalaya	45.01	7.73	37.92
Mizoram	45.01	7.73	25.66
Nagaland	45.01	7.73	37.92
Sikkim	45.01	7.73	41.43
Tripura	45.01	7.75	39.01
Uttaranchal	NA	NA	NA
India	37.27	32.36	35.97

Source: CSO 1998

Pradesh and Meghalaya where the literacy percentages in 1991 were lower than the All-India figure. By 1997, however, Meghalaya had exceeded the national average by 15 percentage points, while Arunachal Pradesh almost caught up with it, being only marginally lower. In fact a spurt in literacy between 1991 and 1997 has been a feature of the entire Himalayan region. This can be seen from the fact that, whereas the percentage of literates at the all–India level increased by ten percentage points during this period, in the Himalayan region the increase ranged from 13% (Mizoram, Tripura, and Himachal Pradesh) to 28% (Meghalaya). This is truly a remarkable achievement. As a result, all the states in the region (except Arunachal Pradesh) achieved literacy rates in excess of 70%, with six states achieving a level in excess of

Table 5.8: Percentage of literates aged seven plus in the Himalayan region

State	Total	Male	Female	Gender Disparity F/M	Total Literacy Rate 1997*
Arunachal Pradesh	41.59	51.45	26.69	0.51	60
Himachal Pradesh	63.86	75.36	52.13	0.69	77
Jammu & Kashmir	NA	NA	NA	NA	NA
Manipur	59.89	71.63	47.60	0.58	76
Meghalaya	49.10	53.12	44.85	0.84	77
Mizoram	82.27	85.61	78.60	0.92	95
Nagaland	61.65	67.62	54.75	0.81	84
Sikkim	56.94	65.74	46.69	0.71	79
Tripura	60.44	70.58	49.65	0.70	73
Uttaranchal	59.58	75.51	42.87	0.57	NA
India	52.21	64.13	39.29	0.61	62

Note: NA: not available * NSS data
Source: MoF 1999

75%. Furthermore, Mizoram has now emerged as the most literate state in the country, replacing Kerala, which had a literacy rate of 93% in 1997.

Gender disparity in literacy, expressed as the female literacy rate as a proportion of the male literacy rate, has been calculated for 1991. It will been seen that only three states/regions, viz., Arunachal Pradesh, Manipur, and Uttaranchal, had higher levels of gender disparity than the all-India level. In five states, gender disparity was much lower than the all–India level. In general we find that states/regions with lower literacy rates had higher levels of gender disparity. The two exceptions to this generalisation were Meghalaya and Tripura. It is, however, reasonable to expect a decline in gender disparity with an improvement in the literacy rate. Mizoram, which had the highest literacy rate in the Himalayan region in 1991, also had the lowest level of gender disparity.

The generally higher levels of literacy in the Himalayan region and lower levels of gender disparity compared to the country as a whole are largely the result of better performance in the field of education, especially elementary education. This is evident from the data on enrolment, discontinuation, and non-attendance rates among children in the elementary school–going age (6-14 yrs) contained in the 'India Human Development Report' (Shariff 1999). Although this report does contain data at the state level, unfortunately for our purposes the Himalayan states are not adequately represented. Data are given separately only for Himachal Pradesh, while all of the Northeastern states, including Assam, have been combined into one group called the Northeastern region. In the absence of any other data we have therefore used this set of data not only for analysis of education but for other dimensions of human development as well.

These data show that the enrollment rate for children aged 6-14 years in 1994 was 93% in Himachal Pradesh, 81% in the Northeastern region, and 71% at the all-India level. The gender disparity index (female enrolment rate as a ratio of male enrolment rate) was 0.94 in Himachal Pradesh and 0.90 in the Northeast, compared to 0.84 in the country as a whole. Similarly, discontinuation or drop–out rates was 2% in Himachal Pradesh, 3.3% in the North-east, and 6% in India, with a gender disparity index of 1.2, 1.44, and 1.56 respectively.

Finally, non-attendance rates for Himachal Pradesh, the Northeast, and all-India were 3.5, 11.7, and 7% respectively with a gender disparity index of 0.98, 1.43, and 1.00 respectively. Thus we have a picture of relatively high enrolment with low gender disparity in Himachal Pradesh and the Northeastern states, including Assam. Discontinuation (or drop-out) rates were also lower in Himachal Pradesh and the Northeast in relation to India as a whole, with lower levels of gender disparity;although in all areas discontinuity rates were higher among girls than among boys. In regard to non-attendance rates, however, there was a slight change in this general pattern. While in Himachal Pradesh both the non-attendance rate and gender disparity index were lower than the national average, in the Northeast they were higher (Shariff 1999).

After education the other area of social development examined is health. Here we have analysed selected data such as infant mortality rates (IMR), immunisation of mothers and children, proportion of child births attended by trained attendants, and status of nutrition among children. Taking up infant mortality first, we find that, as per the Sample Registration System (SRS), the rate was estimated at 78 per thousand live births in Himachal Pradesh and 83 per thousand live births in the Northeast compared to 87 per thousand live births at the all-India level in 1992. The National Health and Family Welfare Survey 1992 reported lower rates of 56 and 79 in Himachal Pradesh and India respectively. The estimates arrived at by the National Council of Applied Economic Research (NCAER) Survey in 1994 point to "a secular decline in IMR over the past 2-3 decades" in Himachal Pradesh, in the Northeast, and in the country as a whole (Shariff 1999, 161). The pattern is the same for under-five mortality rates.

The NCAER survey (Shariff 1999) found strong evidence of considerable malnutrition among children aged 0-4 years and 5-12 years in the Himalayan states, as well as in India as a whole. It has used two measures of malnutrition – stunting and wasting. The former is defined as height-for-age, which is "expressed as a percentage or number of standard deviations away from the NCHS (National Council of Health Statistics) international median height–for–age." Values falling below -3 standard deviations are considered extreme degrees of chronic malnutrition, and those between -3 and -2 standard deviations are deemed to be moderate malnutrition. Wasting is defined similarly on the basis of weight-for-height.

The results of the NCAER survey are presented in Table 5.9. It will be seen that the incidence of severe stunting among 0-4 year olds was almost the same in Himachal Pradesh and the Northeast and only slightly less than the all-India figure. Moderate stunting was much more prevalent in Himachal Pradesh than in the Northeast or the country as a whole. Among the 5-12 year olds, on the other hand, severe stunting was almost of the same order in Himachal Pradesh and India, whereas it was much higher in the Northeast. The incidence of moderate stunting, on the other hand, was much higher in Himachal Pradesh than in the Northeast or the country as a whole. The incidence of wasting, however, was much lower among children in both age groups in all places and cannot be considered a serious problem.

Lack of proper medical attention during pregnancy and childbirth has been identified as a major cause of health problems among women, often leading to chronic illness and even death. The NCAER survey found that 6.3% of the ever-married women in Himachal Pradesh, 8.6% in the Northeast, and 6.9% at the all-India level were pregnant at the time of the survey. Of these only 22.5% in Himachal Pradesh, 8.1% in the Northeast, and 9.8% at the all-India level received any kind of antenatal care. The most common form of antenatal care in all places consisted of tetanus immunisation, followed by iron supplements and blood pressure check-ups (Shariff 1999, 168). Not only was antenatal care available to only a small proportion of

Table 5.9: Percentage of children (aged 0-12 years) stunted and wasted in the Himalayan region and India: 1994

	Himachal Pradesh	North-East	All-India
Percentage of 0-4 year-old children			
Severely Stunted	34.0	34.2	37.2
Moderately Stunted	28.7	18.6	21.4
Severely Wasted	3.0	5.5	5.2
Moderately Wasted	4.2	6.1	10.0
Percentage of 5-12 year-old children			
Severely Stunted	28.7	37.1	29.0
Moderately Stunted	33.8	26.4	27.7
Severely Wasted	0.7	2.1	2.1
Moderately Wasted	3.1	4.5	7.3

Source: Shariff 1999

pregnant women, but it was also found that only a minority of births – ranging from 32% in Himachal Pradesh to 42% in the Northeast with the all-India figure being 40% – were attended by trained persons: doctors, nurses, midwives, or trained birth attendants (Shariff 1999, 171).

Immunisation of infants and children against specific diseases like tuberculosis (TB), diptheria, pertussis in tetanus (DPT), polio, and measles is the most effective strategy for ensuring the survival and health of children. In recent years governments at the state and national levels have also been carrying out a large-scale campaign on immunisation involving NGOs and even private medical practitioners. The NCAER survey, unfortunately, shows that the results are far from satisfactory, especially in the Northeastern region. There, the levels of immunisation achieved were found to be much lower than the national average. Thus, in 1994, the percentage of children aged 12-23 months who had been fully immunised was only 28 in the Northeast compared to 57 in Himachal Pradesh and 49 in India. While gender disparity at the national level was not too wide as the female-male ratio was a satisfactory 0.96, the situation was quite different in Himachal Pradesh and the Northeast where the values of the ratio were 0.85 and 0.82 respectively.

In the area of social and human development the Himalayan region thus seems to have mixed achievements. In the field of literacy and education it is ahead of the rest of the country and many states are, in fact, close to achieving total literacy. Consequently, gender disparity in these states is also low. In the area of health, however, their situation is not all that good. In many crucial areas they are lagging behind the country in general. When we keep in mind that the levels achieved in the latter are far from satisfactory, the grimness of the situation in the Himalayan region becomes apparent.

5.4 Natural Resources and Environment

Development in the Himalayan region has an immediate and direct relation to the environment, much more so than in other parts of the country, especially the vast area of plains lying immediately to the south of the Himalayas. In fact the state of natural resource management in the Himalayas has a clear impact on the environment and well-being of the Indo-Gangetic plain. It is by now well known that deforestation and soil loss in the Himalayas have been major factors behind the increasing havoc caused by floods every year in the downstream areas of Uttar Pradesh, Bihar, Assam, and Bangladesh (Verghese 1999). Both the intensity and the extent of the area affected by floods have been on the rise in recent years. Deforestation also has an impact on the micro-climate in the Himalayas, promoting further deterioration of the already fragile resource base. For instance, a phenomenon in evidence in the Central Himalayas during the recent past has been a prolonged period of dry heat during the summer. This has resulted in forest fires of increasing frequency and intensity causing, in many cases, irreversible damage to forests.

Land-use

The land-use pattern in the Himalayan region of India has been summarised in Table 5.10. Before commenting on the data we would like to make two preliminary observations. First, the situation in the different Himalayan states/areas is not strictly comparable as the data for various states pertain to different time periods between 1972-73 and 1995-96. Second, although we have provided data on the area under forests from land-use statistics, these data have not been analysed at this stage. A discussion of the situation in regard to forests in somewhat greater detail is contained in a subsequent section.

The first point to note with regard to the land-use pattern in the Himalayan region is that net area sown varies from only 3.37% (Arunachal Pradesh) and 5.22% (Mizoram) at the low end to a maximum of 26.41% (Tripura). Even though most of the people are still dependent on agriculture and allied activities, cultivated area, as a percentage of total area, remains small - hardly exceeding 20%. This only points to the limited scope for agriculture in the economic development of the region. It should hardly come as a surprise then that agriculture is largely a subsistence activity for most of the people engaged in it. At the same time, the pressure on the land is rather heavy since the bulk of the population in much of the Himalayan region lives in rural areas and is dependent on agriculture for a living. This fact is not generally appreciated, given the low levels of overall population density in the region.

Other features of the land-use pattern deserve attention. Land under permanent pastures and grazing lands have a high value in Himachal Pradesh. In fact, at 35%, these occupy the single largest land-use category. There is a high percentage of fallow land (including current fallow) in Meghalaya, Mizoram, and Nagaland. This may be a reflection of the high incidence of shifting cultivation (jhum) prevalent in these states. Land under shifting cultivation may have been classified as fallow (Dhar 1996).

Table 5.10: Land-use pattern in the Himalayan region#

(per cent)

State	Forest	Land not Available for Cultiva-tion	Permanent Pastures & Grazing Lands	Land under Misc. Tree Crops	Cultivable Wasteland	Fallow Including Current Fallow	Net Area Sown
Arunachal Pradesh	93.79	0.87	-	0.80	*	1.16	3.37
Himachal Pradesh	30.83	10.23	35.10	1.41	3.47	2.26	16.70
Jammu & Kashmir	60.98	12.90	2.80	1.60	3.12	2.31	16.29
Manipur	27.23	65.35	*	1.09	*	-	6.33
Meghalaya	41.81	10.26	-	7.23	21.20	10.31	9.19
Mizoram	76.53	2.16	-	-	8.33	7.76	5.22
Nagaland	55.82	3.69	-	8.41	4.79	13.65	13.65
Sikkim	36.20	38.03	9.72	0.70	0.14	1.83	13.38
Tripura	57.77	12.68	*	2.57	0.10	0.48	26.41
Uttaranchal	63.91	8.06	*	8.28	5.92	1.33	12.49

Data pertain to different years between 1972-73 and 1995-96 as follow:
Arunachal Pradesh and Uttaranchal – 1990-91; Himachal Pradesh – 1994-95 Manipur – 1972-73; Sikkim – 1985-86; Tripura – 1993-94, and others –1995-96

* Included in land under miscellaneous tree crops

Source: CSO 1998.

Forests

We next turn to the data on forest cover in the Himalayan region. Land-use data do not permit us to make any observations about the actual forest cover, as they rely exclusively on the records of the forest departments which classify as forests all land under their control, irrespective of the extent of tree cover on it. Fortunately we have a good body of data on actual forest cover from the Forest Survey of India, and this permits a more detailed examination and analysis of forest area.

Data on forests in the Himalayan region are given in Table 5.11; and it compares the recorded forest area with the actual forest cover as per the 1995 and 1997 assessments of the Forest Survey of India. It also provides information on the state of the forests – whether dense or open – in these states during the same assessments. It should be mentioned here that data for the 1995 assessment were collected between 1991 and 1993 and for the 1997 assessment between 1993 and 1994 in the different states.

An examination of the table shows a considerable difference between the recorded forest area and the actual forest cover. Recorded forest area, it may be pointed out, refers to all lands statutorily notified as forest, irrespective of whether they have any tree cover or not. In all the Northeastern states, except for Tripura, the actual forest cover is more than the recorded area – by as much as one third in Arunachal Pradesh and two thirds in Meghalaya. In Himachal Pradesh and Uttaranchal, on the other

Table 5.11: Forest areas in the Himalayan region: 1995 and 1997

(% Distribution)

State	Recorded Forest Area 1997	Actual Forest Cover 1995	Actual Forest Cover 1997	Dense Forest 1997	Open Forest 1997
Arunachal Pradesh	61.54	81.9	81.9	78.9	21.1
Himachal Pradesh	63.60	22.5	22.5	76.4	23.6
Jammu & Kashmir	9.08	9.2	9.2	53.9	46.1
Manipur	67.87	78.3	78.0	28.3	71.7
Meghalaya	42.34	70.1	69.8	25.8	74.2
Mizoram	75.59	88.1	89.1	23.2	76.8
Nagaland	52.04	86.2	85.8	24.5	75.5
Sikkim	37.34	44.1	44.1	77.1	22.6
Tripura	60.01	52.8	52.9	32.8	67.2
Uttaranchal	63.91	-	44.3	77.7	22.3
India	23.28	19.4	19.3	67.5	32.5

Dense forest has a canopy density of 40% and above and open forest between 10 and 40%.
Source: Forest Survey of India 1998.

hand, it is the other way round – actual forest cover is much less than the recorded forest area. In Himachal, in fact, the former is only one-third of the latter while in Uttaranchal it is less by about one-third. Jammu and Kashmir is the only state where the two are about equal.

The second notable feature about the forest cover data is the high proportion of open forest in all Northeastern states except for Arunachal Pradesh and Sikkim. It can be seen that, whereas in the states of Arunachal Pradesh, Himachal Pradesh, Sikkim, and Uttaranchal the ratio between dense and open forest is about 3:1, in Manipur, Meghalaya, Mizoram, and Nagaland it is about 1:3 and in Tripura 1:2. In Jammu and Kashmir this ratio is approximately 1:1. Dense forest is defined as “all lands with a forest cover of trees with a canopy density of 40% and above” and open forest as “all lands with a forest cover of trees with a canopy density between 10 to 40%” (Forest Survey of India 1998). The high incidence of open forests in some of the Northeastern states could perhaps be due to the practice of shifting cultivation. An analysis of the loss/gain in forest cover in the Northeastern states between the 1995 and 1997 assessments by the Forest Survey of India shows that ,during this period, 1,875 sq.km of forest area, concentrated mainly in the states of Manipur, Nagaland, and Mizoram were lost due to shifting cultivation, while 1,700 sq.km of abandoned shifting cultivation came under forest cover as a result of regeneration (Forest Survey of India 1997, 10). Probably both these areas would have been classified as open forests.

The 1997 assessment of the Forest Survey of India also shows that Darjeeling district had a forest cover of 46.2% of which 75.5% was dense forest and 24.5% open forest.

Thus the state of forests in Darjeeling is quite similar to the state of forests in Sikkim and Uttaranchal in terms of the extent of actual forest cover and the ratio between dense and open forest.

Water

We conclude this examination of natural resources in the Himalayan region of India by taking a look at water resources. Water, like forest, is one of the most important resources in the region. The Himalayas, as is well–known, are home to one of the largest groups of river systems in the world, extending from the Indus system in the west to the Brahmaputra-Barak system in the east, with the Ganges-Yamuna system in the central part. The total volume of water resources contained in these water bodies is truly immense. It has been estimated that the total surface flow of the Ganges basin coming from the Himalayan rivers is about 41 million hectare-metres (including rivers and catchments in Nepal) and of the Brahmaputra-Barak basin at about 60 million hectare-metres out of the total surface flow of 115 million hectare-metres for the entire country (Verghese 1999). This represents a vast potential for irrigation in the plains of north and eastern India. Yet, The benefits of irrigation do not accrue directly to the Himalayan region. On the other hand, the hydropower potential which lies locked up in the Himalayan rivers is also immense and could prove to be a source of great economic gain for the region. This potential has been estimated at almost 3,000 MW in the Yamuna basin in Himachal Pradesh and Uttar Pradesh, about 6,000 MW in the Upper Ganges basin from Hardwar to the glaciers, between 2,000-3,000 MW in Sikkim and North Bengal, about 2,000 MW available to Uttar Pradesh in the Mahakali (which it shares with Nepal), and an immense 40-50,000 MW in the Brahmaputra-Barak basin in the Northeast (Verghese 1999, 186).

There are three main constraints to tapping this vast potential: long gestation period and high capital cost of hydropower projects - problems are compounded by time and cost over-runs, which are all too common; environmental objections; and lack of funds.

The funding constraint has been the most important, although in recent years environmental objections are also acquiring greater credit than ever before. In fact, shortage of funds leading to poor cash flow along with environmental objections have been the main reasons behind time and cost over-runs in projects under construction. To overcome these constraints in order to tap the potential for hydropower in the Himalayan region, a clear policy framework addressing all these dimensions, including the crucial one of environmental concerns, needs to be established. Behind most environmental concerns lies the issue of rehabilitation of people displaced by hydro projects, especially large dams. This issue needs to be addressed with sympathy and concern. Our record in this respect has not been too good. The policy must also address the issue of funding, especially foreign funding, for hydropower development. Any policy to be effective should have clear guidelines and transparent procedures.

5.5 Himalayan Development: The Policy Perspective

National policy on the approach to and strategy of development in the Himalayan region has gradually evolved over the years. In the initial years, especially until the Fifth Five Year Plan (1974-79), the approach to the development of the Himalayan region was no different from the approach to development of the rest of the country. No special problems or development needs of the region were recognised. The Fifth Plan, for the first time, accepted that the development issues, needs, and problems of the hill areas were distinct, necessitating a different set of policies and programmes. This understanding has continued to inform national, and now increasingly state-level, policy perspectives on development of the Himalayan region. In recent years the need to integrate development with environmental concerns has come to be accepted and articulated in policy documents with increasing frequency. This evolution in the approach to the development of Himalayan and other hill areas in the country has been well summarised by the working group constituted for the Eighth Five Year Plan:

"The hill areas of the country are faced with certain peculiar problems inhibiting the process of development. On account of their difficult terrain, variable agro-climatic conditions, distinct sociocultural features, the hill areas have remained backward. The emphasis on the hill area development emerged from growing concern over inter-regional disparities and the disadvantaged hill people. Consequently, the hill areas of the country have been receiving special attention since the Second Five-year Plan. Initially, these consisted of the Himalayan region and, to the extent possible, special allocations were made for them. The quantum of allocation was governed by the needs of the three broad sectors: agriculture, roads and other heads of development. Roads, followed by agricultural programmes, claimed a large share.

"In course of time, it was realised that development of the hilly areas in the country cannot be undertaken in isolation from the adjoining plains, with which their economy is closely interrelated. The hilly areas influence the climate of the plains, (containing) the catchments and the watersheds of several major river systems, which flow to the plains. They abound in forests, plant and mineral wealth as well as hydel energy resource[s]. The experience of development planning during the period before the Fifth Plan has increasingly underlined the realisation that unless adequate programmes are evolved for conservation and proper utilisation of the resources of the hill areas, not only will the problems of these areas continue to remain unsolved, but the economy of the plains may also come to grief. There was, therefore, the paramount need for conceiving an integrated strategy for development of the hill areas based on sound principles of ecology and economics. It was in consideration of this need that[a] special hill area development programme (HADP) was initiated during the Fifth Five Year Plan (1974-79)" (GOI 1992).

Various commissions and working groups constituted by the Government of India and the Planning Commission from time to time to recommend policy measures and programmes for the development of the Himalayas generally concur with the view

that the Indian Himalayan region does not constitute a homogenous region and variations on the basis of terrain, climate, altitude, rainfall, topography, soil conditions, proximity to the plains, and various other factors call for different strategies for different regions, and that the socioeconomic growth, development of infrastructure, and promotion of ecology need to be harmonised. Some of the more important Commissions/Working Groups are noted in the following passages.

- The National Commission on Development of Backward Areas under the Chairmanship of Shri B.S. Sivaraman which devoted one volume of its report to development of backward hill areas
- The Task Force for the Study of Eco-development in the Himalayan region under the chairmanship of Dr. M.S.Swaminathan
- The group for deciding Strategies for Eco-development of the Himalayas, with special reference to the Northwest Himalayas (1987)
- The Expert Group on National Policy for Integrated Development of the Himalayas chaired by Prof. S.Z. Qasim (1993)

A review of the state of policy formulation at the national level related to development of Himalayan and hill areas highlights a few interesting features that merit some comment (Joshi and Shastri 1998). Firstly, it needs to be emphasised that, as yet, no clear policy framework has emerged for integrating environmental concerns with development issues, especially in relation to the Himalayan and hilly areas. The discussion is limited to rhetoric. Various Working Groups, Commissions, and Committees appointed by the Planning Commission to make recommendations on development of hill areas have stressed the urgent need to integrate the two ideas. Many of them have also made useful suggestions to achieve this objective. Unfortunately, the reports of most, if not all, of these bodies have remained on paper and have not been implemented. The reason perhaps could be that the Planning Commission can only suggest and recommend policy in relation to development of hill areas in broad general terms. Its power and clout arise from its control over resources. However, having once provided the resources, the responsibility shifts to the states, which have to provide flesh and blood to the policy and ensure its implementation. The Planning Commission can, at best, prescribe guidelines for implementation of policy and programmes, including ways in which development projects and schemes are to incorporate environmental concerns. There is little evidence that even this has been attempted.

Secondly, the methodology for including environmental costs in cost-benefit analysis has yet not been developed and standardised. This acts as a key constraint in appraising projects while making decisions regarding their funding. This issue is important, because it concerns the manner in which decisions to include or not to include projects in the plan framework are made. A standardised quantitative methodology for incorporating environmental costs and benefits has to be evolved, and then become a regular feature of project appraisal at the Planning Commission level. As long as

environmental concerns continue to be articulated in qualitative and subjective terms, their incorporation into the planning system appears to be unlikely. As the example of the Tehri Dam shows, the absence of a standardised methodology for environmental appraisal can lead to considerable confusion arising out of subjectivity. The inevitable consequence is delay and cost escalation. The Tehri Dam is a particularly good example because ,even after so many years of controversy and discussion, there is little clarity about the environmental parameters for project appraisal.

Thirdly, there has been little effort to involve the state governments, especially those of the Himalayan states, in evolving a policy framework for integrating environmental considerations with development planning and developing suitable methodologies for the same. This is particularly important, as the states are the implementing agencies. Unless they internalise and operationalise the concept, there is little possibility of its coming into practice.

Development policy and practice in the Himalayan region, as indeed in the rest of the country, remain firmly anchored in the dominant paradigm of accelerating economic growth through investment in productive activities and infrastructure. In the Himalayan areas, the people still consider the state to be the principal source of investment in the infrastructure and productive sectors of the economy, as well as in the social sectors. In the field of infrastructural development (roads, power, communications) and social and human development (health, education, women, and child development), in particular, the primacy of state action is widely and unquestionably assumed.

Unfortunately, the capacity of governments to undertake investments in these areas has become severely constrained. Almost all governments, whether at the national or state levels, have been facing a severe resource crunch. A rising fiscal deficit, especially revenue deficit, and an unprecedented increase in establishment costs (salary and pension payments) and public debt have seriously hampered the capacity of state governments to undertake any large investment in the field of development. The prospects for private investment in the Himalayan states also do not appear to be very bright, as opportunities for securing economic returns on investments are rather limited. This leaves foreign investment as the only other option for financing investments in the area of infrastructure and social services. The record of the Himalayan states in attracting foreign investment in these, or any other areas, is not at all encouraging. They have, however, been successful in receiving loans and grants from multilateral and bilateral sources such as the World Bank, European Community, and the Federal Republic of Germany, among others, for specific programmes like watershed management, forestry — especially Joint Forest Management, drinking water supplies, education (District Primary Education Programme), family planning, and so on.

Perhaps one sector that seems to hold some promise of attracting private investment, both foreign and Indian, is hydroelectric power generation. The Himalayan region,

as we have seen, has a huge untapped hydropower potential that can also be a good source of resource generation for these states. By selling energy to energy-deficit states in the northern and eastern parts of the country, they can earn substantial revenues. As pointed out earlier, the main constraints in this respect are environmental objections and the absence of a framework of policies and transparent procedures. Both need to be addressed urgently.

Finally, the Himalayan region in India needs to carry out considerable introspection on the priorities and pathways of development in the current environment of globalisation, liberalisation, and decentralisation, on the one hand, and the rising expectations of the people from the public system and demands for equity and social justice on the other.

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Chapter 6
Sustainable Poverty Alleviation and Mountain Development in Nepal: Status, Experience and Strategy

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6.1 General Overview of the Economy

Physical and demographic features

Nepal stands in sharp contrast to other countries of the Hindu Kush-Himalayan (HKH) region with respect to its geophysical make-up and development potentials, constraints, and priorities. Physically stretching 880 km from east to west and 150-200 km from north to south, Nepal is a small country occupying a land area of about 147,000 sq.km. Despite its size, it is an extremely diverse country covering within its narrow width a wide range of ecological belts: most distinctly, the flat plains of the 'Terai', the slopey terrain of the middle hills, and the snowy peaks of the mountains. Accordingly, the climatic conditions vary greatly, ranging from warm tropical in the south to cold temperate in the north. The religious and linguistic divisions also tend to follow the ecological divisions. The mountain population is dominated by the Tibeto-Burman speaking, largely Buddhist groups, the hill population by the Nepali speaking Hindu groups, and the Terai population by the Indo-Aryan Hindu groups, mainly speaking Maithili and Bhojpuri. Nepali is the national language, but some 35 other languages and dialects are also spoken. The caste and ethnic compositions are of marked diversity; the population is divided into more than 65 different groups based on caste and ethnicity.

Nepal's population is currently projected at close to 23 million. There is no symmetry in the distribution of population and land area across the ecological regions. Population distribution rather follows closely the distribution of cultivated area. The mountain region, lying between 4,877 and 8,848 masl, covers about 35% of Nepal's land area; but a very small portion, about two per cent, of this land is cultivable. Consequently, it was home for only about seven per cent of the country's population in 1991 (CBS 1999). Similarly, the hill region, which starts from an altitude of 610 metres, covers 42% of the land area, and, with one-tenth of its land being cultivable, this region accounted for 46% of the population. In contrast, the Terai region covers the smallest portion (23%) of land area, yet, with nearly half of its land area being suitable for cultivation, this region accounted for the largest proportion (47%) of the country's population in 1991.

The levels of infrastructure and economic opportunities also vary considerably across these regions. While all of the Terai is generally accessible, many parts of the hills and most of the mountains are inaccessible by road. Because of relatively greater accessibility to economic infrastructure and better prospects for agriculture in the Terai, a large number of people from the hilly areas have migrated to this region, especially since the eradication of malaria in the 1960s. Studies indicate that this region also received a considerable inflow of migrants from neighbouring countries, particularly in the 1970s. As a result, the rate of growth in Terai population has been the highest among the three regions, and this trend continued at least until 1991. Between 1981 and 1991, the Terai population grew at an annual rate of 2.75%, while the annual growth rates in population in the mountains and hills were 1.02 and 1.61%, respectively. The annual growth rate in national population during the period was 2.08%.

In 1991, Nepal had a population density of 125.6/km^2 of total land area and 7.9 persons per ha of cultivated land (Sharma and Kayastha 1998). On the total land area basis, the mountain region had the lowest population density (27.8/km^2) while the Terai region had the highest (253.6/ km^2). On the basis of cultivated land, however, the hill region had the highest population density (9.6 persons per ha) followed by the mountain region (8.8 persons per ha), while the Terai region had the lowest (6.6 persons per ha).

Economic background and interdependence

The history of Nepal's planned development efforts dates back almost half-a-century. The country is now in the midst of its Ninth Plan (1997-2002). In the past four decades, some progress has been achieved in infrastructural development. However, the overall pace of economic growth has been slow and far below that experienced by other countries in the region. Real gross domestic product (GDP) growth rate in 1997/98 is estimated at about 2.7% compared with 4.8% in the previous year (Table 6.1).

Nepal is an overwhelmingly rural and agrarian economy. Nearly 85% of its people live in rural areas and earn their livelihood primarily from agriculture and related

Table 6.1: Nepal: key economic indicators 1992/93 - 1997/98

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Nominal GDP at Market Price (NRs* billion)	165.3	191.6	210.0	239.4	269.6	285.7
Share of Agriculture (%)	42.3	42.1	40.7	40.5	40.4	39.4
GDP Growth Rates at 1984/85 Price (%)						
Overall	3.3	7.9	2.9	5.7	4.8	2.7
Agriculture	-0.6	7.6	-0.3	4.4	4.1	1.0
Non-agriculture	6.5	8.1	5.3	6.6	5.2	3.9
Crop Production Growth Rates (%)						
Overall	-4.7	13.3	-4.0	12.4	3.8	-0.8
Food Crops	-7.9	16.8	-7.9	15.4	2.9	-1.5
Cash Crops	3.4	5.3	5.8	5.9	6.1	0.7
National Urban CPI (% change)	8.9	8.9	7.6	8.1	7.8	4.0
Gross Domestic Savings (% of GDP)	13.6	14.7	14.8	13.8	14.0	9.5
Gross Domestic Investment (% of GDP)	23.1	22.4	25.5	27.3	25.3	20.7
Exports (% of GDP)	10.1	9.7	8.0	8.0	8.1	9.3
Imports (% of GDP)	22.9	25.9	29.1	30.0	33.4	29.9

Source: HMG/MoF 1998/99

activities. Although the share of agriculture in the GDP has fallen significantly from 72% in 1975 to less than 40% in 1998, a vast majority of the rural people, in particular women, continue to depend heavily on this sector for income and employment opportunities. Women constitute about 60% of the agricultural labour force, have little access to alternative employment opportunities, and are among the poorest in the country. Overall, agriculture employs more than 80% of the total labour force compared with a meagre four per cent employed by the manufacturing sector. The level of rural unemployment is estimated at 14%, and underemployment at around 40% (HMG/NPC 1998).

Agriculture drives the engine of economic growth in Nepal. However, the growth of this sector has been slow and unstable. Crop production, which dominates agricultural production, has remained largely traditional and subsistence oriented. Similarly, traditional practices and low yielding breeds of animals characterise most of the livestock production, and this is the second- most important activity (and the most important one for poor households) in rural Nepal. Consequently, the annual growth in total agricultural output averaged only three per cent during the Eighth Plan (1992-97), with even negative growth rate in its first and the third year.

* As of the publication of this document the value of the Nepalese rupee to the dollar is 73.15. it has risen from approximately 55 in 1992.

As a result, poverty has been rampant in Nepal. With a per capita income of $222 in 1998/99, Nepal is one of the least developed and poorest countries in the world, both socially and economically. High and sustainable economic growth and poverty reduction have been and will continue to be the main development agenda for Nepal.

In Nepal, poverty and underdevelopment processes are particularly striking in the hilly and mountainous areas that physically cover more than three-quarters of the country. The natural and environmental dispositions of these areas are different from those of the plains. These areas are characterised by inaccessibility, fragility, marginality, diversity, niche, and human adaptation mechanisms, often called 'mountain specificities' (Sharma 1996). Nepal's own experience has suggested that any development intervention that does not take these specificities into account may threaten rather than facilitate the sustainability of the environment and human life in mountainous areas. As such, sustainable development of these areas is often a challenge, and this challenge is increasingly serious for Nepal. The challenge stems partly from the failure of past development policies and programmes to achieve their intended results, and partly from the widely expressed concerns that growing population pressure coupled with lack of growth in economic sectors will accelerate the depletion of natural resources, leading to grave environmental consequences.

In general, the Terai region is better equipped with social and economic infrastructure than the remaining two regions. Most parts of this region are linked to adjoining Indian towns by roads, and the borders are also long and open. Goods and services flow freely between this region and the bordering Indian towns. As a result, the range of income and employment opportunities available in the Terai is wider than in most parts of the hills and mountains. The effect of this high level of integration between the Terai and the huge market across the border has also been that Indian policies have had greater impact on agriculture and prices in the Terai than those of Nepal. From the price policy perspective, Nepal's position is like that of 'a flea on an elephant's back' to such an extent that, regardless of where the flea wants to move, it will ultimately move in the direction in which the elephant moves (Wallace 1990).

Because the greatest agricultural potential and the maximum concentration of people are in the Terai, government development strategies and policies have been traditionally designed to suit the needs of this region. These strategies were devoid of any mountain perspective and contributed to rapid depletion of the natural resource base and decline in livelihood options in mountain regions. This has also had adverse downstream effects in the form of a deteriorating environment for agricultural production, declining productivity levels, and rising frequency in the occurrence of natural disasters in the Terai region. It is becoming increasingly clear that sustainability of the mountain environment is not only a mountain-specific issue, but also a key to the sustainable development of Nepal as a whole. This calls for a development strategy that responds to the mountain specificities and which is designed from a human

perspective. There is evidence that only with such a strategy can development take place and be sustainable locally.

Objectives and organisation of the paper

The objectives of this paper are to review the status, experience, and trends in Nepal's economic development and poverty alleviation and suggest possible strategies and institutional options for improving the situation. The paper is organised as follows. After this introductory section, the current status of natural resources and past trends in their depletion are examined in the next section. Section 3 presents the trends in agricultural productivity, food security, and poverty in Nepal. An overview of poverty alleviation efforts by past governments is presented in Section 4. The fifth section outlines the poverty alleviation strategies and policies adopted by the Government at present. Section 6 discusses the emerging challenges, opportunities, and institutional options for rapid economic growth and poverty alleviation. Finally, the emerging strategy and policy imperatives for sustainable mountain development and poverty alleviation in Nepal are discussed in the seventh section based on the lessons learned from successful cases of development.

6.2 Status and Trends in Natural Resource Management

Land and water are the primary natural resources of Nepal. The land, which is used for different purposes – for example, farming, forests, shrubs, and pastures – has been the most abused of all natural resources. This has happened mainly because agriculture remains the main source of livelihood in rural Nepal, and, therefore, land is the most important source of subsistence and, hence, the most preferred asset. The intensive cultivation of land, especially in the mountainous regions, has led to different types of environmental hazard: deforestation and soil erosion being among them. Nepal is rich in water resources, but the profitable use of water has been far below the potential level. Some mineral reserves have been identified, but these are also unexplored for potential economic use. There are concerns that air pollution and water pollution have risen to serious levels, but such problems are largely confined to a few and the most populous cities. A more detailed discussion of Nepal's position with respect to its natural resources follows.

Land

Nearly 21% of Nepal's total land area of 14.7 million hectares is cultivated, and an additional six per cent of this is classified as cultivable (HMG/EPC 1993). Forests, shrubs, pastures, and others account for the rest. Of the total cultivated land, 60% is classified as wet land and the remaining 40% as dry land. The cultivated land is divided into 2.7 million holdings, with each holding averaging 0.94 ha in size. The average holding is further fragmented into an average of four parcels. As such, farming in Nepal is typically characterised by small and highly fragmented holdings, with low economies of scale in production. Nonetheless, further fragmentation is bound

to occur over time under the existing legal framework which protects the right of sons to inherit the land owned by their fathers.

About 15% of the holdings, comprising about nine per cent of the cultivated land, are farmed by tenants. The owners themselves cultivate the rest. Of the tenanted land, genuine tenants operate about one per cent, while households who also own some land of their own operate the rest. Share tenancy is the most common contractual arrangement in either case. More than one-quarter of the households in the Terai region are landless and fall into the landless category. In contrast, almost every mountain household owns some land and landlessness is uncommon. Hence, poor households in the mountainous regions are primarily those households that either have insufficient land to produce crops or no access to market to sell surplus.

With the growing population pressure on existing land, more and more marginal lands, including steep slopes, have been brought under cultivation over time, causing severe environmental consequences. It is estimated that some 240 million cubic metres of topsoil are lost every year from Nepal. The loss of topsoil means the loss of soil nutrients, and this further means a decline in native soil fertility level. Eventually, this means that increasingly large amounts of nutrients will need to be applied to replenish the soil and retain the previous levels of crop productivity. Declining crop productivity forces a household to expand cultivation to new lands, including the more marginal, slopey wastelands, in order to produce enough food. This leads to repetition of a vicious cycle – declining productivity, rising poverty, and growing food insecurity. The mountain people are often the greatest victims of this.

Forests

The massive depletion and degradation of forest resources have been a matter of most serious concern in Nepal. Nepal's forest area, which was 45% in 1964, declined to 37% in 1986 and further to 29% in 1998. However, the rapid loss of forests is attributable not only to the increased pressure on existing farmland, but to increased demand for forest resources.

In Nepal, forests support human and animal life and agriculture in several ways. For example, forests supply firewood on which more than three-quarters of all Nepali households depend for their daily energy requirements, for cooking for example. The proportion of such households is even greater in mountain regions, from 91 to 100%.

Forests also supply timber, fodder, grasses, leaf litter, and many other products that are necessary for daily household use and agricultural production. They also provide raw materials for wood-based industries and promote tourism: an important source of foreign exchange. Hence, the massive decline in forest quality and area has had many adverse impacts on human and animal life and agriculture in Nepal. Some 58 species of animals are already endangered (HMG/NPC 1998). The frequency of floods and landslides has also been reportedly rising over the years. For example, 71

of the 75 districts in the country were affected by such natural disasters in 1996 compared to 49 districts affected in 1994 (Mishra and Kayastha 1999).

Water resources

Nepal has a great potential for developing water resources, but this potential remains largely underdeveloped. The country possesses about 2.27% of the world's water resources. It is reported that Nepal's annual renewable water potential is 232 billion cubic metres, but less than eight per cent (17 billion cubic metres) is exploited.

Similarly, the country's total hydropower potential has been estimated at 83,000 MW, of which production of 25,000 MW is considered financially feasible; but the actual production at present is only 254 MW or 0.3% of the total potential. This has served only about 14% of the total population, mainly located in cities. The cost of power generation has been high, and leakage has also been high. More than one-quarter of the power supply goes on leakages. This and the high operation and maintenance costs have resulted in frequent increases in electricity tariffs. Between 1991/96 and 1996/97, the electricity tariff for domestic consumers increased by 180%, from NRs 1.78 per unit to NRs 4.99 per unit. Thus, the efficiency of the power sector is questionable.

More importantly, Nepal has not been able to make proper use of its water resource potential for expanding irrigation and drinking water facilities. Only about one-third of the potential agricultural land and about 40% of the cultivated land receive some form of irrigation. Year-round irrigation facilities remain limited. Many potential irrigation schemes are yet to be developed, and most of the completed ones suffer from lack of proper operation and maintenance. As a result, water supplies are unreliable.

The drinking water situation in Nepal is no different either. Official estimates suggest that 61% of the population have access to drinking water facilities, and about one-fifth of the population to sanitation facilities. However, these figures are likely to be overestimated and the actual size of the population having access to such facilities is probably much smaller, both qualitatively and quantitatively. This is indicated, for example, by the fact that the number of households actually served by the Nepal Drinking Water Corporation in the cities, including Kathmandu, is less than claimed. With respect to the timeliness, quantity, and quality of water supplied, effective coverage is limited and the quality of services delivered highly questionable.

The main problem in Nepal is not lack of natural resources, but the inability to manage these resources in an efficient manner. The current poor management of natural resources has stemmed from several factors, including political, administrative, and institutional factors. For example, many irrigation and power sector projects in the past suffered from weak design, delayed implementation, and poor operation and maintenance. All these factors raised their costs and adversely affected the pace of development in these sectors. In general, development projects in Nepal have

suffered from inherent institutional deficiencies, lack of transparency and accountability, and inadequate political commitment. The overall consequences have been far reaching; and these include poor performance in agriculture and rising food insecurity and poverty in Nepal.

6.3 Trends in Agriculture, Food Security and Poverty

Trends in agriculture

Nepal is an overwhelmingly agrarian economy, with agriculture employing over 80% of the labour force and generating nearly 40% of the gross domestic product. Within agriculture, crops, livestock, and horticulture dominate the sector activities and contribute, respectively, 46%, 32%, and 14% of the agricultural GDP. Cereals (rice, maize, wheat, barley, and millet) account for nearly 90% of the cropped area (excluding vegetables, fruit, and pulses) and 56% of all agricultural production (excluding livestock and fisheries) in quantitative terms. Small and marginalised farmers operate nearly 90% of the 2.7 million agricultural holdings.

Agriculture not only drives the engine of growth, but also holds the main key to alleviation of poverty, which is pervasive and widespread. However, the growth of this sector has remained, at best, slow and unstable during the past three decades; decades which mark the period of the Green Revolution. While many countries in Asia, including south Asia, were experiencing rapid gains in agricultural productivity during the period, Nepal was most of the time struggling to maintain its previous productivity levels. Consequently, Nepal's crop yields, which were the highest among the south Asian countries from 1961-63, have now become the lowest in the region.

Between 1961-63 and 1991-93, the overall annual growth rate in yields of major crops in Nepal was actually negative (-0.07%), while it was 2.71% in India and 1.59% in Bangladesh (HMG/NPC 1995). During this period, Nepal's rice and wheat yields grew annually at the rate of 0.54 and 0.29 per cen, respectively. In contrast, the corresponding growth rates in India were 1.92 and 3.46% and, in Bangladesh, 1.55 and 3.59% respectively. Total production of cereals in Nepal increased considerably during the period. However, this was largely due to an increase in the area under food crops, rather than due to an increase in their yields, as has been the case in other countries in the region. As shown in Figure 6.1, the trends in yields of major food crops during 1974/75-1997/98 are truly disappointing. Not only have the yields remained low due to poor growth rates, their annual fluctuations have been wide and persistent.

Among the three ecological regions, the yields are lower in the hills than in the Terai and lowest in the mountain region. Table 6.2 shows the three-year average yields of major crops covering two periods – 1988-90 and 1996-98. In most cases, the yields have either declined or remained more or less stagnant between the two periods.

Figure 6.1: Trends in yields of major food crops, 1974/75 - 197-98

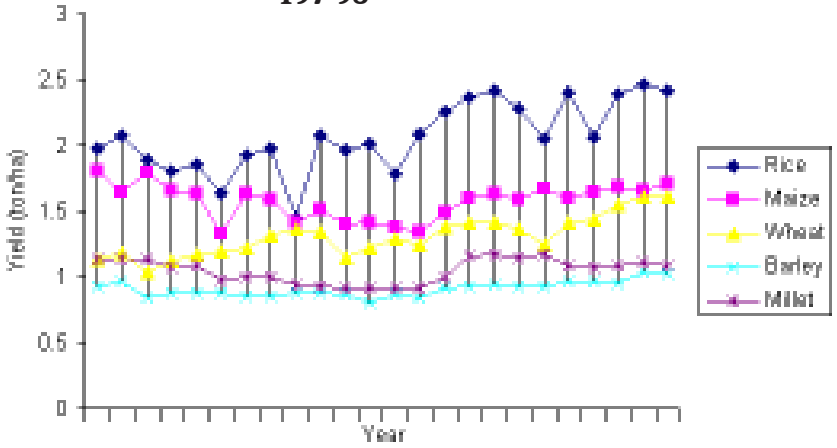


Table 6.2: Yields of major crops by ecological region, 1988-90 and 1996-98

(Average yield in tonnes/ha)

Crop	Mountain Region		Hill Region		Terai Region	
	1988-90	1996-98	1988-90	1996-98	1988-90	1996-98
Paddy	1.97	1.93	2.25	2.24	2.35	2.07
Wheat	1.04	1.18	1.22	1.52	1.30	1.64
Maize	1.40	1.59	1.49	1.62	1.72	1.90
Millet	1.03	0.92	1.10	0.87	1.29	1.01
Barley	1.16	0.99	0.92	0.97	1.02	0.89

Source: CBS (1999)

A number of factors may be associated with the poor growth of agriculture. Most of the agricultural production occurs in rainfed conditions and is subject to substantial risk from the vagaries of the weather. The risky production environment reduces the profitability of investment in farm inputs, particularly fertilisers. Moreover, farmers often lack the capacity to finance such inputs, and external financing is not easily available. Partly because of these factors and partly because of institutional problems leading to unreliability in terms of fertiliser supplies, the rate of fertiliser application to crops has been very low, except in a few pockets and for a few commodities. There are concerns also that agricultural research has not been responsive to farmers' needs and preferences with respect to the type of technologies suitable to their production environments; and, in addition, the extension system is weak and marketing opportunities for farm products are limited. Thus, the main causes of poor agricultural

development are inadequate supplies of key inputs, poor irrigation facilities, a weak extension and research system, and lack of marketing infrastructure and networks (DANIDA 1995).

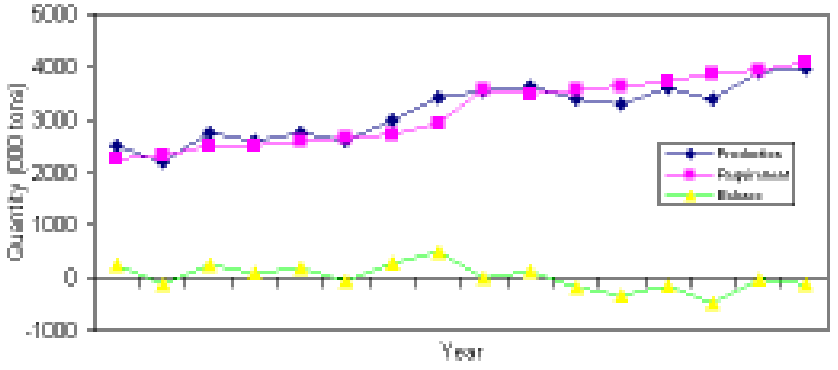
Trends in food security

The poor growth of productivity of food crops has had an adverse impact on food security in Nepal. Over the years, as further expansion in the area under agriculture has become increasingly less feasible, the growth rate in cereal production has fallen short of the population growth rate, resulting in reduced per capita food grain availability. From 1980/81-1990/91, cereal production increased annually at the rate of 2.30%, while the population increased at the rate of 2.50%. Consequently, the per capita cereal production declined at the rate of 0.2% per annum (HMG/NPC 1994). The net effect of all this has been that Nepal has gradually shifted from being a net exporter to being a modest importer of cereals.

Figure 6.2 shows the trends in domestic cereal production, requirements, and balance from 1981/82 –1996/97. The gap between domestic cereal production and requirement is rising, albeit in an irregular manner, indicating a worsening trend in terms of food self-sufficiency and a growing need to import food.

The effect of poor growth in the agricultural sector, therefore, will not only worsen the food security situation, but also adversely affect the employment and income of the rural people, including the poor. The extent to which Nepal will be able to reduce its poverty level will depend to a great extent on its ability to promote agricultural growth. However, during the last decade, not only has the real growth rate in cereal production (net of population growth rate) declined, the overall agricultural growth rate has been low and extremely unstable. This obviously means a rising level of rural poverty in Nepal.

Figure 6.2: Trends in domestic cereal production, requirement and balance, 1981/82-1996/97



Trends in poverty

The official estimate of poverty provided by the Nepal Living Standards' Survey (NLSS) carried out by the Central Bureau of Statistics during 1994-95 places 42% of the population below the poverty line. In urban areas, the percentage of population below the poverty line was estimated at 23% compared to 44% in the rural areas (HMG/NPC 1998). One quarter of the Nepalese population has been identified as poor and 17% as the hard core poor. As shown in Table 6.3, the mountain regions have the highest poverty level of 56%. This region has also the highest proportion of poor (29.3%) and hard core poor (26.7%). Thus, the incidence of poverty is higher in rural than in urban areas and particularly extreme in the more remote parts of rural areas.

Table 6.3: Incidence of poverty by region

	Percentage of Population below Poverty Line		
Region	Total	Poor	Ultra-poor
Mountains	56.0	29.3	26.7
Hills	41.4	21.3	19.7
Terai	42.0	28.7	13.3
Urban Nepal	23.0	13.2	9.8
Rural Nepal	44.0	26.4	17.6
Nepal	42.0	24.9	17.1

Source: HMG/NPC (1997 - 2002)

The extent of poverty in Nepal is much higher when an international comparison is made. The NLSS estimated an average annual per capita consumption of NRs 6,802 (about $130) for the whole country. About 53% of the population consumed less than one dollar per day, while those consuming less than one-and-a-half dollars per day comprised 76% (World Bank 1997). The social indicators of development, including the gender gap, also present a very gloomy picture. Illiteracy, lack of adequate health and sanitation services, malnutrition, and illness are some of the common features of rural Nepal, especially in the remote areas. In general, women and children are more deprived of basic services than men. The overall living conditions of a vast majority of the rural population are abysmal and harsh.

Estimates of poverty levels over time are not directly comparable due to differences in methodologies used. As such, the trends in poverty levels cannot be assessed precisely. However, when the nutrition-based poverty line criterion is applied to the data generated over the years, there is more or less a clear trend of rising poverty, particularly in the rural areas of the country. As shown in Table 6.4, the percentage of rural population living below the poverty line appears to have risen from 37.2% in 1977 to 43.1% in 1985 and further to 47.0% in 1996. Careful observation and informed judgement also support the assessment that the poverty trend in Nepal is nowhere on the decline. Obviously, the situation is extremely frustrating and discouraging to all concerned with Nepal's poverty and underdevelopment.

Table 6.4: Nepal: trends in poverty incidence*

Source	Survey Year	Rural Nepal	Urban Nepal	Overall Nepal
Survey of Income, consumption and employment conducted by NPC	1977	37.2	17.0	36.2
Multipurpose Household Budget Survey conducted by NRB	1985	43.1	19.2	42.6
The Eighth Plan (1992-97) document prepared by NPC	1992	-	-	49.2
Monitoring micro Impact of macro policies conducted by APROSC	1992	-	-	49.0
Nepal Living Standards Survey conducted by CBS	1996	47.0	23.0	45.0

Source: Guru-Gharana, 1997.

* Based on the percentage of population below poverty line income which was estimated on the basis of the minimum calorie consumption requirement defined by the National Planning Commission.

6.4 Overview of Past Poverty Alleviation Efforts

Given that a vast majority of the Nepalese population make a living from agriculture, the poor growth of this sector appears to be the main cause of the growing incidence of poverty and food insecurity in the country. Past efforts to promote agricultural growth have not met with success. The success of other poverty alleviation policies and programmes has not been significant either. Poverty alleviation has been and will continue to be an overarching development goal for Nepal. A more detailed assessment of the various types of poverty alleviation efforts and their general impact follows.

Nepal has implemented different types of poverty alleviation programmes over the past two decades. Prominent among them are the integrated rural development programmes, targeted credit programmes, and food subsidy and transfer programmes. However, the overall impact of these programmes has been limited and their effectiveness questionable insofar as their outreach to the poor is concerned.

The integrated rural development programmes, which were supported by many donors, were for the most part unsuccessful with respect to poverty reduction. Not only were these programmes costly, they were also heavily top-down. The implementing agencies hardly felt the need to involve the poor themselves, let alone ensure their ownership of them. Similarly, the subsidised food distributed through the Nepal Food Corporation (NFC) did not benefit the poor. Rather, most of it went to better-off consumers in Kathmandu and to the army and civil servants in remote districts.

In the past two decades, the Government has implemented a number of targeted credit programmes with the goal of poverty reduction. These include the Small Farmers' Development Programme (SFDP), Intensive Banking Programme (IBP),

Production Credit for Rural Women (PCRW), Micro-credit Project for Women (MCPW), Rural Self-reliance Fund (RSRF), and others in more recent years. The impact of these programmes has been, at best, unclear. In many of these programmes, important linkages are missing (Upadhyaya 1999a). Their designs do not match their goals, and their implementation procedures do not follow their designs. For example, the prominent goal of SFDP, which has been a major poverty alleviation programme of the Government, is to provide financial services to poor farmers and landless households with no collateral to offer on a group-guarantee basis. However, it has ever since designed its credit policy in a manner that requires double collateral. That is, it requires both physical collateral and group guarantees from its borrowers. Similarly, the programme was designed to help its group in a particular area to develop into a sustainable community-based financial institution and to eventually phase out from that area. However, the process has only begun recently after more than two decades of implementation. Of course, other factors, such as those mentioned earlier, that are applicable to all development programmes also apply to targeted credit programmes.

Several policy measures have been adopted in the past to promote agricultural development and, thereby, reduce rural poverty. Some of these include: emphasis on research and extension, increased public spending on irrigation development, price support and input subsidies, increased public spending on education, development of rural infrastructure, and expansion of rural credit facilities.

Agricultural research has generally failed to develop technologies that respond to the needs and problems of the farmers, especially those of poor farmers (Upadhyaya 1999b). Even the available technologies, which are mostly applicable to irrigated conditions, have not reached the farmers, resulting in a low adoption rate at farm level. Public spending on irrigation development has seriously suffered from lack of farmer participation, poor operation and maintenance, and weak coordination among line departments. Moreover, the lands owned and cultivated by the poorer households, especially in the hilly areas, are of generally inferior quality, with low native productivity levels and limited potential for irrigation development.

Similarly, agricultural price support policies have been poorly designed and ineffectively enforced, failing to achieve their intended objectives. Support prices were generally announced at harvest time rather than at planting time and, therefore, the policy has hardly had any impact on farmers' decisions about crop types or inputs to be applied to them and to what degree. Moreover, due to the open border with India and also due to the limited capacity of Nepal Food Corporation (NFC) to procure cereals, the price support policy had no significant impact on market prices. Irrigation and fertiliser subsidies have only increased pressure on the limited, government financial resources and caused supply constraints. Poor farmers hardly use fertilisers.

Increased spending on education has not benefited the poor either. Large amounts of public expenditure on education have gone for higher education to which the poor

have the least access. Similarly, development of physical infrastructure has taken place over the years, but this has mostly been concentrated on relatively accessible and politically influential areas; the more remote areas, where the inhabitants are mostly poor, have received a negligible share of public expenditure.

There are indications that subsidised credit facilities have not reached the poor, as they have had little access to formal sector credit facilities. According to the results of the Nepal Rural Credit Review Study, only about 20% of all rural borrowers, which included very few poor, had access to formal financial sources in 1991-92. Thus, a vast majority of the rural poor continue to depend on various informal sources to meet their credit needs. Requirements for collateral, rigid and cumbersome delivery procedures, and high transaction costs appear to have been the major constraints facing the poor in gaining access to institutional credit. As such, the poor do not benefit from the interest subsidies, as they borrow mostly from informal sources.

The negligible results achieved by the various poverty alleviation programmes of the government have raised doubts as to the appropriateness of the design and the seriousness with which these programmes are implemented. Among the common features of these programmes are (i) a partial approach, with a singular focus on credit supply, (ii) lack of clear links between poverty reduction and programme components, (iii) inadequate targeting and participation of the poor, and (iv) non-responsiveness to the felt needs of the poor. These features along with the inherent institutional deficiencies of the implementing institutions rendered most of the programmes ineffective. The programmes proved costly and unsustainable at the local level, and the implementation process appeared largely external and supply-driven.

6.5 Present Government Policies and Strategies

Shift in policy paradigm

The re-establishment of democracy in 1990 led to the emergence of a new development paradigm in Nepal. The new paradigm has provided more space and opportunity for all segments of the society to participate in development. The expressed intentions of the Government have been to play a facilitating role rather than the controlling role which was the case earlier. Decentralisation, deregulation, and local self-governance are considered to be the pillars and foundation blocks for new development strategies. Emphasis has been placed on development strategies that promote a broad-based, balanced and sustainable growth of the economy. Most important of all, poverty reduction has been highlighted as the main development goal of the governments in office since then.

The Government implemented the Eighth Plan (1992-97) with three main objectives – sustainable economic growth, poverty alleviation, and reduction in regional disparities. The growth objective was to be achieved largely through private sector involvement and people's participation at local level. The poverty reduction objective

was to be achieved through a number of different programmes promoting substantial and sustainable economic growth. Intensification and diversification of agriculture were among priorities emphasised by the Plan. Despite the enthusiasm and expressed commitment of the Government, many of the priority programmes failed to receive the necessary policy and institutional support and resources from the Government, and the progress of the Eighth Plan as a whole was below target in most sectors (HMG/NPC 1998).

The agricultural perspective plan (APP)

The fact that agriculture continues to determine the pace of economic development in Nepal has been well understood by the Government. Accordingly, the Government adopted a long-term Agricultural Perspective Plan (APP) in 1995 as an agriculture-led growth strategy for poverty reduction and overall economic development. The goal of the APP is to double the agricultural growth rate from 2.5 to 5% and to reduce the poverty level from 49 to 14% over a period of 20 years (HMG/NPC 1995). In view of the past constraints and future potential for growth, the APP focuses on four priority inputs – fertiliser, irrigation, farm roads and electricity, and technology.

The APP has adopted different strategies for the Terai and the hills and mountain regions. The Terai strategy takes into consideration the vast potential for irrigation development and growth of cereal production in this region. The perspective plan expects to double the irrigated area in the Terai from 43% at present to 86% by the end of the plan period. The area under year-round surface irrigation is expected to increase by more than 50% and that under groundwater irrigation almost sixfold. An increase in area under well-controlled irrigation together with increased use of modern technologies and fertilisers and improved rural infrastructure are expected to boost cereal production in this region. It is expected that the agricultural research and extension systems will be strengthened, the level of fertiliser use will increase from 35 kg/ha in 1994/95 to 152 kg/ha by 2014/15, and the rate of road construction during this period will almost double to 515 km/year.

The strategy for the hill and mountain regions takes into consideration the natural comparative advantages of these regions to produce a range of high-value, low-volume commodities. The strategy for these regions is demand-driven and complementary to the Terai strategy. The increased incomes from the Terai strategy will raise demands, and thus the market, for the high-value commodities produced in these regions, and this in turn will increase demand for the cereals produced in the Terai region. The hill and mountain strategy also requires an improved research and extension system, rural road networks, and fertiliser supplies to achieve its goal.

To achieve its goals of growth and poverty reduction, the APP has identified livestock, high-value crops, agribusiness, and forestry as its priority output sectors. Cereal production will be concentrated in the Terai. Emphasis will be on increasing the productivity levels through an improved supply of the priority inputs mentioned above. The main challenge is to promote a sustainable farming system in the

mountainous regions, and this will require maintenance of biological and ecological integrity of natural resources and promotion of high-value agricultural production and off-farm employment activities to increase household incomes.

The ninth plan (1997-2002)

The APP has provided the basis for adopting a long-term vision for poverty reduction in Nepal. The Ninth Plan of the Government, being implemented now, is built on the APP and has poverty reduction as the singlemost important goal to be achieved over the next 20 years (HMG/NPC 1998). The overall strategies proposed by the Ninth Plan include integrated development of the agricultural and forestry sectors, reduction in economic and social disparities among communities and regions, empowering local bodies and cooperatives for sustainable development of different economic sectors, and expanding social and economic services to the backward communities and regions.

The Ninth Plan aims to bring down the poverty incidence by 10% – from 42% at present to 32% in 2002. High and sustainable growth of agriculture through effective implementation of the APP is considered to be a key to achieving this goal. In addition, emphasis has been placed on developing the physical, social, and economic infrastructure in remote regions and on raising the socioeconomic status of backward and downtrodden communities. More importantly, the Plan has stressed the need to direct all sectoral development activities towards the single purpose of poverty alleviation.

A number of poverty-focused sectoral and targeted programmes are to be implemented during the Ninth Plan period. The sectoral programmes include high-value agricultural production, promotion of agro-industries, rural employment generation, and expansion of primary health care, drinking water, education, and family planning services for the rural poor. The targeted programmes are focused on (i) very backward and remote areas, (ii) deprived, ethnic and downtrodden groups, (iii) landless rural families, (iv) small farmers, (v) specific groups, such as the Kamaiya (bonded labourers), and (vi) urban poor and unemployed groups. Social mobilisation is the basic approach considered for developing these target groups.

The APP and the Ninth Plan are the main policy documents of the Government. They both reflect the urgency felt by the Government about bringing about high and sustainable economic growth and reducing poverty levels in the country. However, a number of factors relating to the existing capacity and commitment of the Government raise doubts as to whether the activities planned will be implemented in a timely manner and the targeted goal of poverty reduction achieved. More specifically, there are concerns that the Government has remained crippled by its inefficient bureaucracy, non-transparent institutions, and lack of accountability. As a result, the policies do not match the procedures. The associated challenges and issues appear to be far too serious for the Government alone to meet. There are opportunities for development, but it will be prohibitively costly for the Government alone to deliver the required

social and technical services to use these opportunities. Thus, there is need to take stock of the emerging institutional options and use additional channels of service delivery for this.

6.6 Emerging Challenges and Institutional Options

Emerging challenges and issues

In the widest sense, the most serious challenge presently facing Nepal is to achieve high and sustainable economic growth and reduce poverty and food insecurity. Poverty has many different dimensions – for example, economic, social, political, environmental, and psychological dimensions. Economic poverty, however, appears to constitute the core of the poverty problem. Economic poverty can have several manifestations, and each of these can contribute to aggravation and generation of other forms of poverty. Increased food insecurity and social instability and insurgency may be among these manifestations. There are also clear signs of these becoming prominent in Nepal. Hence, persistence of high levels of economic poverty may lead to a complex gamut of problems, eventually threatening the sustainability of human life.

Sustainability of the mountain ecosystem has been a major challenge facing the entire Hindu Kush Region, and Nepal cannot be an exception. Rather, given the extent of poverty and underdevelopment in the country, in general, and in mountainous regions in particular, Nepal appears to be in the most vulnerable position in this respect. Due to the difficult topography and poor physical and economic infrastructures, the range of livelihood options is limited in these areas. Subsistence farming is the singlemost important economic activity, but this is becoming increasingly unprofitable and taxing to the environment. Government resources are limited, as is its capacity to efficiently allocate the scarce resources for the sustainable development of these areas. Given their ecological make-up, mountainous areas do possess some distinct development opportunities within the farm sector, but provision of the social and technical services needed to enable people to use these opportunities is severely constrained by many factors. The key element, however, is that, in those areas, there is a need to shift from the traditional subsistence approach to farming to one that involves promotion of low-volume high-value commodities based on local comparative advantages.

The ecological diversity existing in Nepal provides farmers with a unique opportunity to produce a wide range of high-value agricultural commodities, such as off-season vegetables and fruits, and to generate high incomes even from limited areas of farmland. However, commercial production of these commodities – which is generally suitable for hilly and mountainous areas – is limited because of, among other things, lack of technical knowledge among farmers, inadequate market information and infrastructure, and a subsistence orientation to farming.

Given that vast majorities of people, including the poor, depend on agriculture for their livelihood, poverty reduction in Nepal will not be possible without substantial

and sustainable growth in this sector. Agriculture must emerge as a profitable enterprise and it must respond to the market and to the needs of the processing sector; meaning it must grow commercially. However, several factors – including the socioeconomic, institutional, physical, and political factors – have presently constrained the commercial growth of agriculture in Nepal. Among these, the following factors have appeared to be particularly limiting.

- Production is traditional and subsistence oriented, and thus it is characterised by low economies of scale.
- Supply of modern production inputs and technologies is irregular and unreliable, and this leads to low productivity and returns from limited lands.
- Markets for the products are distant and cannot be accessed by individual farmers within affordable cost limitations.
- Farmers lack adequate cash flows to finance investment in agricultural production, and external financing is not readily available.
- The costs of technical and financial service delivery at the level of individual farmers are usually high, and the weak institutional capacity of the line agencies involved raises these costs to prohibitively high levels.
- Farmers lack an organised forum to initiate collective efforts to plan and manage development and to establish effective linkages with external agencies.
- The poor people often lack knowledge of their entitlements and possess limited capacity and strength to demand better service delivery.

The above factors point to the need for organising farmers in a manner that enables them to achieve economies of scale in production, access to distant markets, and to receive development services and inputs more effectively and efficiently. This typically involves a framework that draws on people's initiatives and on their local development potentials and priorities. The framework should place people rather than programmes on centre stage. Such a framework will require service delivery through institutions that are introduced and managed by the people themselves at the local level. Understandably, it is outside the purview of government institutions to adopt such a framework. But this should not be a constraint in itself, as new institutional options have been emerging in recent years.

Emerging institutional options

Following democratisation and economic liberalisation, there has been a significant shift in the approach to development in Nepal – from the previous centralised, top-down approach to a more participatory and bottom-up approach — in recent years. Efforts have been made to create more of an enabling environment, through new legislation and policies, so that people can organise themselves and plan and manage their own development. As a result, in the past few years, many different types of formal and informal organisations have emerged in the country.

In the more commonly practised typology, these organisations are categorised as non-government organisations (NGOs), cooperatives, and many other types of community-based organisations engaged in specific economic sectors (e.g., forestry, dairy farming, and savings and credit). The latter types of organisation are typically those that are owned and managed by the people locally. As such, they can provide the type of institutional framework discussed above to promote and sustain local development. The past few years' experience with cooperatives, savings and credit organisations (SCOs), and forest user groups (FUGs) in different parts of Nepal provides ample support for this view.

Cooperatives can provide an effective institutional framework to promote and sustain development at the local level. NGOs are an efficient means of providing the social and technical services required to develop and strengthen such cooperatives. More specifically, NGOs can contribute to sustainable poverty reduction by enabling farmers to undertake commercial production of high-value agricultural commodities and to organise themselves into cooperatives (Case I).

It is understood that Nepal does not have a successful history of cooperative movements. The cooperative movement introduced in the late 1950s, which rapidly gained momentum in the sixties and seventies, mostly failed to achieve its objectives. The cooperatives that emerged in the process did not provide the above type of institutional framework for local development. However, this was because political interests had led the movement and the process of cooperative development was entirely external to the community. Under the legal, regulatory, and policy environment that prevailed at the time, the cooperatives were neither organised by local initiatives nor managed by local people. Failure of the cooperative movement in the past is a case of an improper approach to cooperative development rather than a case of failure of cooperative principles. In fact, a careful review of development problems and prospects in the country would suggest that cooperatives are probably the only institutional mechanism for poverty reduction presently available to Nepal.

Informal sources have traditionally been a predominant source of finance, especially in rural areas. These sources include both individuals and groups; and the former mainly includes moneylenders, landlords, traders, friends, and relatives. However, in recent years, hundreds of different types of community-based savings and credit organisations (SCOs) have emerged in different parts of the country. A vast majority of them are still informal. These SCOs are owned and managed locally by their own members in a participatory and democratic manner. The greatest strength of these SCOs lies in their ability to mobilise savings locally and to meet the small credit needs of the rural people more efficiently and effectively than banks or the targeted credit programmes (Case II).

The trend in forest degradation from the sixties through to the eighties was so severe that some studies had even depicted a 'doomesday scenario' for Nepal around this time. However, not only did that not happen to be a reality, but the past trend also

Case I. NGOs can efficiently promote and cooperatives can effectively sustain high-value agricultural production as an approach to reduction of rural poverty

The case presented here is of the off-season vegetable production programme implemented by the Centre for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED) – a Nepali national NGO – during 1992-94 along the Dharan-Basantpur Highway in Dhankuta district of eastern Nepal. The general approach adopted by CEAPRED for this involved (i) organisation of small and marginalised farmers, especially women, into groups, (ii) introduction of monthly savings' schemes within the groups, (iii) provision of on-site training on different aspects of production and marketing, (iv) provision of training and exposure trips for improved market access, (v) consolidation of these groups into cooperatives, and (vi) strengthening of cooperatives through various training and observation tours. The results have been remarkable with respect to a rapid increase in farm incomes and sustainability of the impact through the cooperatives without any external assistance.

The above programme involved 1,300 small and marginal farm households located within 2-3 hours' walking distance along the highway. The participating farmers, who were mostly women, were organised into 85 production groups, and provided with a series of different types of production and marketing training and exposure visits. Alongside the production activities, the groups were encouraged to mobilise regular savings. During the two-year project period, the farmers marketed over 5,000 tonnes of different vegetables worth NRs[6] 25.7 million (Table 6.5). Major markets for the vegetables were the bordering towns of the Indian States of Uttar Pradesh and West Bengal. The average vegetable cultivation area per household increased sharply, as did the quantity of vegetables consumed by them, suggesting a positive nutritional impact of the project. Similarly, the average household income from vegetables increased from NRs 2,480 before the project to NRs12,850 at the end of the first year and further to NRs 19,150 at the end of the second year of the project. The overall impact on food security, measured by the ability of the households to save after meeting the domestic consumption requirements, was also significant and positive (Table 6.6). By the end of the second year, eight farmer cooperatives were registered from the production groups. Six of these cooperatives had procured a truck of their own to transport the vegetables. The cooperatives were provided with basic training on financial record keeping and management.

The project was phased out in 1994. Since then the cooperatives have been managing the production and marketing activities; and over the past 5 years of their management, there has been a significant increase in the area, production and consumption of vegetables. It is learned from the Sindhuwa cooperative that the quantity of fresh vegetables marketed per day during peak season, which was up to 20 tonnes in 1994, has now reached 60-80 tonnes. Likewise, both the vegetable area and average household income have increased several fold, suggesting that the cooperatives have not only sustained but also scaled up the activities.

[6] Currently there are 73.70 Nepali rupees to one US dollar.

Case II. Community-based savings and credit organisations (SCOs) are more effective and efficient providers of financial services to the rural poor than banks or the targeted credit programmes of the Government

In 1994, a study estimated the number of SCOs in the country to be more than 12,158. With an average membership of 66 persons, the average deposits and share capital mobilised by these SCOs were NRs 58,076 and NRs 28,115, respectively (CECI 1996). Similarly, their average loans outstanding and cumulative disbursement were NRs 82,064 and NRs 222,870. If these average figures were applied to the estimated total number of SCOs, the total deposits and share capital mobilised by these SCOs in about 4 years' time would amount to NRs 706 million and NRs 342 million, respectively. Similarly, their outstanding and cumulative loans would have been estimated at NRs 997 million and NRs 2,709 million, respectively, and the total members served by these SCOs would have numbered 802,428. These figures compare well with the cumulative disbursement and rural outreach achieved by the Small Farmers' Development Programme (SFDP) in the past two decades.

These figures suggest a remarkably high potential of the SCOs for mobilising savings locally and responding to the small credit needs of a large number of members. Particularly striking is the amount of cumulative disbursement of NRs2.7 billion these SCOs appeared to have achieved in 4 years. This might have been possible because of the fact that their loans were for a short period – usually for a few months – and, therefore, the turnover from their resources was high

Table 6.5: Quantity and value of fresh vegetables marketed during the second year of the project

Vegetable	Quantity (metric tonnes)	Value (NRs)
Cauliflower	397.8	4,773,884
Cabbage	2587.9	10,997,752
Radish	1612.2	4,515,485
Green Pea	239.0	3,209,567
French Bean	101.3	841,435
Eggplant	18.1	115,150
Tomato	112.9	998,124
Sweet Pepper	8.9	114,877
Rayo (Mustard Greens)	49.9	97,640
Carrot	28.7	96,590
All Vegetables	5,156.7	25,760,504

Note: At least 20% of the total production was consumed at home.

Table 6.6: Changes in vegetable area, income and consumption before and after the project (average per household)

	Pre-project	End of Year I	End of Year II*
Vegetable area (*ropani* – 70x70 sq.ft.)	2.2	4.5	6.0
Annual income from vegetables (NRs)	2,480	12,850	19,150
Annual vegetable consumption (kg)	392	427	614
Household income category (% households)**			
Can save	20	40	65
Just enough	20	23	26
Enough for 10-11 months	23	16	6
Enough for 8-9 months	19	6	2
Enough for 6-8 months	8	6	1
Enough for Less than 6 months	10	9	0

* Based on a sample of 120 households.

** Categorised based on the affordability to meet household food requirements with the present level of annual income.

Source: CEAPRED (Internal programme files)

seems to have undergone a reversal in recent years, especially in the hill and mountain regions. This has been made possible by the Forest User Groups (FUGs) that emerged largely as a result of the communities' felt need for protecting and improving forest conditions. Trends in the past few years suggest that these FUGs can conserve their forests more effectively than the Government, despite its continued efforts and the allocation of large amounts of scarce resources in the past (Case III).

The above discussions point to the presence of various non-government or community-based organisations that have the potential to serve either as efficient channels of service delivery or as institutional mechanisms at local level for both poverty reduction and sustainable economic development in Nepal. These organisations provide a possible institutional framework and options for the Government to use to meet some of the development challenges that appear to be too formidable for its own existing capacity. However, these organisations cannot serve as an alternative to Government, as it has an important role of its own to play, for example, in the development of social and economic infrastructure and in the provision of public goods and special safety nets for the poor. Moreover, the extent to which these organisations can contribute to development will depend on the environment created by the Government.

The development challenges facing the Government are enormous, whereas its capacity and resources are limited. Moreover, it is understood that the omnipresent role of the Government has not resulted in sustainable development anywhere. In view of this, it has become necessary to explore and try other institutional options. Also, in view of the promising results achieved in certain sectors in the recent past, there is evidence that such institutional options are already in place. In fact, a new development strategy seems to have been emerging in recent years. Past experience

Case III. Forest User Groups (FUGs) are effective in conserving their forests

Nepal presents a classic case of both forest degradation and evolution of user group management. Between 1950 and 1980, Nepal lost 50% of its forests. Fears were expressed that if the degradation continued at the same rate, all of the country's forests would soon disappear. In response to the severity of the problem, the government introduced the concept of local community or user group management through a law passed in 1978 which received subsequent amendments in 1979 and 1986. The legislation, however, was still control-oriented and did not provide secure management rights to the users. Consequently, it failed to bring about any significant improvement in the forest conditions. Realising the problem, and in line with the participatory development policies of the new democratic governments, a law was passed in 1993 which provided the user group with considerable control over the forest resources. This gave great momentum to the evolution of forest user groups (FUGs) in Nepal. While there were less than 500 FUGs managing some 6,500 ha of forest land before 1993, the number of FUGs rose sharply to more than 5,000 managing nearly 0.6 million ha of forest land by 1996. Almost 95% of the FUGs are located in the hills.

There is now a growing recognition that evolution of FUGs has helped to reverse the trend in forest degradation, especially in the hills of Nepal. The FUGs have been effective not only in preventing the forests from further degradation but also in improving the conditions of the forests. A common strategy adopted by the FUGs for this is to impose restrictions on its members on the frequency and period of their entry into the forests. There is evidence that, as a result of such restrictions, changes have occurred at the household and forest levels. Households have planted more trees on their own farms, reduced the size of their livestock herds, and adopted stall-feeding practices. All these have led to increased forest biomass.

points to the need for adopting a development strategy that builds on the comparative strengths of various types of institutions – government, non-government, and private sector - in providing development services at the local level, and that involves a participatory and community-driven development process. The next section elaborates on the elements of such a strategy and identifies some of the policy imperatives for its effective implementation for sustainable mountain development and poverty alleviation in Nepal.

6.7 The Emerging Development Strategy and Policy Imperatives

The emerging development strategy

There is now widespread recognition that sustainable development is an internal and human process. The process, if not internalised by the people, may be prohibitively costly and may lead to unsustainable impacts. Lessons learned from successful cases worldwide increasingly support this wisdom. Thus, a sustainable development strategy must have its roots in people – in their desire for, capacity for, and initiative in

sustaining the development process. Nepal's present challenge is to achieve substantial and sustainable economic growth as well as to alleviate widespread poverty. Based on the lessons learned from successful cases both within and outside Nepal, a three-pronged strategy appears to be necessary for poverty reduction and sustainable development in mountain areas. In simple operational terms, this strategy consists of three elements: (i) social mobilisation, (ii) capacity development, and (iii) institution building at the local level. A brief description of each of these elements follows.

Social mobilisation

Effective social mobilisation is an essential first element in the process of sustainable development and poverty reduction. Social mobilisation is often confused for, or interpreted too naively as, group formation. However, the concept is far broader in its scope and much more capacious in its results than group formation. Social mobilisation is preparing and psychologically empowering the people for development; it is bringing them to a state in which they possess a forward-looking and positive attitude; and it is a state in which they know their own development potentials, priorities, and constraints. It is a process of 'change' – a process that changes the psychology of the people from 'nothing can happen' to 'many things can happen, if and only if we are prepared and organised to make these happen'. Overall, it is setting the stage for sustainable development.

Operationally, social mobilisation, as a process, aims to create awareness among the people about the benefits of being organised – in both economic and social terms. It enables them to understand why they are poor, what their opportunities are for raising themselves above the poverty line, and how they can collectively act to make this happen. The biggest challenge in this process is to lead the people to positive, optimistic, and socially constructive opinions and actions. This is a challenge because, historically, social mobilisation has also been an approach leading people in both positive and negative directions. In any case, effective social mobilisation cannot happen without a purpose, and the purpose has to be made loud and clear. In the present context of Nepal, the purpose has to be to prepare people to collectively plan, manage, and evaluate and, as and when necessary, to redesign the development process.

Capacity development

Making people understand what they can do is not enough to actually make them do it. In the process of social mobilisation, the people will be able to identify and prioritise their local development opportunities, but they may not possess the required capacity and skills to actually use these opportunities. Capacity development is, therefore, the next important element in the strategy, and this may involve a series of different types of training (e.g., enterprise planning, production, and marketing) and other types of capacity development measures (e.g., exposure trips, development of small infrastructural installations, and so on). The purpose is to equip people with the requisite technical knowledge and to help them organise input supply and access markets for their products and services.

The experience accumulated indicates that people often accord high priority to opportunities that generate income and lead to economic empowerment. This is quite understandable, particularly in the context of rural and mountain areas of Nepal where economic poverty is both extreme and has led to further aggravation of other forms of poverty (e.g., social, psychological, and environmental poverty). In most cases, therefore, measures for capacity development may need to focus initially on income generation or reduction of economic poverty.

It is understood that, in rural areas, small and marginalised farmers constitute the majority of the poorer households and that farming is their main source of subsistence. Difficult terrain and a poor economic infrastructure limit the range of off-farm economic opportunities in those areas. However, the ecology of these areas provides unique opportunities (niches) to produce a wide range of high-value, low-volume commodities. Nevertheless, lack of technology, extension, and other support services has not permitted farmers to produce these commodities and benefit from the naturally available mountain niches. Thus, a more effective and sustainable capacity development strategy is to unleash the potential of the people to use these niches.

Institution building and strengthening

Once the economic gains are realised, there is usually a tendency among the people to make efforts to sustain these gains. However, a number of factors – both within and outside their local control – may render the present level of activities difficult and the associated economic gains unsustainable in the long run. One possible mechanism to ensure sustainability is to institutionalise these activities at the local level; that is, to create an institution that is collectively owned and managed by local people as its members. Evidence has shown that such an institution will have the ability to absorb random shocks by keeping its members prepared to collectively face and resist such shocks. Lacking an institutional ground, individuals (or groups) often tend to break away, as and when negative forces come to play against them, leading to the slackening or discontinuation of present activities and ultimately making the impacts unsustainable.

However, institution building alone is not the remedy. The institution must be strong enough to deliver services to its members in an effective and efficient manner. This is essential to ensure that members continue to realise the benefits of being part of it. The institution must be strong enough to respond to the changing social and economic conditions and seek ways to update its capacity and capability for this. For example, it should be able to access ways to bring new technologies (to promote more profitable activities or to counteract any negative externalities resulting from the present activities) and update the old. Similarly, it should be able to prepare itself for the possibility that new markets may open that could lead to new economic opportunities in the area. To meet all these qualifications is beyond the capacity of any local institution left on its own after its establishment. Thus, considerable efforts must also be made to strengthen the institution, and this again may require several capacity building measures, depending on its present state and future challenges.

A strong institution at the local level can serve to sustain impacts in several ways. First, in the existing socioeconomic and cultural set-up there is a distinct division of society into two classes – the resource-rich and the resource-poor. The former class has the obvious incentive to retain its present position, while the latter has often accepted its position as given. Hence, any intervention that disturbs this existing division is likely to face resistance from the former class and the hesitancy of the latter. Over time, as the external intervention (in the form of a programme or project) is phased out, it may be difficult to resolve the emerging conflicts through individual or informal group efforts. However, if the latter class is organised institutionally, this will be of benefit in two ways: the conflicts will be minimised and the capacity of this class to resolve the conflict, if any, will increase.

Policy imperatives

From the policy perspective, the above strategy raises two fundamental issues. First, the strategy will require provision of services to the local community in a manner that could be too costly for the Government to engage its own machinery for this purpose. Moreover, it is normally beyond the existing institutional capacity and resources of the Government to deliver such services locally. This is where the alternative institutional options – NGOs, CBOs, and other types of local organisation – have demonstrated promise. Second, in order to exploit the development potentials available in mountain areas, the community must have access to basic infrastructure, and this is notoriously lacking at present. Thus, in order for the above strategy to bring about the desired impacts, government development policies must be guided by and directed to meeting the following two fundamental conditions.

Government's resources and efforts concentrated on infrastructural development

Lessons learned from both within and outside Nepal provide enough evidence that enhancement of the range and quality of livelihood options in mountain areas is greatly determined by the level of social, economic, and institutional infrastructural development. In particular, the lack of adequate access to roads and other physical and economic infrastructure has seriously constrained the pace of development of mountainous areas, despite their natural comparative advantages in producing high-value cash crops. For example, high-quality apples are produced in Mustang, Jumla, and other mountainous areas of Nepal, but this potential has not been used to any significant extent. The main constraint is the lack of access to roads linking these areas to market centres; the marketing cost is so high that imported apples become cheaper than those locally grown apples after reaching the markets. Similarly, the prospect for off-season vegetable production is common in almost all mountainous areas, but it is so far limited to a few pockets that have access to roads and markets in the Terai and across the border.

The experience of the Indian State of Himachal Pradesh also supports the above argument. Apple cultivation was introduced to different parts of the State around the

same time in the 1870s, but the spread of apple cultivation has not been uniform in all areas. Those areas with adequate access to a road and marketing network have experienced tremendous growth in the area and production of apples over the past two decades, while other areas have lagged behind. Significant economic and social transformations have occurred in the former areas, while the latter have remained traditional with respect to agricultural production and the level of poverty for the most part (Sharma 1996). However, it was not only the economic infrastructure but also the social and institutional infrastructure that had led the process of transformation in these transformed areas. Besides building a massive road network, a range of different types of institution was established by the Government to provide production, post-harvest, and marketing services to apple growers. Of course, farmers' own institutions, such as the cooperatives, also helped to increase the access of individual farmers to marketing and other support services in those areas.

Infrastructural development is, therefore, a necessary condition for rapid economic transformation of mountainous areas in Nepal – whether through high-value agricultural production or through other means such as promotion of tourism, hydropower, and processing industries. Such infrastructure includes social, institutional, and other types of infrastructure required to provide services that are mainly in nature public goods. It also includes building the institutions and facilities required to address and solve the so-called 'second generation problems'. However, the local people must be mobilised, empowered, and organised institutionally so that the development activities are implemented in a timely and efficient manner and the impacts are sustained through local capacity and initiatives. This also means that the Government has to consider, wherever possible and relevant, engaging alternative institutional options in the process.

Government development policies and strategies guided by and consistent with the need for more effective partnership with the non-government and private sectors

This recognises the potential of different types of non-government and private sector organisations to contribute to sustainable development. It is now evident that NGOs possess distinct comparative advantages over government agencies; for example, in mobilising people, developing their local capacities, and providing them with the required financial and technical services for economic development and poverty alleviation. Similarly, it has been observed that, once the basic infrastructural facilities are developed, the private sector becomes active in economic development, and the local communities themselves also take up new opportunities to improve their quality of living. A more effective partnership among government, non-government, and private sector institutions is thus crucial for rapid and sustainable development. Clearly, there will be a gain in efficiency if roles and responsibilities are allocated among the stakeholders in accordance with their respective comparative advantages.

The large numbers of community-based organisations – for example, dairy cooperatives, forest user groups, water user groups, and other types of self-help

groups – that have evolved over the past few years offer unique possibilities and strength to bring about locally responsive and sustainable development. In this changed context, development programmes built on the strength and resources of these organisations are likely to yield better results and to make these programmes more accountable to the people than development programmes of the past. The delivery of services will be more efficient and responsive to the needs of the programmes than in the past. It will also help to make the implementation process more transparent and stable than heretofore.

Finally, understanding the right development priorities is a key to more efficient allocation of resources for development. Lacking this understanding, there will be a tendency to distribute resources too thinly into a large number of different areas without much meaningful impact, as occurred in the past. Nepal's present development priorities are set by the need to achieve rapid and sustainable economic growth, poverty alleviation, and food security. This is a challenging task, and much concerted and collective effort is needed on the part of all sectors to accomplish this task.

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Chapter 7
Growth, Poverty Alleviation and Sustainable Resource Management in Mountain Areas of Pakistan

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7.1 Introduction

Poverty is a state of economic, social, and physiological deprivation occurring among people or countries lacking sufficient ownership, control, or access to resources to maintain acceptable living standards (North-South Institute 1985). Mass poverty and inequality of income distribution are the social issues disturbing most of the Third World. Pakistan, like other developing countries, has an unacceptably high level of poverty despite reasonably high economic growth, a little more than five per cent (UNDP 1996) (Annex 1). According to Hussain (1994) as much as 25% of the population are still deprived of basic services such as drinking water, sewerage facilities, health, and education.

The country in the past five decades has witnessed poverty, i.e., stagnant in the fifties, increasing poverty and growth in the sixties, stagflation (inflation without growth) and declining poverty in the seventies, as indicated by improved availability of essential commodities (Annex 2) increasing growth and declining poverty in the eighties, and increasing poverty and falling growth in the nineties. In the development paradigm, it is commonly believed that reasonable economic growth triggers off new opportunities for the poor and helps reduce poverty in the long run. Some have,

however, criticised growth led poverty reduction approaches and argued that we need to reverse this thinking. In fact, development efforts should focus on poverty reduction and reduced poverty will automatically be translated into higher economic growth.

Under various regimes in the past, efforts have been made to boost economic activity in the country without addressing the needs and concerns of the poor. However, in the 70s, a more realistic approach to rural development was followed in the Integrated Rural Development Programme (IRDP). In the nineties, the crisis is said to have been because of the twin menace of fiscal and current account deficits. To contain inflation, these deficits must be brought down. The required structural change and policy reform focuses on public expenditure, taxes, utility pricing, public sector borrowing, trade regime, and forms of governance related especially to these areas.

The current state of population growth and increasing poverty has put an additional stress on Pakistan's natural resources (Annex 3). The resulting resource degradation is another key factor responsible for low agricultural productivity. Lower productivity coupled with an inadequate capacity to correct resource degradation exacerbates the poverty crisis in rural societies.

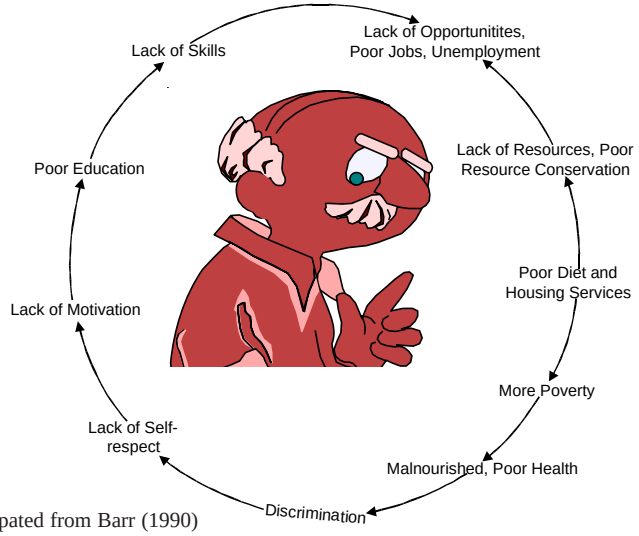
This paper presents an overview of Pakistan's state of poverty with special reference to mountain areas, it also discusses the interventions of the public and private sector and recommends strategies for sustainable use of natural resources.

7.2 Socioeconomic Conditions of Mountain Areas

Pakistan's 66% population resides in rural areas (UNDP 1996). Not surprisingly, the financial condition of the large majority of the rural poor is linked with the performance of the agricultural sector. Research and development policies in the past favoured large farmers and widened this gap between rich and poor. Due to structural adjustment, the cost of agricultural inputs has increased many fold, leaving almost no profits for small farmers

The issue of poverty in the mountain areas of Pakistan is relatively serious. These areas are among the least developed in the country both on account of economic opportunities as well as lack of access to social sector services. Extreme weather conditions, remote geographical location, scattered populations across many small and distinct villages, rudimentary physical and social infrastructure, underdeveloped markets, and inadequate investments in financial and human capital have been among the key defining characteristics of the poverty problem in Northern Areas. The major source of livelihood of most households is agriculture in an area where there is very low precipitation, insufficient cultivable land, and low land productivity, especially in single-cropping agro-ecological zones located at high altitudes. Off-farm sources of income have traditionally been limited and entrepreneurship scarce. All these factors entrap the poor of these areas in a vicious circle of poverty, as shown in Figure 7.1.

Figure 7.1: Vicious circle of poverty



Source: Adapated from Barr (1990)

The situation is worse in mountain areas where communities largely depend on natural resources to earn their living. Therefore, poverty in these areas is causing depletion in natural resources. In fact poverty and environmental degradation have an interactive relationship. Poverty pressure on households near forests and rangelands compels them to cut trees and overgraze fragile areas. According to the National Conservation Strategy (NCS 1994), there are only three million hectares of land under some form of tree cover. This constitutes 3.5% of the total land area in the country and is extremely inadequate. (Pakistan's profile of natural resources and food security is given in Table 7.1.) As a consequence, there is accelerated surface erosion which is not only leading to depleted soils, but also exacerbating poverty in these areas. It is argued that any economic activity that affects the sustainability of natural resources will make the poverty issue more complicated.

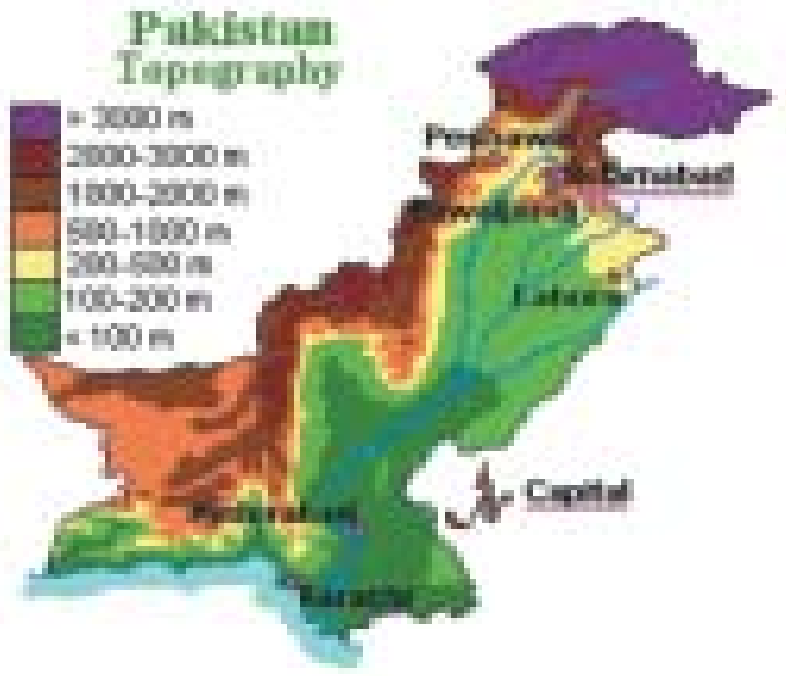
Mountainous areas in Pakistan are situated in the north-west of the country and form a formidable barrier (Figure 7.2). The ecology of these areas varies and its capabilities can be limited severely by natural resources. This is reflected in the culture and social norms of the area. The harmonious living of the Northern Areas (NAs) on one extreme is countered by the tribal conflicts in the southwest. The tribal system follows its own codes of conduct and justice. The tribes are very tightly organised. The tribal leadership is still intact and codes are rigidly implemented. The social structure of some tribes has been modified in some cases by their proximity to settled areas. Efforts made previously by successive governments have been unsuccessful for the reason that physical power has been used as an intervention. It seems that this can be achieved through simple economic interventions. However, these have not been

Table 7.1: Profile of food security and natural resources in Pakistan

Food production per capita	1993 1980=100	118
Food imports per capita	1993 1980=100	114
Cereal imports per capita	1994 (1,000 tons) 1980=100	201
Food aid in cereals per capita	1994 (1,000) 1980=100	19
Food aid 1992 ($ million)		190
Land area (1,000 ha)	1993	79,610
Irrigated land (as % of arable land area)	1994	80
Deforestation (1,000 ha per year)	1980-9	9
Annual rate of deforestation (%)	1981-90	2.9
Reforestation (1,000 ha per year)	1980-9	7
Production of fuelwood and charcoal (1,000m^3 per year)	- 1980	16,683
	- 1993	25,021
Internal renewable water resources per capita (1,000m^3 per year)	1995	3.3
Annual fresh water withdrawals 1980-9	- a % of water resources	33
	- per capita (m^3)	2,053

Source: IIED 1998

Figure 7.2: Topography of Pakistan



followed in Pakistan. This may have come about by accident and not as a matter of conscious efforts by the government. The way of life, the compulsions in these areas are different from those in the plains.

Cultural aspects provide security and subsistence under very harsh conditions. It is easy to condemn a given social system if it does not coincide with prevailing development paradigms. However, where living conditions are harsh, production systems are nomadic or non-existent, and unique socioeconomic systems may evolve. That is what has happened in the mountain areas. So far, modern economic opportunities have not entered the area. Conflicts between the government and the tribes are a common occurrence, as a result the areas are lagging behind. The literacy rate is very low, less than one per cent for women (UNDP 1998). Health facilities are unheard of and roads and construction of roads are prohibited. Electricity infrastructure is frequently vandalised. Given this scenario, development is decades behind. The will and the right of the Federal Government are virtually non-existent. A more participatory approach is required to render development programmes more acceptable, both socially and economically.

Agriculture is the backbone of the economy of mountain areas in Pakistan. Maize, fruit, vegetables, and wheat are the main crops, and rearing livestock is also a common occupation. Crop yields have increased for all the main crops because of increased inputs of improved seed, irrigation, and agricultural chemicals. However, the prime agricultural lands are being steadily lost to unproductive uses such as human settlements and roads. This trend is leading to a food deficit in these areas.

In the agricultural system, orchard farming dominates all others Apples and peaches are the main cash crop in most mountain areas. These crops have provided subsistence for people of diverse occupations for the last twenty-five to thirty years Farmers, field workers, shopkeepers, transporters, and many others benefit from orchard production, directly or indirectly. Peaches also require a substantial amount of agro-chemicals for healthy fruit production. Other fruit orchards grow persimmons, cherries, pears, and plums. Vegetables are also produced on a large scale. The most important are onions, peppers, potatoes, and cauliflower. Cereal crops and pulses of many types are also grown in this area but the only chemicals used to increase yields are fertilisers Pesticides are used sporadically on cereal crops and pulses.

Poverty in either rural or urban environments is a multi-dimensional problem in the NWFP; but economic poverty is its key dimension. An inter-provincial comparison of poverty in mountain areas is shown in Table 7.2. It indicates that in 1991 the NWFP had the highest concentration of poor people relative to its share in the national population and that the ratio of those living in poverty was 50% higher in rural areas than in urban areas. Surprisingly, poverty indicators for Balochistan have improved markedly over time, from 25% in 1985 to 7.7% in 1991.

Table 7.2: Distribution of the poor in mountainous provinces

	People Living in or below the Poverty Line			1991 Index of Concentration (% poor in the region to all poor ÷% population in the region to total population)
	1985 %	1988 %	1991 %	
Pakistan				
Average	18.3	16.6	17.2	100
Urban	11.1	08.7	09.8	57
Rural	21.1	20.6	20.6	119
NWFP				
Total	09.6	15.5	20.0	117
Urban	07.5	12.4	14.3	83
Rural	09.0	16.0	21.4	124
Balochistan				
Total	27.5	09.3	07.1	41
Urban	17.0	04.4	04.5	26
Rural	28.5	10.0	07.7	45

Source: SPCS 1996

7.3 Poverty Alleviation Efforts

Public sector efforts

In the past, there have been efforts to alleviate poverty in the country. For instance, the government effort in the post 1987-88 period consisted of a variety of programmes designed to alleviate poverty. The Social Action Programme (SAP) followed a top-down development approach in which provincial governments identified the projects for rural water supply, basic health, primary education, and family planning. The SAP, introduced in 1992/93, represents the most important initiative so far in Pakistan to develop a programmatic, medium-term approach to public expenditure at sectoral level. The SAP intended to improve Pakistan's poor social indicators which lag significantly behind the averages for low-income countries. Expansion of access to and improvements in the quality and management of basic social services have been put at the top of the government's development agenda, and spending priorities have begun to shift accordingly.

The SAP is based on five sets of programme agreements developed by the federal and provincial governments in consultation with stakeholders and with the support of donors These include 1) sector strategies; 2) policy reforms and progress indicators for each sector; 3) a five-year rolling public plan; 4) planned expenditure and financing and procurement plans for each subprogramme; and 5) Annual Operational Plans for each subprogramme. The SAP can focus on cross-cutting problems that adversely affect the planning and implementation of social service programmes (e.g. governance), and it includes a monitoring and evaluation component. The targets of SAP during the Eighth Five-Year Plan (1993-98) and achievements based on partial assessment of the programme so far are provided in Table 7.3.

Table 7.3: Social action programme, targets and achievements

Sector	Targets under 8th Plan (1993-98)	Achievements (March 1995)
Primary Education		
Participation rate (per cent)		
Total	86.2	55
Male	94.8	71.1
Female	77.3	36.5
Enrolment (million)		
Total	2.559	12.946
Male	1.435	8.722
Female	1.124	4.224
Basic Health Services (million)		
Immunisation	3.15	0.814
ORS packets	9.5	1.0
Training of Trained Birth Attendants	0.0087	0.0013
Training of Community Health Workers	0.009	--
Improvement of Basic Health Units	0.0007	0.0003
Improvements of Rural Health Units	0.00007	0.00003
Rural Water Supply & Sanitation (million people)		
Water supply	13.26 (88%)	9.1 (77%)
Sanitation	4.68 (31.2%)	0.97 (7%)

Source: SPCS 1996

The landmarks of the SAP in the mountain province of the NWFP include need-based site selection criteria for the establishment of new facilities; constitution of village education committees and preparation of a master list of school sites for 1995-96 and 19996-97; the approval of a unified policy for the rural water supply and sanitation sector; and a major initiative to restructure the health sector through an integrated health policy statement. The Government of the NWFP is also increasingly engaged in a dialogue with non-government organisations (NGOs) to involve them in development efforts.

Private sector efforts

Agha Khan Rural Support Programme

The Agha Khan Rural Support Programme (AKRSP) is an NGO established by the Agha Khan Foundation to help improve the quality of life of people in the Northern Areas and Chitral. The programme areas are shown in Figure 7.3.

AKRSP was established in 1982 with a mandate to focus on economic and institutional development of local communities in collaboration with government departments, elected bodies, and national and international development agencies. AKRSP has, over the years, acted as a catalyst for integrated rural development, organising local human, physical, and financial resources in order to enable communities to bring

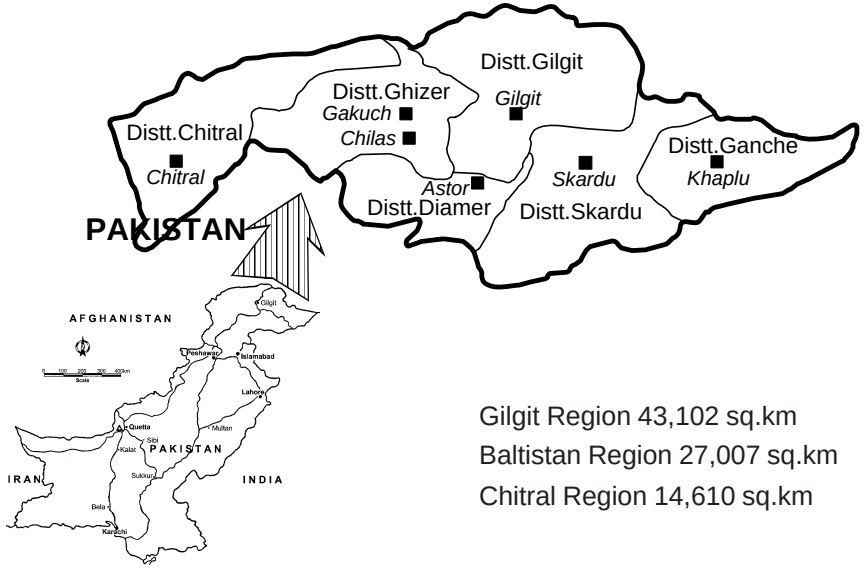


Figure 7.3. AKRSP Programme Areas

about their own development in an equitable and sustainable manner. Major programme components include social organisation, women's development, natural resource management, development of productive physical infrastructure, human resource development, enterprise promotion, and credit and savings' services.

Poverty remains the most formidable challenge faced by the people of the Northern Areas and Chitral today. AKRSP started work in these conditions in 1982 to directly address the challenge of poverty in northern Pakistan. The programme aims to build the capacities of the local people to enable them to manage and sustain their own development. The AKRSP model, in this respect, relies on the efficacy of community-based grass roots' development to bring about lasting improvements in the quality of life of the rural poor. Following this model the programme has sought to involve communities in all aspects of development activities. AKRSP has succeeded in supporting the creation of broad-based community organisations for both men and women which provide collective platforms to the people from which they introduce and implement programmes to promote economic and social development activities in their villages and valleys.

This approach to poverty alleviation is based on bridging the organisational, financial, physical, and human resource gaps as identified by the villagers themselves as impeding development activity in their areas. Examples include irrigation channels to provide water for land cultivation, link roads to connect villages to towns, and micro-hydels for electricity generation. AKRSP's other approach to poverty

alleviation empowers individual households to make the best use of resources made available to them through their organisation. This is primarily done through building financial capacities, raising awareness levels, and the delivery of required services. The programme, through interventions at community as well as individual household levels, has made substantial gains in the struggle against poverty.

With some variations, the programme has continued to expand and grow on most fronts. A summary of the main programme indicators, cumulative and additions in 1998, is given in Table 7.4.

Table 7.4: Summary data, cumulative and additions in 1998, on AKRSP's performance

Programme Area		
	Cum.	Add.
Area (sq.km) Rural Households	74,200 116,3355	
Population	1,134,738	
1. Social Organisation		
Total No. of Organisations	3,557	181
Village Organisations	2,299	82
Women's Organisations	1,258	111
Total No. of Members	133,856	7,417
Village Organisations	92,287	3,654
Women's Organisations	41,569	4,329
Total Savings (PRs* Mil)	414.45	46.10
Village Organisations	318.11	28.23
Women Organisations	96.34	17.87
% of Households Covered by VOs	84	
Cluster Orgs. Developed	149	21
2. Mountain Infrastructure & Eng. Services		
PPIs Initiated	1,963	149
Beneficiary Households	123,667	15,904
Cost of Initiated PPIs (PRs Mil)	541.23	99.20
Disbursement (PRs Mil)	443.21	70.78
PPIs Completed	1,680	149
3. Agriculture		
Cereal Seeds Supplied (kg)	315,700	25,840
Fodder Seeds Supplied (kg)	146,193	14,423
Vegetable Seeds Supplied (kg)	79,296	897
Potato Seeds Supplied (kg)	200,990	39,780
Total Fruit Trees Supplied (mil)	1.05	0.12
Fruit Trees Planted by VOs mil)	2.07	1.04
V/WO Agriculture Specialists	3,459	289

Table 4: Cont....

4. Livestock		
Bulls Supplied	123	40
Cross-bred Sheep	4,836	41
Rams Supplied	571	103
Brooding Centres Established	239	46
Poultry Chicks Supplied to BCs	572,560	115,103
V/WO Livestock Specialists	4,722	486
5. Enterprise Development		
Cooperative Marketing		
Participating VOs	2,500	-
Gross Sales (PRs mil)	191	-
Marketing Expenses (PRs mil)	20	-
Net Sales (PRs mil)	171	-
Beneficiary Households	63,884	-
Group Loans	933	66
Beneficiary Households	35,255	506
VO Specialists Trained	1,946	340
WO Specialists Trained	1,216	367
6. Forestry		
No. of Nurseries Established	1,408	16
Nursery Area Established (ha)	80.05	5.99
Plants Supplied (mil)	1,4.80	3.60
Plantations by VOs (mil)	7.55	0.83
V/WO Specialists Trained	1,278	116
7. Human Resource Dev.		
Regular Courses	1,051	163
Specialists Trained	2,121	3,061
Refresher Courses	726	86
Managers Conferences	421	40
V/WOs Developed Cadres	22,794	2,378
8. Credit Programme		
No. of Loans	24,173	3,535
Beneficiary Households	538,052	34,491
Disbursements (PRs mil)	1,131.24	224.30
Outstanding (PRs mil)	258.17	-16.90
Net Default (PRs mil)	52.86	13.05
Loan to Saving Ratio	0.76	

Source: AKRSP 1998

* There are 58.35 Pakistani Rupees to the US dollar.

In a survey carried out by AKRSP, the impact of interventions on poverty reduction was seen to have been significant. Data collected through regular Farm Household Income and Expenditure Surveys indicate that poverty on the head count declined from 61 to 33% in Baltistan region, from 42 to 23% in Gilgit region, and from 43 to 36% in Chitral in the period from 1991-97 (AKRSP 1998). At the same time, per capita incomes in the Northern Areas, as a proportion of national per capita incomes,

increased from 27 to 55% in Baltistan region, from 36 to 68% in Gilgit region, and from 37 to 52% in Chitral in the same period.

Economic improvements in the Programme Area have led to improved social conditions for the local people also. Both physical and financial access to education and health facilities has increased for both men and women. Workloads of women have been substantially reduced through water supply schemes and micro-hydel generated electricity. Mainstreaming women's activities in the economic sphere through the forum of Women's Organisations has, in addition to their economic empowerment, led to their enhanced roles in decision-making on major household issues. The CBOs have promoted social harmony and democratic norms and facilitated resolution of disputes in villages and valleys. Awareness of villagers of the opportunities available to them and of their responsibilities towards society has increased.

Kalam Integrated Development Project

The Swiss-assisted Kalam Integrated Development Project (KIDP) started in 1981. It developed a model for the sustainable management of mountain land, with the participation of community and interest-based community organisations. It was directed principally to improving the quality of life of the mountain farmer (KIDP 1998). Its programme areas are shown in Figure 7.4.

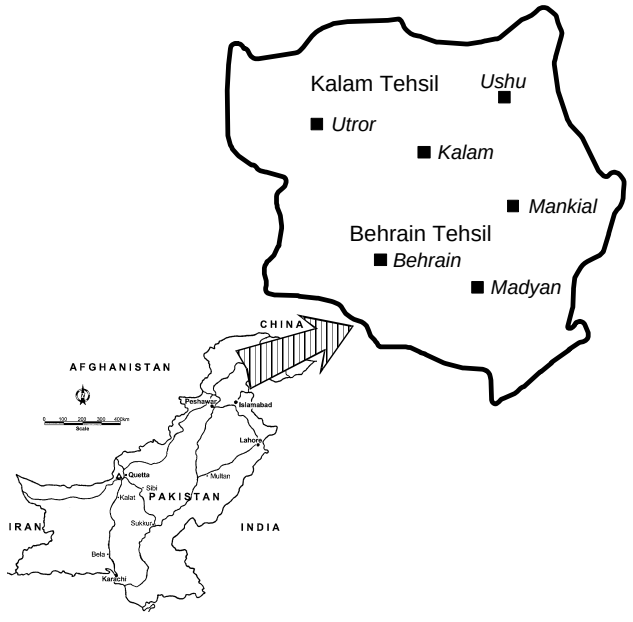


Figure 7.4: KIDP programme areas

Previously, the entire population of Kalam Valley derived their subsistence from the forests and earnings from cash crops like potatoes. However, due to continuous monoculture of potatoes and absence of professional guidance, soil diseases developed. Production of potatoes dropped drastically. KIDP has increased the sense of responsibility in the community for forest conservation oriented activities. Local communities are now preoccupied in development activities introduced by KIDP in the forestry and agricultural sectors as well as management and organisation of village committees. They are, generally, satisfied with the achievements of KIDP in different fields. The people of Kalam are receiving handsome financial returns from forest royalties and agricultural crops. KIDP has also explored possibilities for them to channelise the earnings for use in creating more income-earning opportunities.

Over the years KIDP has brought about visible changes in various fields and added to farmers returns through multiple land use. Great enthusiasm has been noticed in farmers for raising orchards, especially of grapes and apples. Training of local people in forest harvesting techniques has also resulted in efficient harvesting operations and less timber wastage.

PATA integrated agricultural development project

The PATA Integrated Agricultural Development (PATA Project) works in selected zones of the Provincially Administered Tribal Areas (PATA) in the NWFP.It has its origins in the Pakistan-Netherlands Groundwater Development Project that was introduced in 1979. Phase one, 1986-1991, ended in 1991 after completing its activities. Phase two, 1992-1996, of the project was executed in three mountain districts of Malakand Division: Southern Swat, Northern Buner, and Malakand Agency. The project objectives were:

1. improvement in living standards, and
2. increase of agricultural production on a sustainable basis for small-scale male and female farmers in Malakand Division of NWFP, Pakistan.

Project activities in phase one concentrated on four districts of Malakand Division in two areas of Dir district, in Malakand Agency, in the north-western part of Buner, and in Swat district from Khawazakhela and Matta southwards including the adjacent valleys. During phase two, Dir district was not involved. The project area is shown on the map in Figure 7.5.

The socioeconomic conditions in the three districts are no different from other mountain areas in Pakistan. Subsistence agriculture is the backbone of the economy in the area. Most of the farmers have small farms. Farmers in Buner have rainfed land for cultivation and Swat farmers mostly have irrigated land. Malakand farmers have both irrigated and rainfed land, more or less equally distributed. More than half of the farmers in these districts are owner operators Seventy per cent of the farmers are illiterate. The average family size is fourteen. Many crops, such as food (maize, wheat), fodder, and cash crops (sugar cane, rice) as well as vegetables and fruit

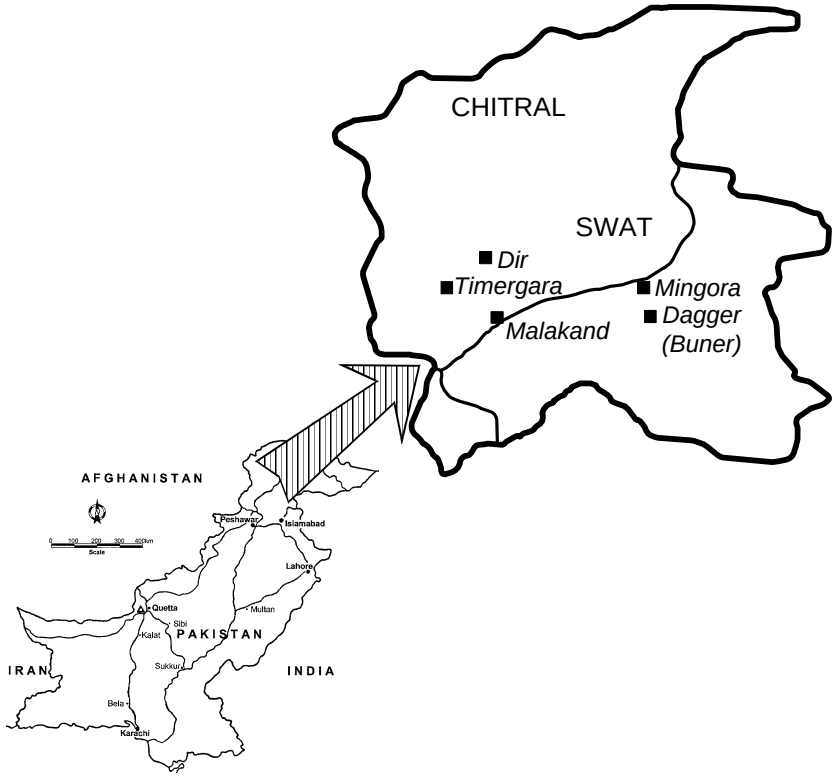


Figure 7.5. PATA project programme areas

orchards, are cultivated under different cropping systems in these three districts (PATA Project 1996).

Because of the scope of project objectives, the PATA project has developed an implementation structure consisting of three programmes: first, the Agricultural Development Programme (ADP), second, the Land and Water Use Programme (LWUP), and third, the Women in Development Programme (WIDP). The Scheme Development Process (SDP) has clearly increased the participation of water user groups in the development and maintenance of irrigation schemes. Farmers are managing the schemes themselves to use the irrigation water to grow high-value crops. Women's participation in agricultural development has increased and so has the gender awareness of the men. As a result, over the years, farmers have adopted the advanced technologies extended to them. These technologies have resulted in higher yields and income.

Northern areas' development project

The Northern Areas' Development Project (NADP) was launched recently in Chilas in the Northern Areas. The project was planned for a period of seven years, i.e., from July 1998 to June 2005. The United Nations Development Programme (UNDP) allocated US$ 2.6 million, and the project is being implemented in collaboration with the Government of Pakistan (GOP) and the International Fund for Agricultural Development (IFAD) (UNDP 1998).

The NADP focuses on three development areas, i.e., governance, gender, and sustainable livelihoods, each linked to poverty alleviation. The project aims to provide opportunities for expanded and efficient use of land and water resources on a sustainable basis, increased agricultural productivity, improved infrastructural facilities, and provision of alternative employment opportunities. The project provides for equitable participation of men and women in planning and implementation. The specific objectives of the NADP are as follow.

- To organise communities (both men and women) in the core project area into functional entities, capable of identifying development needs and receiving necessary technical input and skill development support from relevant public and private sector agencies to rationalise resource use, enhance productivity, and increase their income levels.
- To enable women to identify and articulate their development priorities and take appropriate measures for their realisation through preferred options and alternatives in the micro-level development process.
- To enable the Project Management Unit (PMU) Monitoring and Evaluation Section to implement a participatory Monitoring and Evaluation System, involving the Community Organisations (COs) and Women's Development Groups (WDGs).
- To establish a Geographical Information Systems (GIS) Unit suitably equipped for collecting/retrieving, analysing, and storing data on natural resources and socioeconomic parameters

The UNDP grant covers all the costs of the Community and Women's Development components, training, demonstration and technical assistance, vehicles, equipment, and a revolving fund for income-generatiing activities. The main features of the NADP areas follow.

1. Establishment of a Community Development Section (CDS) in PMU to cater to the participatory development requirements of the project — The CDS is to empower the COs and WDGs in the core project area to enable them to use the interventions of line agencies (LAs) on a sustainable basis. The linkages between COs and LAs will be developed actively to achieve sustainability.
2. Establishment of a Community Organisation Unit (COU), one each at Chilas and Darel/Tangir to introduce project philosophy, concept, and strategy — The COU will create initial contact with the target groups for CO formation, carry out Par-

ticipatory Rural Appraisal (PRA) and develop a Village Development Plan (VDP), identify productive and social infrastructure schemes, and implement them with the active participation of the CO. The COU will also carry out a Training Needs Assessment (TNA) and introduce Human Resource Development (HRD) activities with the assistance of CDS and PM.

3. Women and Development Activities are focused on assisting women to address their constraints and improve on their traditional role in the local production system. Provisions have been made for functional literacy and training in basic health education. Demonstrations of vegetable seed production, kitchen gardening, seedling nurseries, poultry vaccination, poultry production, milk processing, sericulture, and apiculture would also be performed to encourage women to adopt new technologies. Technical assistance and studies concerning specific aspects for women in crop, livestock, and forestry production and women-related income-generating activities (IGAs) will be supported under this component of the project.
4. Promotion of IGAs and credit is an important feature of the project for the economic uplift of the area. A revolving fund of US$ 200,000 has been made available to finance group and individual loans.
5. Establishment of GIS facilities in the NAs with an initial focus on a data inventory of the natural resource base leading gradually to the use of remote-sensing technologies for resource assessment and monitoring and identifying the potential areas prone to degradation

Comparison between public sector and private sector efforts

Table 7.5 highlights the cost of various categories of SAP projects and other infrastructural projects constructed by the National Rural Support Programme (NRSP) and the Public Sector respectively. It shows that NRSP costs are substantially lower than the costs incurred by the public sector. For example, SAP drinking water schemes cost PRs 1,971 per household when constructed by NRSP, while the cost is PRs 5,288 in the public sector. Similarly, primary education per student costs PRs 440 under NRSP and PRs 1,350 in the public sector.

Not only are the costs in the private sector lower than in the public sector, the schemes implemented by the private sector are found to be more sustainable. The indications

Table 7.5: Comparison between public sector and NRSP schemes

Type of Scheme	NRSP	Public Sector
SAP: DWSS	PRs 1,971 per Hhd	PRs 5,288 per Hhd
SAP: Drainage	PRs 736	PRs 1,200
SAP: Primary Education	PRs 440 per Student	PRs 1,350 per Student
Other Infrastructure	The cost of NRSP schemes is 50% less than public sector schemes and they give the surety of all operation and maintenance.	

Source: Planning Commission 1998

are that AKRSP has been more successful in alleviating poverty in the project areas than the public sector.

7.4 Sustainable Natural Resource Management

Sustainability requires a balanced relationship between human needs and the finite size and resource capacity of the natural resources. Human welfare must be pursued within the natural environment's capacity to tolerate, support, and absorb such use.

Sustainable Resource Use (SRU) is the process through which the concept of Sustainable Development is applied to the use of natural resources, renewable and non-renewable. With an integrated approach, sustainable resource use is defined as:

"the use of natural resources that always remains within the limits of environmental capacity and, on that basis, meets the needs of the present generation, particularly those of the poor, without compromising the ability of future generations to meet their own needs" (WWF 1993).

Such a concept brings together the idea of limits and the concept of equity and interdependence.

Misuse of natural resources

As noted earlier, forestry, grazing and limited agriculture are the main land uses in mountain areas of Pakistan. The population in forested mountain areas is increasing rapidly. So are the prices of timber. Both of these have serious impacts on the forests. The increase in human population removes increasing amounts of wood from the forests to meet local needs for timber and fuelwood. It has also extended the cultivation of mountain slopes and increased the rate of deforestation. On the other hand, the very high demand for and prices of timber have increased the illegal removal of trees. Although considerable forest depletion has been occurring in the mountain areas for the past century, rapid population increase and rapidly rising timber prices seem to have escalated the rate of cutting in recent decades.

Biodiversity conservation in not well understood as an issue by the residents of these areas. However, mountain areas are rich in biodiversity. For example, the NWFP has biological resources such as the snow leopard, western tragopan pheasant, and elm forests that are of global significance (SPCS 1996). In addition, there are large numbers of mammals and birds that are locally threatened by unsustainable degrees of hunting (Table 7.6). The principal threats to biodiversity are deforestation, overgrazing, soil erosion, water pollution, uncontrolled hunting, and fishing.

Public initiatives to restore natural resources

There are many laws in the country covering areas such as forestry and wildlife protection, for example, the Forest Policy1997, provincial, and Azad Kashmir and Northern Areas Wildlife Acts and Ordinances. On the policy front, Pakistan's National

Table 7.6: Suspected threatened or endangered mammal and bird species in the NWFP

Mammals			
Barking deer	(E)	Grey goral	(T)
Brown bear	(E)	Grey wolf	(T)
Chinkara gazelle	(E)	Leopard	(T)
Flat-horned markhor	(E)	Black bear	(K)
Hog deer	(E)	Caracal	(K)
Kashmir grey langur	(E)	Himalayan ibex	(K)
Punjab urial	(E)	Himalayan musk deer	(K)
Snow leopard	(E)	Leopard cat	(K)
Sraight-horned markhor	(E)	Lynx	(K)
European otter	(V)	Palas cat	(K)
Indian pangoli	(V)		
Birds			
Cheer pheasant	(E)	Long-tailed prinia	(V)
Western tragopan pheasant	(E)	Marbled teal	(V)
Kalij pheasant	(E)	Pink-headed duck	(V)
Monal pheasant	(E)	Lagger falcon	(T)
Snow partridge	(E)	Bar-headed goose	(K)
Migratory		Black vulture	(K)
Houbara bustard	(E)	Grey-legged goose	(K)
Peregrine	(E)	Large billed bush warbler	(K)
Saker falcon	(E)	Lesser white fronted goose	(K)
Siberian crane	(E)	Plas fish eagle	(K)
Comb duck	(V)	Sociable plover	(K)
Cotton teal	(V)	White-headed duck	(K)
Dalmatian pelican	(V)	Wood spine	(K)

E: endangered V: vulnerable T: threatened K: unknown, but suspected
Source: SPCS 1996

Conservation Strategy (NCS) aimed to evaluate the economic policies of the country for their impact on the natural resource base and to merge biodiversity concerns with the decision-making matrix. The NCS looks at the opportunities for improvement in various sectors of the economy with a view to steering the country towards a sustainable future (Hasnain 1998).

The Pakistan Environmental Protection Act 1997was passed by the GOP and is being implemented. The Act recommends the establishment of a Pakistan Environmental Protection Council. Among other things the Council is to provide guidelines for the protection and conservation of species, habitats, and biodiversity.

During the last three decades, several initiatives have been launched to improve the management of natural resources in mountain areas of Pakistan. For instance, in the NWFP, initiatives include extensive forest tree plantation, mostly on privately-owned mountain land; improvements in rainfed agriculture; an increase in the efficiency of

irrigated agriculture; improvement in the marketing of fruit and vegetables; and reorganisation of the Livestock and Dairy Development Department to enlarge its focus to include livestock production and genetic improvement in addition to animal health.

Private sector efforts to restore natural resources

The Government of Pakistan is encouraging the private sector to develop methods of sustainable use for natural resources. The Pakistan Forest Institute - Peshawar, for instance, has carried out wildlife management training programmes with international organisations such as The World Conservation Union (IUCN), Food and Agriculture Organisation (FAO), and United Nations Development Programme (UNDP).

Private sector efforts to restore natural resources have been quite successful. For instance, the Swiss-assisted Kalam Integrated Development Project developed a model for the sustainable management of mountain land with the participation of community and interest-based community organisations. It emphasises the participation of communities in the sustainable use of forest and grazing lands. Similarly, the German-assisted Siran Forest Development Project seeks to combine the intensive forest development approach developed in Kaghan with the social forestry approach. Started in 1991, its principal challenge is to develop sustainable joint management systems for the affected forests of Siran Valley.

The European Union-assisted Uplands Rehabilitation Project soon to start in the Galit, Dir-Kohistan, and Murre-Kahuta areas has been largely designed based on the experience of the Kalam Integrated Development Project. They emphasise the sustainability aspect of integrated management of natural resources. Other innovative donor-assisted projects include the Dutch PATA Irrigation Project, Pak-Swiss Swabi Irrigated Agriculture Project, and ADB-assisted On-farm Water Management Project.

Protection of biodiversity in Pakistan is largely a project-based initiative. The IUCN has introduced new initiatives such as the National Biodiversity Action Plan, a Protected Areas' Management Proposal, and provincial conservation strategies. Integrated resource management projects include Ziarat's juniper forests and an urban social forestry component, Orangi Pilot Project. A project on 'Maintaining Biodiversity in Pakistan with Rural Community Development' by IUCN-Pakistan is in progress to support local people in developing and implementing remedial action in degraded areas where biodiversity has been reduced. The project aims to demonstrate that conservation of biodiversity can be enhanced by providing rural people with the technical skills to manage wild species and habitats. The project focuses on the mountain regions of the Northern Areas and the NWFP.

WWF-Pakistan has also carried out a number of projects to protect ecosystems and species in various parts of the country. Since 1971, WWF has completed 87 projects, while 36 projects are in progress. The largest chunk of the WWF-Pakistan resources are invested in two areas, namely, field conservation projects to protect the remaining

wildlife and natural habitats and education and awareness programmes in collaboration with the youth of the country.

Similarly, the Pakistan Wildlife Conservation Foundation, the World Pheasant Association, and the Pheasant Conservation Forum are other NGOs involved in wildlife conservation in collaboration with the Government of Pakistan.

Changes in the farming systems

Before the 1960s, the main crops in mountain area of NWFP were maize, wheat, rice, pulses, jute, and poppy. Local varieties of apples, peaches, plums, grapes, walnuts, and fruit belonging to the pear family were abundant then but were planted, in most cases, on the edges of fields or here and there in the fields. Also, in most cases the fruit was not for commercial purposes, except for walnuts. Cultural methods were the sole protection against pests and diseases of crops and fruit.

In early 1960s, new varieties of apple were introduced and planted in orchards. At first only the big landholders planted apple orchards. As a result of the economic benefits of apple growing, the area under cultivation increased substantially. Both big and small landholders planted apple trees on their lands. In the 1980s, some farmers introduced peach and cherry orchards in the area. Those lands that could not be cultivated with apples, pears, peaches, and cherries were left for other agricultural crops. Some farmers also left their land for other crops because of strong traditional tendencies or because of poverty.

Pesticides and resource use sustainability

Pesticides were introduced into the NWFP in the early 1960s for the eradication of mosquitoes. In the early period, apple orchards were not treated with pesticides. The use of pesticides started in late 1960s or early 1970s for apple orchards. In the beginning, only kerosene oil was sprayed once a year. As the area of land under apple cultivation grew, problems of pests and diseases increased.

In 1989 the apple crop was so good that even small farmers bought power pumps and their capacity to use pesticides and fertilisers increased. Pesticides were believed to be the one and only remedy for infected crops. Spray pumps were hired and very small farmers used them. However, the yield of apples in the early 1990s was very poor. Many orchards withered. Some farmers removed their trees. Because of the increased prices of agro-chemicals, production costs increased to such an extent that apple orchards, for many, remained no longer profitable. Many started seeking alternatives and some planned to cut down their orchards and go back to producing the crops their forefathers produced. To revert to the traditional pest control system, however, farmers needed more information and assistance.

The problem needs to be assessed on a scientific basis both from the economic as well as the health perspective.. For intervention in this sector, social organisation of the communities is important to arrive at viable solutions to the problem by adopting a bottom-up approach.

7.5 Recommendations

a) Instead of a project-based development, a poverty alleviation strategy needs to focus on policies to provide an enabling environment for general growth and development.
b) New interventions should not be adopted without proper research. For example, maize (an indigenous crop) was replaced by potatoes or the same crop was replaced with its hybrids. Although new crops helped increase farm incomes, it was a short-run phenomenon. In the long-run resource degradation caused fluctuations in production and income.
c) For sustainable natural resource management and conservation in mountain areas, people-centered long-term planning can play an effective role. Community participation in planning and implementing development projects ensures their effectiveness and success.
d) A rural support structure to foster an economic and social infrastructure, without which the rural poor cannot overcome the handicaps from which they suffer, is needed. This outside support is essential to help the poor rise above the level of subsistence. In Pakistan many Rural Support Programmes (RSPs) have been launched based on the decade-old successful experience of the AKRSP in northern areas of the country.
e) Facilitate the poor to produce a development partnership entailing fulfillment of the obligations of organisation, generation of capital through savings, and taking over of responsibilities by acquiring managerial, productive, and other human skills through a programme of human resource development: this is the key factor in making poverty alleviation programmes a success.
f) Political, administrative, and financial commitment by governments over the long term is important to implement rural development programmes for poverty alleviation in mountain areas.

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Annex 7.1: Growth trends over time

	Agriculture	Major Crops	GDP	GDP per Capita
1988-89	6.9	7.0	4.8	1.7
1989-90	3.0	-0.1	4.6	1.4
1990-91	5.0	5.7	5.6	2.4
1991-92	9.7	15.5	7.7	4.5
1992-93	-5.3	-15.6	2.3	-0.7
1993-94	5.2	1.2	4.5	1.7
1994-95	6.6	8.7	5.2	2.3
1995-96	5.3	7.2	4.6	1.5
1996-97	0.7	-4.5	3.1	0.3
Average	4.1	2.8	4.2	1.7

Source: Finance Division 1997

Annex 7.2: Changes over time in per capita availability of essential commodities

	Unit Per Annum	Per Capita Availability 1969-70	Per Capita Availability 1976-77	% Change in Per Capita Availability 1969-70/1976-77
Wheat	Kg.	105.15	113.03	7.49
Rice	Kg.	24.45	25.81	5.56
Pulses	Kg.	6.80	8.02	17.94
Sugar Refined	Kg.	7.21	9.74	35.04
Veg. Ghee/Oil	Kg.	2.13	5.54	160.09
Cotton Cloth	Metres	12.07	12.83	6.30

Source: Planning Commission 1997

Annex 7.3: Population profile of Pakistan

Pakistan (1995)	(Millions)	% of Population
Population	135	
Rural	89	66
Urban	46	34
Adult Population (15+)	76	56
Primary School Age Population	20	15
People not expected to survive to the age of 40	21	16
People without access to safe drinking water	61	45
People without access to health services	54	40
Mal-nourished children under 5	9	38
Adult Illiterates	47	62
Female Illiterates	29	76
Out-of-School Children	8	42
Income Poor	42	30

Source: UNDP 1996

Chapter 8
Strategies and Experiences in Poverty Alleviation and Sustainable Development in the HKH and the Qinghai-Tibetan Plateau Region in China

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8.1 Introduction

The natural, economic, social, and ecological causes of poverty in the Qinghai-Tibetan Plateau Region of China are analysed in this article. It also discusses the anti-poverty strategies and counter measures that have been undertaken during the past five decades in these regions. It is agreed that introducing a market economy into poor areas is the key factor in reducing the poverty of farmers and herdsmen. Rational exploitation of natural resources is an important precondition for resource and environmental protection. Cooperation between developed and developing areas within a country is the most efficient mechanism for transferring capital, technology, and talent to poor areas. Government at different levels has to facilitate the development of the market economy through construction of infrastructure, institutional innovation, and appropriate policies. Alleviating poverty does not mean distributing relief. A strategy of integrated development should be adopted to raise the level of the education, culture, hygiene, and health care, and poverty can be alleviated only by sustainably raising the quality of life of the people.

The Qinghai-Tibetan Plateau rises in the western and southwestern parts of China known as 'the roof of the world'. It is an area of ancient human activities where different cultures have intermingled. For a long period, however, the area has remained isolated and economically backward.

8.2 Factors Underlying Poverty in the Qinghai-Tibetan Plateau

Natural and economic resources of the Qinghai-Tibetan Plateau

The plateau is high in altitude, averaging over 4,500 masl. It is far away from the ocean on the eastern, western, and northern sides and is screened off by the Himalayas in the south. As it is surrounded by mountains and cut by deep valleys, the area has a unique climate, characterised by plenty of strong sunshine, low temperatures, and limited rainfall. The soil is mostly rough and loose with a high content of gravel, lacking in nitrogen, phosphorus, and other nutrients. The region suffers from serious wind erosion and desertification has become a growing problem (Wang 1995).

The Qinghai-Tibetan Plateau, is however rich in natural resources (Shi 1998). There is a hydropower potential of about 300 megawatts, which is about 50% of the national total. Terrestrial heat has been found in more than 1,000 places in the region with a total thermal flux of 2,310 million joules/second. More than 80 minerals have been found in the region. Mineral reserves, that are among the best in the country, include sylvite, magnesium, sodium, boron, asbestos, gypsum, copper, lithium, bromine, silicon, sulphur, and quartz. The region has extensive land resources, consisting of 61% steppes, 4% forests, and only 0.48% arable land. The development of tourism focused around its many colourful and unique environments has huge potential. It has won the acclaim of all who have visited the area. Many mountains rising above 8,000 metres are to be found here.

Economic resources

Although the Qinghai-Tibetan Plateau is extensive in land resources, the area suitable for people to live and to engage in production is rather small. The population has increased slowly, and the population density is the lowest in the whole country, averaging only 4.21/km^2, compared to the national average of 123.46/km^2. The population is mainly Tibetan. A survey carried out in 1990 showed that among the population 15 years of age and older, 44.43% in Tibet and 27.7% in Qinghai were illiterate or near illiterate, while the national average was 22.81%. The rural population is about 90% of the total (Liu 1993). Most of the villages are not connected by telephone. There is now a labour force of about five million. Productivity is low. The GNP per person in Tibet and Qinghai is respectively 3,292 'yuan' (RMB) and 4,550 yuan, which is lower than the national average of 5,211 yuan. Despite many difficulties, the local people are hard working and have withstood many hardships.

Because of the low levels of development in the Qinghai-Tibetan Plateau, the capacity for saving is low. In 1993, the average savings per person in Tibet and Qinghai was 89.9 yuan and 204.5 yuan respectively, while the national average was 308.7 yuan for the same period. As the capital flows into the region from the outside are limited, the main source of capital is the investments provided by the Central Government.

The region also has low levels of technical skills. Using the 1993 index of national technical skills as 100, it was 14.04 in Qinghai and 10.23 in Tibet. Industrial outputs are very low, although rapid changes are being seen in some areas. Nomadic lifestyles and tribal organisations still exist in the villages.

Different types of vicious circle

It is possible to identify four types of vicious circle operating in the area. The first is the vicious circle of poverty which is related to low incomes, low savings, and insufficient accumulation of capital, and this again leads to low productivity and low income. Low income in turn results in low purchasing power, smaller scale of investment, and low growth in the regional economy. The net consequence is that incomes remain more or less stagnant or decline over time.

The next vicious circle is related to human resources. Low levels of skill, seen in terms of technological backwardness lead to insufficient investment in science, education, culture, and hygiene. Thus, in turn this results in low productivity in the long run as the level of skills, physical fitness, and life expectancy tend to remain low.

The third vicious circle is related to the environment. In order to support livelihoods, trees are indiscriminately felled and pastures ploughed for cultivation. Over time this results in increasing loss of water and soil. Mud and rock flows and desertification increase, worsening the conditions of the environment as well as the prospects for economic growth in future.

The fourth vicious circle is related to urbanisation. As conditions in rural areas are not satisfactory, population and labour force begin to shift to urban areas. However, the process of urban development is slow, which means fewer opportunities for incoming people. This in turn creates underemployment and unemployment in urban areas and, at the same time, reduces the number of able-bodied people working in rural areas, resulting in stagnant or low levels of output in rural areas.

On the Qinghai-Tibetan Plateau, all four of these vicious circles can be seen to be operating, making it very difficult to break away from their grip. However, with the realisation that greater efforts are needed on all fronts, including a growing appreciation of the critical environmental roles of upland areas, more serious attention is being given by the central government to development of these areas.

It should also not be forgotten that beginning in the latter half of the 10th century, a feudal serfdom was enforced on the Qinghai-Tibetan Plateau. The extensive pasturing

area was divided into 'tribes'. The mass of people lost their land and livestock and individuals became serfs owned by serf owners. Taxes and levies, when put together, amounted to almost 70% of the total output value. The annual interest rates for usurious loans reached as high as 30-50%. Under this kind of ruthless exploitation, it was very difficult for the poor peasants and herdsmen to improve their livelihoods and economic conditions.

8.3 Measures against Poverty on the Qinghai-Tibetan Plateau

Democratic reform

The democratic reform carried out in Tibet in 1959 carried out land reform providing land to masses of landless and marginalised farmers for the first time. Initial gains in output brought about by the reform were not sustained because the commune system failed to generate incentives for increasing outputs. This was mainly on account of the lack of a market for competition, absence of free prices, and low levels of individual motivation. In 1979, the population living below the poverty line in the whole country totalled 250 million or 24.4% of the rural population. The figure was 30% for the Qinghai-Tibetan Plateau, with the most needy households being as high as 20.7% of the total.

In order to change this situation, the Chinese Government adopted various policies of reform as well as opening the economy to the outside world (Liu 1993). It abolished the people's commune system in the rural area and introduced the household contract system. Arable land and pastures were allotted to subsistence farmers and herdsmen's households for cultivation over longer periods of time. They could decide for themselves how to cultivate the land and also receive the income from the use of lands for the payment of fixed dues. This system greatly aroused the enthusiasm of both farmers and herdsmen for making use of the local resources and diversifying economic activities. Following various improvements in policies as well as investments from the government, a new picture is beginning to unfold in the Qinghai-Tibetan Plateau.

Policy of rehabilitation

Following the democratic reforms, a policy of low taxation was adopted for Tibet. In 1980, business and income taxes were exempted for agriculture and animal husbandry for fixed periods (Bian 1995).

Expenditure for education was increased to about 15% of the total expenditure for the region. Children of peasants and herdsmen in key secondary and primary schools were provided with free food, lodging, and clothes. More than 140 Tibetan classes were also opened in 17 provinces and municipalities where food, lodging, and clothes were made freely available. In addition, the state organised teachers from interior provinces and municipalities to go and teach in Tibet and allotted funds to build new schools and improve teaching facilities.

Free medical care was continued and speedy development of medical and hygiene services was emphasised. The average lifespan in the whole region increased from 36 years to 64 years at present over a period of four decades.

A preferential policy has been adopted to provide low interest and interest free loans for production and poverty-alleviating activities. Handicrafts have received special help for their revival and development. Measures have been taken to subsidise prices in many commodities in order to help people develop different production and livelihood activities and improve the quality of their lives.

Reorganisation of the structure of production

The nature and structure of production directly influence the manner in which resources in a certain area are used. It also determines the extent to which the ecological environment and the living standards of the people can be improved. It is therefore important to determine production activities with a sound understanding of these factors.

The comparative advantage of a certain branch of production in an area is usually judged by an analysis of its regional quotient (Zhang 1997). The higher the regional quotient, the greater the possibility for it to become a leading sector of production. Calculations show that, for the Qinghai-Tibetan Plateau, the regional quotient is higher than one for livestock breeding, ferrous and nonferrous metal smelting and forging, petroleum and natural gas exploitation, manufacture of ordinary machinery, power, steam, and hot water production and supply, and cutting down timber and bamboo. The Qinghai-Tibetan Plateau also enjoys a great advantage in tourism, but so far little resources have been exploited (Yu 1992; Zhang 1992).

Infrastructural development

Infrastructure includes communications, transport, power, and water supplies. Communication and transportation infrastructure and services are very limited in the Qinghai-Tibetan Plateau. The direction for the future development of communications and transportation in the Plateau are focused on the following.

a) Increasing the density of the transportation network by four times the present level so that available resources can be exploited effectively
b) Building 'three latitudinal and three longitudinal lines' in order to link the Qinghai-Tibetan Plateau with almost all the economic centres inside the country and also to provide external links with India, Burma, Bhutan, Sikkim, and Nepal (Liu 1993). In addition, civil aviation and the railways also need to be improved.

Post and telecommunications' services are also poor. The emphasis for their future development should be on high speed and greater quality so as to reduce the disadvantage of natural and geographical barriers that hinder the delivery of messages. Special emphasis should be placed on the construction of basic tele-transmission, telecommunications, and supporting networks.

Increasing investments in technological development

In 1993, the total investment in Tibet was yuan 1,600 million. Financial subsidies from the central authorities amounted to yuan 1,700 million, which does not include free allotments of materials and interest-free or low-interest loans. Aid from the central authorities is the main source of support for operation of the economy of the Qinghai-Tibetan Plateau. In future, savings from within the region should be increased by tapping all the potentials. Import of capital from other parts of the country and from abroad should be encouraged.

Low levels of technology and insufficient technical personnel are critical bottlenecks in the economic development of the Qinghai-Tibetan Plateau. The building of a technology development support system for the future faces many difficulties. While the import and use of new technology should be continued, its adaptation should be an important starting point. Conditions should be created for absorbing talent from outside the region. The quality of the scientific and technical personnel in the region should be improved. Scientific and technological development should be raised from many sources. Since scientific and technical capacity is related to the educational level of the people, it is also necessary to improve the overall skills of the population through high quality universal education. At the national level, a policy to prevent the outflow of talent from the region to the eastern part of the country should be followed.

Ecological management

As the 'third pole' of the earth, the Qinghai-Tibetan Plateau is a very unique environment. But development activities have already seriously damaged many parts of the environment. If adequate attention is not given to environmental protection, future development of the plateau could be adversely affected with serious consequences for other parts of the country (Shun 1999).

To ensure the sustained development of the Chinese nation, a 'Programme for China in the 21st Century' has been developed. It clearly points out the targets and measures for protecting the ecological environment of the Qinghai-Tibetan Plateau (Man 1995). The specific measures identified cover the following aspects.

a) Protecting and building water-retaining forests and shelter forests for controlling soil erosion in the upper reaches of the great rivers
b) Bringing natural calamities such as mud and rock flow, wind erosion, and desertification under control
c) Improving pastures by maintaining a balance between carrying capacity and the number of animals
d) Bringing industrial and urban pollution under strict control and enforcing environmental protection standards for all new industrial projects
e) Developing more effective state and provincial-level nature reserves for protecting wild animals and plants

f) Protecting the physical and cultural environment of the plateau for the benefit of future generations (although the primary purpose of environmental protection is the continued development of the plateau)

Poverty alleviation

Because of an adverse climate and frequent natural disasters, including low levels of education, technology, and communications services in the Qinghai Plateau, there are large numbers of people living in poverty. In 1995, there were still 478,000 needy people or 19.2% of the total population in Tibet. The government has done much to alleviate poverty since 1985. An example of what has been done is demonstrated by the case of Xigaze Prefecture.

Poverty alleviation activities by government departments alone did not work. It has now become the daily task of the prefecture Party Committee and the prefecture government. All the forces are mobilised and organised to participate in poverty alleviation activities.

The system of distributing free relief has been discontinued. This has been replaced with a system that combines repayable and free relief. By 1987, the repayable part had reached 80%, and the repayment was 75.3%.

Instead of giving relief for subsistence as was the main focus of relief work in the past, providing assistance for production activities has become the main form of relief work more recently.

Limited relief funds are concentrated on the most needy villages and households, instead of distributing these equally as in the past. The mutual-aid foundation for poverty alleviation and disaster relief established in 1988 has effectively assisted those farmers and herdsmen who were short of production and working capital. A programme for poverty alleviation through science and technology development has also been carried out. Foreign trade has also been expanded. Able persons have been helped to start activities that can assist others to overcome poverty though collective enterprises that provide employment for needy households who are able to work. Giving employment instead of relief to needy households in agriculture, water-conservation work, pasture management,and road building has helped to improve production, mitigate disasters, and reduce poverty.

8.4 New Thrusts in Poverty Alleviation

The 21st Century offers favourable conditions for developing the Qinghai-Tibetan Plateau. The 21st century is a time of rapid global integration. The opening of cooperative relations and the developments in the surrounding countries and regions provide new opportunities for the Qinghai-Tibetan Plateau. The Qinghai-Tibetan Plateau with its rich resources is one of the most attractive areas in Asia. As China's economic focus shifts gradually to the interior, resources of the Qinghai-Tibetan

Plateau will be developed on a greater scale providing many opportunities for expansion of economic activities in future.

However, the Qinghai-Tibetan Plateau will still face some serious problems. The great majority of the population is still in the villages, engaged mainly in agriculture and livestock activities. A greater part of the pastures are still under primitive nomadic modes of production. Isolated by lofty mountains, people are cut off from modern ways of production and distribution. As the natural environment is fragile and natural calamities occur frequently, the living conditions in many areas are very difficult. Industry on the plateau is still very limited, and there is a serious shortage of capital and technical personnel. Communications and transport have to be improved. Urbanisation is still at a very low level. At a time when challenges and opportunities exist side by side, opportunities should be developed by appropriate strategic measures.

One important strategic measure is the introduction of the market economy that has become an important national policy for overall development and poverty alleviation. The market economy stimulates consumption, which is the prime mover encouraging farmers and herdspeople to change their modes of production. It will encourage them to make full use of the resources, raise productivity, and produce surplus over their own consumption needs for sale in the market. This will be a decisive shift in the economy of the Qinghai-Tibetan Plateau. Once poor peasants and herdsmen embark on the path of a market economy, the inherent benefits of the market economy will gradually come into full play, promoting rational exploitation of resources, a more efficient structure of production and division of labour, adoption of new technologies, and improvement of management systems. All of these will help in the emergence of new organisations suited to the growth of the new productive forces and the market economy.

The market economy has and will increase economic disparity between the advanced and backward areas for a certain period of time. However, with appropriate policies, this can be corrected over time.

The development of the market economy in China in the past few years has indeed enlarged the differences in the level of economic development between the regional economies. This problem has arisen because there has always been a great difference in the level of economic development between different regions. As reasons move forward with spontaneous and regular development of the market economy, allocation of resources will move on the basis of comparative advantages. Policies should encourage resources to flow to backward and poor areas, and, over time, with growth in investments, disparities in economic development between areas will begin to narrow down.

The role of the state in this transition of backward and poor areas will be very crucial. The most essential consideration is to find appropriate ways for the economy to develop at a faster rate than in other areas. A more rapid speed of development will

reduce the development gaps between the different areas. The comparative advantages specific to the backward and poor areas need to be fully developed in such a manner and on such a scale that these can offset the existing disadvantages and put the backward and poor areas on a more competitive basis (Xiao 1993).

To develop the socialist market economy in the Qinghai-Tibetan Plateau the following two points should be noted.

1. With the help of the government, greater efforts should be made to improve the environmental conditions for promoting the market economy. In recent years, the state launched a large number of building and infrastructural projects to exploit the resources in the poorer central and western parts. Sixty-two per cent of the total investment for capital construction has been in the central and western regions. Investments in fixed assets for the western region have increased by 31.2%, 14.9% higher than in the eastern region. In 1998, the state allotted 100 billion yuan to increase investments in infrastructure, of which two-thirds were invested in the central and western regions. More than 13 billion yuan were invested in selected projects in the poor counties. These investments will promote the growth of the market economy on the Qinghai-Tibetan Plateau (Shi 1998).
2. It is necessary to integrate the household economy of peasant farmers and herdsmen into the market economy. Without greater participation by peasant households, the inner driving force of the market economy will be missing. The prerequisite for this is that farmers' households must fully own the means of production and use it according to their own will. This is particularly true with land and other physical assets, the most basic means of production. Farm households should be able to convert available resources into commodities and gradually move towards specialised and modern market operations. With farmers and herdsmen becoming the inner driving force for the development of the market economy, a strong basis for the sustained development of the rural economy of the Qingahi-Tibet Plateau will be established.

8.5 Conclusion

Based on the discussions so far, the important points are highlighted here.

1. It is necessary to change once and for all the subsistence nature of the economy in poor areas. The market economy should be introduced to free the areas from poverty and become the driving force for sustained development.
2. In the process of development of poor areas, the market economy will be a major driving force for people to improve their standards of living. This can narrow the economic gap between developed and underdeveloped areas. It is, therefore, necessary for the State to guide the market economy so that equity and efficiency considerations are balanced.
3. The role of the state in the fight against poverty is crucial. It can create the conditions and clear the way for development of the market economy, including

building infrastructure, institutions, and providing policies and aid. Encouraging economically viable and environmentally desirable use of the land is important.

4. Only by developing local comparative advantages of their resources will poor farmers and herdsmen be able to become involved in the market economy. For this reason, choosing the appropriate production activities should be the main goal in local efforts for alleviating poverty. When there are no resources and the land cannot feed the population, it will be necessary for people to migrate to other places with better conditions for development.
5. The exploitation of natural resources must be based on the protection of resources, ecology, and the environment.
6. To exploit resources and build the principal branches of production in poor areas, priority should be given to agriculture and livestock breeding because this can promote participation by a large number of people and be of direct benefit to farmers and herding communities.
7. Alleviating poverty does not mean distributing relief. Mechanisms should be introduced to help needy households exploit resources and develop economic activities. Funds used for poverty alleviation should be repayable; otherwise it will be unsustainable. (Giving work instead of money and granting small poverty-alleviation loans have proved to be successful experiences in other parts of the country.)
8. To overcome the difficulties of marketing, individual farmers and herders should be encouraged to set up their own service organisations for managing marketing, storage, and processing and improving productivity and quality control.
9. Equal help for all poor areas is not desirable. Each village and household should be treated differently. Help should be given to the households and people in real need.
10. Modernisation of the economy of subsistence farm households under the prevailing conditions in China do not favour mechanisation and large-scale operations. Focus should be on specialisation, development of collective activities, and adoption of modern biotechnology.
11. Resources should be exploited through a combination of long, medium, and short projects to achieve sustainable development, while at the same time solving the present problem of providing the basic needs of life.
12. Technology used by the peasants and herdsmen should be improved to maintain competitiveness in the market.
13. Comprehensive development should also focus on raising the level of education, nutrition, and health of farmers and herders. For this purpose, it is necessary to set up medical, hygiene, and health-care systems and a system of scholarships for children from poor families to go to school. Poverty cannot be alleviated without improving the quality of life of the people.
14. Women should be made knowledgeable in law, hygiene, nutrition, technology, and modern child rearing and family planning, so that they can play the role of ‘holding up half of the sky’ in the fight against poverty.

15. Cooperation on the basis of mutual benefit between the east and the west (between the developed and backward areas) should be encouraged.

Through alleviation of poverty, protection of the environment, and sustainable development, the Tibetan people will proudly stand up as equals with other groups of people and will live in peace and happiness.

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Chapter 9
Mountain Agriculture in the Hindu Kush-Himalayas: Trends and Sustainability

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9.1 Introduction: The Data Base and Methodology

In the Hindu Kush-Himalayas (HKH), the majority of mountain households operate a mixed crop-livestock farming system. Food crops, horticulture and cash crops, and livestock are three integral components of mountain farming households. Over the years, changes have been taking place in terms of crop land use, land resource allocation, production, and productivity of cereal crops, horticultural crops, and livestock structure and composition. Better understanding of these changes can lead to important implications for development of sustainable mountain agriculture.

Over the years, the International Centre for Integrated Mountain Development (ICIMOD) realised the need for an empirical database on mountain agriculture to identify long-term trends and their implications. According to Jodha et al. (1992), efforts to build an empirical picture of the existing conditions in mountain agriculture, the changes over time, the various policies, and aspects contributing to its long-term sustainability have only recently begun. The lack of empirical data meant that earlier efforts to assess the state of mountain agriculture were based on a handful of micro-level case studies relating to a point of time and covering a negligible part of a vast tract of the HKH region. Concerns about the lack of an empirical database were often raised during various ICIMOD forums and the Regional Consultation on Education and Research for Sustainable Mountain Agriculture recommended that ICIMOD could be a focal point for the creation of a technical database for mountain

agriculture (Banskota and Partap 1997). Following his thorough review and analysis of the past work on mountain farming systems at ICIMOD, Rhoades (1997) found critical lacunae in empirical data on the state of mountain agriculture and recommended the creation of a systematic database on mountain agriculture.

It is on these premises that ICIMOD began to establish a systematic agricultural systems' database commencing in 1997 and focusing on biophysical and socioeconomic data. The sources of the data are national government statistics, project reports, consultants' reports, case studies, and grey literature. For this purpose, a user friendly computer framework was designed to store the information systematically and in a handy and easily retrievable programme.

This paper uses the data to analyse the general trends in mountain agriculture in terms of changes in use of crop land, changes in crop production and productivity, and changes in livestock population and composition over the past ten to fifteen years in selected provinces/states/regions of five Hindu Kush-Himalayan (HKH) countries, namely, Bhutan, China, India, Nepal, and Pakistan (Figure 9.1). The analyses provide an inter-regional perspective of farming systems in these regions.

The study involved careful review and analysis of data and information from secondary sources. The data for a 10 to 15 year period were obtained from government agricultural statistics for selected mountainous provinces/states/regions of the five HKH countries. (The government sources for time series' data are provided in Box 1). These data relate to varying time periods and different methods such as census, field survey, and estimates used by respective agencies for their collection. Also, since the data are based on administrative units, in some provinces/states, data used include some parts of the plains too. The study area, as shown in Figure 9.1, includes Balochistan and the NWFP in Pakistan; Himachal Pradesh and the UP Hills in India; Tibet, Yunnan, and Sichuan in China; the high and mid-mountain regions in Nepal, and the whole of Bhutan. Growth rates are calculated from time series' data for cereal crops and horticultural and cash crops. For livestock data and wherever time series' data are not available, a simple analysis is carried out in terms of percentage changes between two time periods.

The annual growth rate is calculated by using semilog transformation:

$$\mathbf{y = ab^t,\ b = 1+g,}$$

where,
y = production or area or yield, t = year, g= annual growth rate
estimating equation: In y = in a + t In b or y~ = a~ + b~t

where,
y~ - log y, a~ = log a, b~ = log b.

The regression yields estimates of a a~ and b~: b~ = antilog b~, g~ = b~ – 1 (Johnston 1972)

Figure 1.1. • Selected Provinces/States/Regions for the Study

Box 1: Selected Sources of Data for the Analysis

Pakistan

- Ministry of Food, Agriculture and Livestock. Agricultural Statistics of Pakistan, 1993/94, Government of Pakistan. Islamabad
- Statistics Hand Book of Balochistan (1995), Bureau of Statistics, Govt. of Balochistan, Quetta, 1996

India

- Status of Agriculture and Future Plans for the Himalayan Region of Uttar Pradesh, Hill Development Department, Hill Agriculture Division, UP Govt, Lucknow
- Dhar T.N. and S.P. Gupta (1995). Development of Agriculture in the Himalayan States of India, SHERPA, Lucknow
- Directorate of Land Records (1992), Livestock Census, Government of Himachal Pradesh, Shimla
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Nepal

- Agricultural Statistics of Nepal (1990), His Majesty's Government Ministry of Agriculture, Department of Food and Agricultural Marketing Services, Agricultural Statistics Division, Kathmandu
- Statistical Information on Nepalese Agriculture, Ministry of Agriculture, His Majesty's Government of Nepal, Kathmandu for the Years 1995/96, 1996/97 and 1997/96

Bhutan

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China

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Discussion of the results

The section below discusses the results of the empirical analyses of the state of agriculture in selective mountainous provinces/states/regions of five HKH countries. It discusses issues in sustainable mountain agriculture, for example, what have been the changes in use of land for cereal crops vis-à-vis horticultural crops,viz.,fruit and vegetables? what are the trends in terms of productivity of cereal crops compared with horticultural crops? what are the changes taking place in livestock population and composition or which animal species are of increasing importance in the livestock economy? and what could be the implications of these trends for the sustainable development of mountain agriculture?

9.2 Trends in the Production of Cereal Crops

The results of data analysis show that the area under cereal crops has not increased, but productivity (yield per hectare) has remained relatively stable and, for some crops and in some regions, crop productivity has increased (Table 9.1). For example, an analysis of the data for a major cereal crop between 1975/76 and 1993/1994 in Balochistan shows that while the area cultivated with wheat increased significantly at an annual rate of 2.1%, the areas under paddy and maize remained almost stagnant, growing only at less than one per cent. Wheat yields also increased significantly at a rate of two per cent, but those of paddy and maize remained more or less stagnant. On the other hand, in the North-West Frontier Province (NWFP) of Pakistan, the area under maize increased at a rate of 1.4% annually, but the productivity remained stagnant. The area and productivity of wheat and paddy remained stagnant over an 18-year period between 1975/76 and 1993/94 in the NWFP.

The area under paddy has declined in Himachal Pradesh and in the UP Hills in India. Interestingly, in Himachal Pradesh (HP), although areas under wheat and maize have remained static, their yields have grown by 2.10 and 1.13% per annum respectively, although yields of paddy remained the same. In the UP Hills, the productivity of both paddy and wheat has increased considerably, although the area under cereals has declined. Analysis of area, production, and productivity of major cereal crops in the mountains and hills of Nepal between 1985/86 and 1994/95 shows that the annual growth rates in area, production, and yields of paddy are below one per cent each, indicating stagnation. However, maize production increased at an annual rate of 1.52 and 2.17% respectively in the mountains and hills. Similarly, wheat production increased by 2.62 and 1.58% respectively per annum. Although increases in maize production were mainly due to expansion in area, wheat production was due to an increase in productivity.

In the mountainous provinces of China - Sichuan and Yunnan, the area under rice either remained the same or declined slightly between 1983 and 1997. On the other hand, the yield increased significantly at rates of 1.49 and 1.93% per annum in Sichuan and Yunnan respectively during the same period. Similarly, the area under corn has remained the same, but yields have increased considerably in both provinces between

Table 9.1: Trends* in land resource allocation and productivity of cereal crops in the HKH Region

Province/ State/Region	Area under Cereal Crops			Productivity			Year
	Paddy	Wheat	Maize	Paddy	Wheat	Maize	
China							
Sichuan	-0.14	0.33	0.12	1.49	-0.04	1.52	1983-97
Tibet	0.38	0.54	1.62	-1.91	0.17	-1.30	1983-97
Yunnan	-0.58	1.36	0.04	1.93	2.37	1.81	1983-97
India							
Himachal P.	-0.38	0.17	0.19	0.53	2.10	1.32	1981-91
U P Hills	-0.13	0.01	-0.94	1.48	2.35	-0.26	1980-93
Nepal							
Hills	0.36	0.55	1.06	0.68	1.03	1.12	1985-94
Mountains	0.74	0.85	1.11	0.19	1.77	0.41	1985-94
Pakistan							
Balochistan	0.6	2.1	0.6	0.5	2.0	1.0	1975-93
NWFP	0.1	0.4	1.4	0.1	0.8	0.5	1975-93

*Annual Growth Rates (%)

1983 and 1997. In the case of wheat, both area and productivity have increased significantly in Yunnan, but these increases have been at a much slower pace in Sichuan. In the case of Tibet, the area under maize increased considerably, while the area cultivated with paddy and wheat remained the same. It is interesting to note that productivity of both rice and corn decreased significantly in Tibet between 1983 and 1997.

9.3 Trends in the Production of Horticultural Crops

An empirical analysis of the 'trend' data presents significant increases in the area cultivated with horticultural crops (Table 9.2) across the HKH region. For instance, in Balochistan, the areas under apples, citrus, and apricots grew at a significant rate per annum between 1981 and 1994, but the growth in productivity was less than one per cent. The area under vegetable crops increased by 2.96% per annum, with a small increase of 0.23% per annum in yield between 1981 and 1994. The area under tomatoes increased considerably, averaging over 3.5% per year, but the yield only increased marginally by 0.29% per annum.

In the NWFP, although the area under vegetables grew by 1.88%, productivity declined by 0.49% annually. Similarly, in the case of tomatoes, the area increased significantly by 3.2% per annum, but the yield declined by 0.29%. In Himachal Pradesh, between 1981 and 1992 the area under citrus increased at an annual rate of 3.4%. Similarly, the area under apples grew at 1.6% per annum. Nevertheless, citrus yields declined by 2.3% per annum, and the yield of apples remained virtually stagnant with a small increase of 0.4%. Although the area under vegetable crops increased by 2.5% per annum, the productivity remained more or less stagnant.

Table 9.2: Trends* in land resource allocation and productivity of fruit and vegetables in selected areas of the HKH Region

Province/ State/Region	Area under Horticultural Crops				Productivity				Period
	Apple	Citrus	Tomato	Veg.	Apple	Citrus	Tomato	Veg	
China									
Sichuan	1.40	1.25	-	-	1.17	2.46	-	-	1985-97
Tibet	1.11	-	-	-	-2.00	-	-	-	1984-97
Yunnan	4.93	4.36	-	-	-0.57	0.94	-	-	1983-97
India (Himachal Pradesh)	1.60	3.40	-	2.50	0.40	-2.30	-	-	1981-92
Nepal (Hills & Mountains)	2.83	2.39	-	-	0.45	0.31	-	-	1993-97
Pakistan									
Balochistan	4.87	4.45	3.59	2.96	0.88	2.60	0.61	0.230	1981-94
NWFP	2.37	0.76	3.23	1.88	-0.23	0.08	-0.29	0.49	1981-94

*Annual Growth Rates (%) - data not available

In Nepal, examining the trends for fruit crops in terms of land-resource allocation, production, and productivity showed that areas under apples and citrus fruit had increased significantly at rates of 2.83 and 2.39% per annum respectively between 1993 and 1997. However, the yields of these fruit crops have increased only a little.

Among the mountainous provinces of China, Yunnan tops the growth in area under cultivation of apples at 4.93% annually between 1983 and 1997. In both Sichuan and Tibet, the annual growth rate in area under apples is above one per cent.Yunnan also tops in terms of growth of area under citrus production at 4.35% annually. Orange plantation grew at 1.25% annually in Sichuan. Sichuan tops in expansion in area under pears with an annual growth of 2.56%. Among the cash crops, the area under tobacco grew considerably in both Sichuan and Yunnan with an annual growth rate of 2.26 and 5.30% respectively.

In Bhutan, analysis of data between 1986 and 1995 indicates that the area under apples increased considerably by 32.87%, while the increase in area under oranges was comparatively small. The largest gain in this period was in the area under vegetable production: a sevenfold increase. In the case of cash crops, areas under ginger and potatoes increased by more than 100%. On the other hand, areas under two other cash crops, chillies and cardamom, declined by 29.9 and 20.6% respectively between 1986 and 1995 (Ministry of Agriculture, Bhutan 1995).

9.4 Trends in Livestock Population and Composition

An analysis of livestock data shows that there is a decline in the population of cattle and sheep throughout the HKH. On the other hand, the numbers of buffaloes and

goats are increasing (Table 9.3). In Balochistan, between 1984 and 1994, the increase in the population of buffaloes was much larger than for cattle[1]. Similarly, the same was true in the NWFP between 1976 and 1986. This indicates the important role of buffaloes in the livestock economy of these provinces. Among smaller ruminants, the number of sheep has increased more rapidly than that of goats in Balochistan while populations of both have declined in the NWFP.

Table 9.3: Trends* in livestock population and composition in the HKH Region

Province/State/Region	Population				Period
	Cattle	Buffaloes	Sheep	Goats	
Bhutan	-23.0	-	21.26	108.83	1986-96
China					
Sichuan	20.62	4.40	6.97	81.02	1986-97
Tibet	2.19	-	2.28	8	1986-97
Yunnan	9.58	17.34	-25.6	13.77	1986-97
India					
Himachal Pradesh	-1.06	13.64	-8.15	5.25	1982-92
UP Hills	-5.2	15.1	-9.1	7.1	1978-88
Nepal					
Hills	3.17	0.58	-9.59	2.87	1988-96
Mountains	5.77	8.30	-2.53	9.37	1988-96
Pakistan					
Balochistan	81	133	185	87	1984-94
NWFP	9.5	68	-39	-10	1976-86

* Percentage change during the period indicated in the last column.

Analysis of livestock data between 1978 and 1988 in the Central Himalayan region (UP Hills) and between 1982 and 1992 in the Western Himalayas (Himachal Pradesh) shows that, whereas the cattle population declined, the buffalo population increased significantly. Among small ruminants, the population of sheep has declined considerably, while there has been a significant increase in the number of goats. Consequently, in terms of herd composition, the share of cattle and sheep declined and that of buffaloes and goats increased.

Analysis of livestock data in Nepal reveals that the most noticeable change in the hills is a significant increase in the population of buffaloes and goats between 1988/89 and 1996/97. The numbers of buffaloes and goats have increased, while those of cattle and sheep have declined. The most noticeable change in the mountains/hills is a considerable decline in the sheep population.

[1] The author has used the term cattle here to mean strictly cows and bulls and not all domesticated quadrupeds, or all species in the *Bos taurus* category (Tulachan & Neupane 1999)

In the mountainous provinces of China, the analysis of livestock data between 1986 and 1997 show that the goat population increased more than that of other animals such as cattle, buffalo and sheep. Although the numbers of sheep have increased slightly in Sichuan and Tibet, their numbers decreased significantly in Yunnan. Sichuan registered more increases in cattle in 1997 than in 1986 than the other two provinces, Yunnan and Tibet. However, in Yunnan the population of buffaloes increased faster than that of cattle in 1997 in comparison to 1986.

Analysis of livestock data in Bhutan between 1986 and 1996 reveals that the number of cattle has declined On the other hand, the number of goats increased considerably during the same period between 1986 and 1996.

9.5 Possible Reasons for the Emerging Trends

The most prominent observation is that although the area under cereal crops has not increased, their yields have not declined as one would think. Productivity has actually increased for some cereals leading to increased production in some mountain areas over the past ten to fifteen years. The reason for this could be a relatively favourable policy of governments towards the production of cereals in an attempt to ensure food security. For example, firstly, subsidies for fertilisers are common throughout the HKH region. Secondly, most of the fertile, valley lands with irrigation produce cereals. Thirdly, development of roads could be contributing to a timely supply of modern inputs such as fertilisers, improved seeds, and pesticides.

The area under horticultural crops,viz., fruit and vegetables, has expanded significantly over several years, indicating the increasing importance of horticultural crops in the farming systems and household economies of the HKH. The main reason for the rapid expansion in area under horticultural crops seems to be the cash income that accrues from such land use for mountain households. Because of increasing accessibility through an improved road and transport network, farmers have easy access to major consuming centres in both mountain towns/cities and lowland towns/cities. Secondly, as a result of increasing urban incomes there has been an increasing demand for fruit and vegetables because the demand for these commodities is income elastic.

Notwithstanding their value as income-generating crops, the productivity of horticultural crops has either remained static or declined. The reason for this decline in yields could be because of the use of marginal lands and other factors such as poor orchard management. For example, in Himachal Pradesh, more than 80% of the fruit farming is on marginal and sloping lands (Verma and Partap 1992). Furthermore, production of low-yielding heterogeneous varieties, poor fruit setting, and fruit drops are common in apple growing areas of the HKH region. In some production pockets, biennial/irregular bearing, poor pollination, heavy rains when fruit are mature, and moisture stress during summer are common problems that result in low, erratic, and poor quality fruit production (JMA 1995, Jindal 1996).

In terms of livestock, there is a general decline in cattle population in the Indian Himalayas, in the hills/mountains of Nepal, and in Bhutan. This could be because of decreasing feed resources and a decline in areas for open grazing. On the other hand, there is an increase in stall-fed buffaloes in the Himalayan sub-tropics of India, Nepal, and Pakistan because of their multiple uses; mainly for milk and meat. On the whole the sheep population has been in decline (except in Balochistan) and the goat population has been on the increase throughout the HKH. Decline in the sheep population could be due to limited open grazing lands and restrictions imposed by communities on open grazing. For example, in the mountainous areas of China, one case study discovered that the grassland available per sheep unit decreased from approximately 0.6 hectare/sheep unit in 1976 to approximately 0.4 hectare/sheep unit in 1986 (Yanhua et al. 1992). Goats can be stall-fed and do not need grazing, especially in the high-pressure Himalayan sub-tropics where mixed crop-livestock farming systems prevail. Furthermore, in the Himalayan sub-tropics, goats have been an important source of cash income. The overall implication of these trends is that the role of buffaloes and goats in the livestock economy has increased, and they are playing an important role in generating household cash income.

9.6 Conclusion: Major Trends, Constraints, Strategies and Implications

Empirical analysis shows that, with little or no increase in cropped area, production of cereal crops in the HKH has not declined as much as is often perceived. Also, in some cases, increase in production has mainly been contributed by increased productivity. With a favourable government policy to support the development and improvement of road infrastructure in mountain areas, there is a prospect for increasing cereal production. Increases in production can come mainly through increased access to modern inputs, such as quality seeds, fertiliser, and irrigation, resulting from favourable government policies. Nonetheless, there seems little prospect for expansion of area under cereal production and the per capita food availability may decline due to increases in population. The main findings in mountain agricultural trends in the HKH are summarised in Box 2.

The results of data analysis also suggest that there has been an increase in crop diversification into horticultural and cash crops. Therefore, better prospects do exist for the development of niche-based horticultural crops in the HKH. As mountains have the potential for small-scale, specialised farming activities with high payoffs, proper harnessing of niche-based farming can help food security through direct use of products or trade in high-value products (Jodha 1992 and 1995). The present trends of rapid expansion of horticultural crops will have positive implications for the future development of mountain agriculture in terms of harnessing the comparative advantages of mountain areas; advantages that have positive ecological and economic effects. This could also lead to a possibility of cultivating/putting more fertile lands with irrigation (lands that are presently under cereal production) under high-value

cash (HVC) crops such as fruit, vegetables, and medicinal plants, all of which, indeed, depend more on economic profitability and market demand.

Case studies on the agricultural transformation of some mountain areas have shown how farming of HVC crops has increased food security and employment, thus improving the living conditions of mountain people (Partap 1995; Sharma 1996; Sharma 1997; Sharma and Sharma 1997; Tulachan 1997; and Badhani 1998). They also show that accessibility and the wider market network and strong R&D institutions are critical to the commercialisation of subsistence agriculture in the mountains through intensification of HVC crops. In view of future prospects, Nepal's twenty-year Agricultural Perspective Plan (APP) emphasised the development of high-value agriculture in the mountains of Nepal in order to improve the incomes of mountain people.

Development of HVC crops and further diversification in the mountains will also increase the trade between uplands (mountains) and lowlands (plain areas) in terms of mountain people specialising in HVC crops such as fruit, vegetables, flowers, and medicinal plants and lowland farmers specialising in cereal crops. Thus, by developing an effective exchange mechanism, possible improvements in terms of trade in favour of the hills and mountains can occur.

There is a great prospect of increasing the cash incomes of farmers in the HKH. Growing high-value crops such as fruit and vegetables and raising livestock for smallholder dairies and micro-livestock for meat have great potential for increasing cash incomes and eventually the standards of living of farmers. Likewise,the increasing involvement of women in research and extension programmes and introducing programmes to improve the food security of marginalised mountain households would

Box 2: Main Findings in Mountain Agricultural Trends in the HKH

- Very similar trends in mountain agriculture throughout the HKH in terms of land-use changes and livestock population
- Stagnation in growth in area under cereal crops, but an increase in crop productivity in several areas leading to increased total cereal production
- Increasing trend of crop diversification into profitable horticultural and cash crops leading to greater linkages between uplands (mountains) and lowlands (plains)
- Decline in the productivity of HVC crops— This raises concerns about the long-term sustainability of these crops.
- Increasing use of chemical fertilisers and pesticides in commercial production areas leading to environmental pollution
- Increase in smallholder dairies and micro-livestock activities with increased use of external inputs such as purchased feed

prove beneficial. The problems associated with these prospects and, also, the strategies and options related to them have been summarised in Table 9.4.

However, there has been a decline in the productivity of HVC crops. This raises concerns about the long-term sustainability of these crops. In this context, Jodha (1991 and 1995) points out that reckless exploitation of mountain niches can result in their elimination. A study of niche-based farming of horticultural crops in the mountains of Nepal shows both spatial and temporal dimensions in terms of sustainability. High economic benefits induce a spatial dimension so that a particular crop spreads quickly over time. Nevertheless, the temporal dimension of niche-based farming is manifested by soil nutrient losses and diseases over time (Tulachan et al. 1998). Furthermore, it has been reported that there has been an increasing use of pesticides on horticultural crops. Due to small farm sizes, there has been an increase in land intensification and multiple cropping with excessive use of chemical fertilisers and pesticides in commercial production areas.This has raised concerns about environmental pollution, e.g., groundwater pollution and health hazards, and about equity – who benefits the most — and gender issues. Thus, along with the development of HVC crops, many second generation issues are emerging.

According to Rhoades (1997):

"perhaps, more importantly, the 'second generation' problems of ecological and social issues need to be understood prior to wholesale promotion of high-value cash crops. Impacts on equity of class, gender, and ethnicity, in particular, need to be further explored".

Thus, the key challenge before HKH policy-makers, planners, researchers, and field workers is how to address these emerging environmental and socioeconomic issues in order to sustain the production of HVC crops on a long-term basis.

The trends in livestock raising indicate that in future there is a possibility of increased development of smallholder dairies with improved buffaloes in the high pressure Himalayan sub-tropics where mixed crop-livestock farming systems prevail. The number of stall-fed buffaloes and goats is rising with increased use of external inputs-purchased feed. This will thus put less pressure on Common Property Resources such as forests and community lands, leading to positive impacts on the environment. Also, farming of buffaloes and goats will contribute positively to the food security and nutrition of mountain households.

Table 9.4: Future prospects, problems and strategies/options for agricultural development in the HKH

Future Prospects	Problems	Strategies/Options
Increasing prospects for high-value crops such as apples, citrus fruit, and vegetables	♦ Second generation problems ♦ Diseases and pests ♦ Lack of quality planting material ♦ Inadequate access to inputs ♦ Inadequate links to markets and processing facilities	♦ R&D support to develop diverse, locally adapted variety options/ plant materials well adapted to local environment ♦ R&D support for control of diseases and pests-use of integrated pest management ♦ Market development and expansion, processing facilities, and better access to inputs ♦ Support for value-adding techniques
Increasing prospect for high-value livestock such as smallholder dairy and micro-livestock activities	♦ Shortage of quality livestock feed and fodder ♦ Shortage of quality animals ♦ Inadequate animal health services ♦ Inadequate market/credit support micro-livestock enterprises	♦ Participatory action for managing CPRs that include grazing land, forest, and pastures ♦ R&D support for optimising output from feed resources available on farmers' lands—promotion of agroforesty/feed mix technologies ♦ Institutional support for better delivery of veterinary health services ♦ Institutional support for better market linkages for livestock products ♦ Value addition and diversification of livestock products
Increasing involvement of women in the production and marketing of high-value livestock products	♦ Insensitivity of planners and local institutions for local gender needs and concerns ♦ Lack of trained women researchers and extension workers ♦ Lack of participatory approach ♦ Inadequate market/credit support for women's micro-enterprises	♦ Better understanding of gender issues in the context of changing socioeconomic conditions ♦ Sensitise planners, policy-makers, and local institutions on gender issues/needs and concerns ♦ Involve women staff/knowledgeable women farmers in programme activity formulation
Increasing food security of marginalised mountain households	Because of ♦ small farm size ♦ marginal land ♦ limited opportunity to earn cash income	♦ Increasing food security through cash security ♦ Emphasising high-value cash crops ♦ Emphasising smallholder dairy and micro-livestock. activities ♦ Carry out appropriate R & D measures for HV agriculture ♦ Emphasise marketing and processing and value-adding techniques

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Chapter 10
Agricultural Development, Growth and Poverty in India's Mountain Region

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10.1 Introduction

India can be classified into five primary or major natural regions on the basis of topographical factors These are: i) the Himalayas and Associated Hills; ii) the Northern Plains; iii) the Peninsular Plateaus and Hills; iv) the East Coast Plains, and v) the West Coast Plains (Alagh 1990). Out of these five regions, the hill areas of the country constitute 21% of the total geographical area and 9% of the total population of the country. The hill areas offer a basic life support system and natural resources. Besides those living in this region, a large part of the population in the plains is dependent on hill resources, especially those of the Himalayan region, and on their management. Most of the perennial rivers of the country originate and have their watersheds in the Himalayas. These rivers are a lifeline of agriculture in the plains, and any adverse change in the Himalayan ecology directly affects flows in these rivers For instance, deforestation in the Himalayas results in reduction in water discharge from the watersheds and increase in soil erosion, leading to siltation of rivers which raises river beds, causes frequent floods in the plains, and reduces the lifespans of multipurpose reservoirs The indirect effects are innumerable.

The hill and mountainous areas of the Himalayan region are ecologically fragile and generally underdeveloped. Development of these regions cannot be ignored because underdevelopment and poverty are serious causes of ecological degradation in the hills. Furthermore, ecological problems experienced in the hills and mountains have

serious repercussions for large areas in the adjoining plains and for the global environment.

The salient distinguishing features of hill regions are: difficult terrain, sparse population, mostly inaccessible, far-flung small villages, tiny landholdings of stony soil or sloping fields, an agropastoral economy, emigration of able-bodied men, crop production as the prime responsibility of women, and scanty irrigation with little use of modern and improved inputs, keeping the productivity low. Consequently, the area is technologically backward and poor. The region generally lacks infrastructural facilities for irrigation, power, roads, and markets and not least an industrial climate and institutional finance systems (Swarup 1992).

As a result of increased recognition of the importance of the hill region and because of the specific circumstances of the hills, a separate chapter on Hill Area Development was included in India's 7th Five Year Plan with an emphasis on eco-restoration, eco-development, and eco-preservation. The Eighth Five Year Plan posited that the basic objective of the hill area development plan was socioeconomic development of the hills and the people living there in harmony with ecological development.

The present paper examines the growth experience of different hill states and regions of India and examines the extent of undernourishment and poverty. For most of the 11 hill states/regions the requisite information on economic growth and poverty is either not available or it is available but after a considerable time lag. In this paper we have furnished information on output, growth, and productivity of the agricultural sector and the total economy of all the hill states until the recent period. A special feature of the analysis in this paper is that it has prepared estimates of the undernourished population, which designate poverty, for each of the states, whereas, so far, the estimate pertaining to the state of Assam has been considered to hold true for the rest of the north-eastern states.

The paper is organised into the introduction and five other sections. The second section briefly describes the areas in the Indian Himalayan region, especially its Western and Eastern zones, in terms of agro-climatic characteristics and the significance of agriculture in the economies of various Himalayan States and areas. Section 3 analyses the progress and changes in the agricultural sector along with public investment in agriculture. Growth in the state economy and per capita income are examined in the fourth section. Section 5 discusses nutrition intake and poverty trends. Information and issues related to sustainable resource use are discussed in Section 6. The conclusions are drawn at the end of Section 6.

10.2 The Mountain Region of India and Its Socioeconomic Features

Geographical coverage

Most of the mountain area of India are located in 11 distinct states or regions comprising the states of Jammu and Kashmir, Himachal Pradesh, the hill region of

Uttar Pradesh known as Uttaranchal[1], and the north-eastern states of Sikkim, Assam, Arunanchal Pradesh, Nagaland, Manipur, Meghalaya, Mizoram, and Tripura (for details on socioeconomic characteristics of different states/areas of the region, see an earlier paper in this volume by B.K. Joshi). Based on agro-climatic planning, accepted as the principal method of agricultural planning in the country by the Planning Commission and Government of India, the mountain region of India is divided into two distinct zones, namely, the Western Himalayan Region and Eastern Himalayan Region. Broad characteristics of the two regions are described in Table 10.1. Beside the factors listed in Table 10.1, one important difference between the two regions is that, in the Western Himalayan region, settled agriculture is practised, whereas in the Eastern Himalayan region about one-third of the area is under settled agriculture and two-thirds under shifting (jhum) cultivation (Shah 1992).

Table 10.1: Broad distinguishing features of the western and eastern Himalayan zones

Characteristics	Western Himalayas	Eastern Himalayas
Geog. area in '000 sq.km	245	274
Net sown area %	18.2	18.7
Forest %	45.3	42.8
Irrigated area %	23.0	16.73
Climate	Semi arid, humid, cold arid	Humid
Rainfall mm	165-2000	1840-3528
Fertiliser/ha	23.0	9.4
Soil type	Hill soil, mountain meadow, skeltal, Terai, brown hill	Brown hill, red sandy laterite, acidic, alluvial, red loamy, Terai soil
Major crops	Wheat, maize, rice, pulses	Rice, maize, jute, r/mustard
Population under poverty line %	20.4	30.1

Note : The information pertains to 1988.
Source: Basu and Guha 1996 and Algah1990

Importance of agriculture in the economies of the hill states/areas

Work participation rate computed as per cent of main plus marginal workers in the total population is highest in Mizoram where about half of the population is engaged in some work activity or other (Table 10.2). The lowest worker to population ratio is observed in Tripura where only 31% of the population is engaged in work/activity.

In order to see the changes in structure of the economy of different hill states, the share of the agricultural sector in total state domestic product at current prices was compared at two points of time taking triennium averages for the years 1980/81 to 1982/83 and 1994/95 to 1996/97. The results are presented in Table 10.2. In a

[1] The region has since the writing of this paper been separated from the state of Uttar Pradesh to make a new state, called Uttaranchal.

developing state, share of agriculture in the total NSDP is expected to decline over time. This phenomenon is observed in all the hill states except for Sikkim and Mizoram where the share of agriculture during the last 15 years showed an increase. The agricultural sector accounted for more than half of the state income of Sikkim. On the other hand, in Nagaland, the contribution of the agricultural sector to the state economy was below 20%.

Table 10.2: Structure of workforce and economy of India's hill states/regions

(per cent)

State/Region	Non-agri. Workers in Main Workers	Share of Agri. in NSDP	
		TE 19	TE 1997
Jammu & Kashmir	na	37.6	34.6
Himachal Pradesh	33.4	36.3	27.8
Uttar Pradesh Hills	70.0	57.2	55.0
Sikkim	34.1	52.6	54.5
Assam	37.0	41.3	35.8
Arunachal Pradesh	34.5	36.3	29.5
Meghalaya	32.3	37.0	22.9
Mizoram	35.2	20.8	30.1
Nagaland	25.8	25.8	18.0
Manipur	31.6	43.8	30.1
Tripura	38.4	44.9	26.2
India	35.2	36.8	26.6

Source: CSO 1984, 1998
NA = Not available
TE = Triennium
NSDP = Not Sate Domestic Product

10.3 Status and Growth of the Agricultural Sector

As discussed earlier, the agricultural sector provides employment to more than two-thirds of the workforce and it contributes a substantial share to the state income. Therefore, agricultural growth and diversification are vital for the employment and income of the people. Major determinants of the income of rural people are per capita agricultural land and land productivity. Per capita land availability in different hill regions varied between 800 square metres to 2,300 square metres (vide Table 10.3). Per capita land availability was below 1,000 square metres in Manipur, Mizoram, and Jammu and Kashmir, whereas it was 2,300 square metres in Sikkim. In Himachal Pradesh and the UP Hills, per capita availability of agricultural land was 0.11 of an hectare.

The average size of holdings shows considerable variation across the hill states. Average size of holdings is below one hectare in Jammu and Kashmir, the UP Hills, and Tripura. At the other extreme is Nagaland where the average size of holding is

Table 10.3: Structure of agriculture and use of inputs in India's Hill States/Region

State/ region	Net sown area '000 ha	Per person net sown area (ha)	Net sown area under irrigation (%)		Fertiliser use/ ha of area (kg)		Average Size of holding (ha)	Per cent of marginal/ small farms
			1980-81	1995-96	1980-81	1995-96		
Jammu & Kashmir	736	0.10	42.5	52.4	29	69	0.83	90.2
Himachal Pradesh	572	0.11	16.1	17.7	28	52	1.20	83.6
UP Hills	665	0.11	28.6	18.5	6	17	0.96	88.1
Sikkim	95	0.23	11.6	16.8	5	11	2.11	69.8
Assam	2706	0.12	21.7	21.1	3	18	1.31	82.6
Arunachal Pradesh	150	0.17	21.4	24.0	1	0	3.62	36.8
Meghalaya	201	0.11	24.9	22.4	13	15	1.80	62.3
Mizoram	65	0.09	12.3	10.8	2	15	1.38	85.2
Nagaland	189	0.16	38.3	30.4	0.5	5	6.82	23.9
Manipur	140	0.08	46.4	46.4	22	86	1.23	83.1
Tripura	277	0.10	11.6	13.3	8	30	0.97	89.9
India	142095	0.17	27.7	37.6	40	87	1570	78.0

Source: Ministry of Agriculture 1999

more than six hectares. In Arunanchal Pradesh and Sikkim holding sizes are around 3.6 and 2.1 hectares respectively. Except for Nagaland and Arunanchal Pradesh, landholdings below two hectares constitute 62 to 90% of the total landholdings. The greatest concentration of smaller-sized holdings was in Jammu and Kashmir, closely followed by Tripura and the hill region of UP

Input use in agriculture

Irrigation and fertiliser are considered to be the major determinants of agricultural growth and productivity. The progress in the use of these two inputs is presented in Table 10.4. Net sown area under irrigation varied between 11.6 to 46.4% in different hill states during 1980-81. During 1980-81, Manipur was at the top, with 46% net sown area under irrigation, it remained at that level even in 1995-96. In the case of Jammu & Kashmir, irrigation coverage increased from 42.5% during 1980-81 to 52.4% during 1995-96. Coverage of irrigation was below 12% in Sikkim and Tripura during 1980-81, and it has increased somewhat during the last 15 years. One disquieting trend in the case of irrigation has been that some states witnessed a sharp decline in irrigated area. Irrigation coverage in Nagaland declined from 38% in 1981 to 30% in 1995-96. Similarly, the hill region of UP witnessed a decline of 10% in irrigation coverage in the same period. Irrigation facilities were slow to improve in the states of Assam, Himachal Pradesh, and Manipur.

Fertiliser use per hectare of net sown area is highest in Manipur followed by Jammu and Kashmir. These two states were also first in terms of irrigation coverage. In

Table 10.4: Capital outlay per hectare of net sown area at 1980- 81 prices, 1974-75 to 1996-97

(rupees per year)

State	1974-75 to 1978-79 5th Plan	1980-81 to 1984-85 6th Plan	1985-86 to 1989-90 7th Plan	1990-91 & 1991-92	1992-93 to 1996-97 8th Plan	Average Annual Expenditure
Jammu & Kashmir	1563	1072	1060	1405	1176	1242
Himachal Pradesh	420	335	277	267	249	323
Assam	163	190	197	205	122	172
Sikkim	542	524	521	646	504	537
Arunachal Pradesh	728	1107	1107	1457	1514	1148
Manipur	1420	1272	1121	1627	1170	1295
Meghalaya	417	408	418	643	706	500
Mizoram	1690	1399	1573	1705	1744	1606
Nagaland	876	913	733	581	239	702
Tripura	743	1138	1295	1372	796	1043
All India	311	258	197	187	182	237

Source: Ministry of Agriculture 1999

Himachal Pradesh also per hectare fertiliser use is quite high compared to other hill states. The lowest fertiliser use is observed in the case of Arunachal Pradesh where less than one kg of fertiliser is applied per hectare of net sown area. Similarly, per hectare fertiliser use in Nagaland is around five kg. Though fertiliser use witnessed high growth in all the states, except Arunachal Pradesh, per hectare use of fertiliser is below 20 kg in seven out of 11 hill states/regions.

Public investment in agriculture

Public investment in agriculture plays a vital role in the development of infrastructure. A series from 1974-75 has been compiled by summing up capital expenditure on all important heads for each state. It covers capital outlay from public funds on medium and major irrigation schemes, special and north-eastern development funds, soil and land development, agricultural markets and storage, rural roads, rural electrification, and so on. (see Chand 1999 for details). For the sake of brevity, the information at state level is presented by grouping years according to the period of the Five Year Plans. Capital expenditure on public account per hectare of net sown area at 1980-81 prices in different hill states is presented in Table 10.4.

Public capital invested in agriculture was lowest in Assam among all the hill states. Except for Assam, public money for infrastructural development in all the hill states was higher than the national average. The average of the resources allocated for public investment in agriculture per hectare of net sown area during the last 25 years reveals an interesting pattern. Public investment in agriculture in Jammu and Kashmir was more than four times the national average. Compared to the country average of IRs[2] 237 per ha of net sown area, the amount spent for infrastructural development

[2] There are 46.05 Indian rupees to the US dollar.

was IRs 323 in HP, IRs 500 in Meghalaya, IRs 537 in Sikkim, IRs 702 in Nagaland, and more than IRs 1,000 in Tripura, Manipur, Arunachal Pradesh, and Mizoram.

The allocation of public investment in agriculture shows that resources allocated to the north-eastern states and Jammu and Kashmir were very high compared to Assam and Himachal Pradesh and compared to the average of all other states.

Flow of institutional credit

The flow of institutional credit per hectare of cultivated area from the commercial and cooperative banks together has been much lower than the national average in all the hill States (Table 10.5). Himachal Pradesh has the highest per hectare credit, but it is still only about 70% of the all-India average. Tripura and Jammu and Kashmir come next to Himachal Pradesh, although they are far behind in respect of per hectare flow of institutional credit. The lowest figures are those for Manipur, Assam, and Meghalaya with totals (working capital and term loans) of IRs 50, 70, and 143 per hectare respectively compared to a figure of IRs 1,644 for the country as a whole. A special feature of credit in most of the hill states is a relatively larger proportion of term loans than is observed for the country as a whole, suggesting that loans for capital investments have greater weight in these areas than in the plains, although in both cases short-term loans of one-year maturity meant to meet working capital requirements constitute most of the institutional credit made available to farmers.

Table 10.5: Flow of institutional credit to the hill region

(in million IRs)

States	Cooperatives		Commercial Banks		All Agencies		Per Ha Credit (IRs)	
	Working Capital	Term Loan	Working Capital	Term Loan	Working Capital	Term Loan	Working Capital	Term Loan
Jammu & Kashmir	102.7	27.7	32.6	28.4	135.3	56.1	183	76
Himachal Pradesh	221.7	134.9	113.4	118.8	335.1	253.7	585	443
Sikkim			08.1	05.8	08.1	05.8	85	61
Assam	05.5		26.3	157.5	31.8	157.5	12	58
Arunachal Pradesh	16.2		00.6	05.0	16.8	05.0	112	33
Meghalaya	15.6		03.4	09.9	19.0	09.9	94	49
Mizoram	08.2		00.5	01.1	08.7	01.1	134	17
Nagaland	20.0		01.0	00.5	21.0	00.5	103	2
Manipur			00.5	06.5	00.5	06.5	4	46
Tripura	30.1	08.8	71.1	12.6	101.2	21.4	384	81
India	120.19	233.8	562.5	335.0	176.44	568.9	1243	401

Source: Ministry of Agriculture 1999

Diversification of agriculture

Since the productivity of traditional food grains(cereals) is quite low, diversification of agriculture through high-value crops like fruit, vegetables, and condiments and

spices is an important instrument for growth and for improving the productivity of hill agriculture (Chand 1996a, 1996b, 1996c, 1997, and 1999). Broad contours of agricultural diversification that took place from 1980-81 to 1992-93 in different hill states can be seen from Table 10.6. Cereals continued to have the predominant share covering 55 to 90% of the cropping area in different states. Cereals are cultivated on about 90% of the cropped area in Manipur and Himachal Pradesh, whereas they account for 56 to 62% of the gross cropped area in Meghalaya, Sikkim, and Tripura. In the UP hills, the share of cereals in the total cropped area increased from 70% in 1980-81 to 81% in 1992-93.

There was an increase in area cultivated with fruit crops in all the states; the biggest increase is observed in the case of Mizoram where fruit cultivation increased from three per cent to 10% in a short duration of 11 years. Fruit cultivation is continuing to be the most popular in Tripura where the area under fruit constitutes 12% of the total cropped area. Meghalaya, Arunachal Pradesh, and Sikkim showed an impressive shift in favour of area under fruit. Area under fruit remained below three per cent in the UP hills, Manipur, Assam, and Nagaland.

As was the case with fruit, the area under vegetables also grew spectacularly in Mizoram. The State now has 12% of its area under vegetable cultivation, the highest among all the hill states of India. Meghalaya continues to have 11% of its area under vegetable production. Among the other states, vegetables are sown on more than six per cent of the cropped area in Sikkim, Tripura, Arunachal Pradesh, and Manipur.

Table 10.6: Changes in the share of major crop groups in total area in various hill states

(% in total crop area)

State/region	Food Grains (Cereals)		Fruit		Vegetables		Condiments & Spices	
	1980-81	1992-93	1980-81	1992-93	1980-81	1992-93	1980-81	1992-93
Jammu & Kashmir	85.9	82.7	3.6	4.8	1.6	1.3	0.2	0.17
Himachal Pradesh	90.6	89.4	2.6	4.6	2.5	2.4	0.3	0.3
Uttar Pradesh Hills	69.9	80.9	0.57	0.91	1.16	1.83	0.28	1.18
Sikkim	54.2	62.4	-	6.3	1.3	6.7	12.1	20.8
Assam	71.8	71.3	1.4	2.6	3.4	5.0	2.3	2.8
Arunanchal Pradesh	88.4	74.0	2.0	7.7	4.8	7.2	0.8	0.95
Meghalaya	55.8	55.8	1.4	9.0	11.0	11.2	6.7	7.76
Mizoram	71.2	70.6	3.0	10.0	3.2	12.1	9.5	3.9
Nagaland	87.9	79.8	1.6	2.3	3.7	1.9	1.9	1.3
Manipur	92.0	90.3	1.1	2.0	1.0	6.4	1.8	0.62
Tripura	79.8	61.4	12.0	12.1	6.0	6.9	1.1	1.1
India	73.9	67.2	1.1	1.5	1.7	2.2	1.2	1.4

Source: Ministry of Agriculture 1999

Although Himachal Pradesh is acclaimed to have achieved significant transformation through horticulture, the area under vegetables in this state is a meagre 2.4%. Other regions with less than two per cent of their area under vegetable crops are J&K, Nagaland, and the U.P hills.

Condiments and spices are grown on about 20% of the total cropped area in Sikkim, and on about 8% of the area in Meghalaya. In other states, the area under condiments and spices varies between 0.17% (J&K) and 4% (Mizoram).

Agricultural productivity and growth

There are wide variations in agricultural productivity and growth of output in the agricultural sector throughout all the hill states. Agricultural output increased annually at the rate of two to 2.5% during the last 15 years in the states of Jammu and Kashmir, Himachal Pradesh, Assam, Manipur, and Tripura (Table 10.7). The lowest growth rate (1.29 % per annum) was recorded in Meghalaya, whereas the highest growth rate (10.5%) was in the state of Mizoram. Sikkim and Arunachal Pradesh had a growth rate of about six per cent in agricultural output.

Table 10.7: Agricultural growth and productivity in India's hill states at 1980-81 prices

State/Region	NSDP Agr. IRs '000 at Constant Prices		Productivity (NSDP/NSA) IRs		Growth Rates NSDP Agri. TE 83 to TE 97 (% per annum)	NSDP Agriculture (at Current Prices TE 1995-96 IRs)	
	TE 1983	TE 1997	TE 1983	TE 1997		Per Hectare	Per Rural Person
Jammu & Kashmir	40489	55767	5631	7577	2.31	22827	1914
Himachal Pradesh	27021	38104	4724	6662	2.49	21976	2213
Uttar Pradesh Hills							
Sikkim	2808	6176	3383	6501	5.79	21607	2396
Assam	103584	142081	3862	5251	2.28	21723	2352
Arunanchal Pradesh	3958	9148	3472	6099	6.17	18694	2768
Meghalaya	6864	8208	3557	4084	1.29	16295	1599
Mizoram	1321	5313	2032	8174	10.45	32105	2557
Nagaland	3257	5192	2061	2545	3.39	17794	4472
Manipur	9115	12076	6511	8626	2.03	33820	2267
Tripura	12152	16609	4803	6315	2.26	18144	1493
India	4265084	6545056	3036	4611	3.11	16007	2452

Source: CSO 1984, 1998

NSDP = Net State Domestic Product
NSA = Net Shown Area
TE = Triennium

Despite relatively slow growth, agricultural productivity in Jammu and Kashmir and Himachal Pradesh was higher than in the north-eastern states, except for Manipur and Mizoram. Among all the states, the highest rate of agricultural productivity during the early 1980s, as well as the mid 1990s was in Manipur. Agricultural productivity was lowest in Mizoram during the early 1980s, but spectacular growth enabled the state to raise agricultural productivity to the second position from the top. During the recent triennium, the lowest productivity at 1980-81 prices was observed in the case of Nagaland and at current prices in Meghalaya.

10.4 Growth in the Overall Economy and Per Capita Income

Net state domestic products (NSDP)of different states during the trienniums ending in 1982-83 and in 1996-97, and growth rates along with per capita income are presented in Table 10.8. The lowest growth in NSDP since 1980-81 is recorded in the state of Jammu and Kashmir and the highest growth is observed in the state of Arunachal Pradesh: State income showed a growth rate exceeding six per cent in the case of Nagaland, Tripura, Mizoram, and Arunachal Pradesh. Growth rates varied between four to five per cent in the states of Manipur, Meghalaya, and Himachal Pradesh. In Sikkim and Assam, state incomes increased at the rate of 5% and 3.3% respectively.

The high growth rate in NSDP meant that Arunachal Pradesh realised the highest per capita income among all the hill states, and this is also about 25% higher than the average per capita income for the whole country. Per capita income in all other hill states was lower than the average for India. One reason for the low per capita income

Table 10.8: Growth in net state domestic product (NSDP) and per capita income at 1980-91 prices

State/Region	NSDP Total (IRs '000)			Growth Rates(%)	Per Capita Income (IRs)
	TE 1983	TE 1997	TE 83-TE97	TE 1983	TE 1997
Jammu & Kashmir	107767	161200	2.92	1777	1926
Himachal Pradesh	74400	137200	4.47	1718	2518
Uttar Pradesh Hills	5333	11325	5.53	1644	2467
Sikkim	251067	397333	3.33	1374	1606
Assam	10900	31033	7.76	1692	3209
Arunachal Pradesh	18567	35867	4.82	1367	1773
Meghalaya	6359	17638	7.56	1244	2117
Mizoram	12600	28800	6.08	1582	2170
Nagaland	20833	40150	4.80	1443	1993
Manipur	27067	63467	6.28	1298	2155
Tripura					
India	11592033	24583167	5.52	1672	2670

Source: CSO 1984, 1998

of the north-eastern states is the high rate of growth in population in these states compared to the rest of India.

10.5 Nutrition and Poverty

Information on daily intake of calories, protein, and fat per consumer unit and per cent of population that does not consume the minimum amount of calories required has been computed from household data from the 50th round of the Quinquennial Survey of the National Sample Survey Organisation (NSSO) on consumer expenditure pertaining to the year 1993-94. The information is presented in Table 10.9. Among all the hill states and the UP hill region, Jammu and Kashmir is at the top in terms of intake of calories, protein, and fat. Per capita (consumer unit) intake of calories in the state is 3,154 Kcal, while the intakes of protein and fat are 95 and 58 gm respectively. Himachal Pradesh followed Jammu and Kashmir closely with a per capita daily intake of 2,916 Kcl energy, 88 gm of protein, and 56 gm of fat. Both per capita calorie and protein intakes are lowest in Sikkim, while fat consumption is lowest in Manipur. In all the eastern states, per capita calorie and protein intakes are lower than the average for the country.

Based on the norm of the minimum calorie requirement[3], about 10% of the rural population in Jammu and Kashmir, 21% in the UP hills, and 24% in Himachal Pradesh are undernourished. The proportion of rural people who do not consume sufficient calories is significantly higher in the Eastern Himalayan zone than in the Western region. More than half of the rural population in Sikkim, Arunanchal Pradesh, Meghalaya, and Tripura is undernourished according to the NSSO survey for 1993-94. The proportion of undernourished rural population was 47% in Assam and 41% in Mizoram. In Manipur and Nagaland about 29% of rural people did not consume sufficient calories.

There is a very close association between nutritional intake and income; and the poverty line represents the minimum level of income corresponding to one that enables a household to buy food items that supply the minimum calorie requirements. In other words, the population that has not been able to consume sufficient calories can be considered to be the population living below the poverty line. Based on this, the proportion of undernourished population, presented in Table 10.9, can be treated as the population living in poverty.

Although the issue of poverty has been studied extensively in India, state-level estimates of poverty are not provided separately for each of the north-eastern states. Generally, estimates of the population below poverty level for the state of Assam have been used for all the northern hill states. These estimates are presented in Table 10.10. In fact our estimates of undernourished population are the first attempt to provide such information for each of the north-eastern states.

[3] The undernourished population has been estimated by computing the number of people consuming less than 2,300 calories per day.

Table 10.9: Nutritional intake and incidence of undernourishment in India's hill states, 1993-94

State/Region	Nutritional Intake/Consumer Unit/Day			Undernourished
	Calorie Kcal	Protein GM.	Fat GM	Population %
Jammu & Kashmir	3154	94.9	57.8	10.0
Himachal Pradesh	2916	88.5	55.9	24.0
Uttar Pradesh Hills	na	na	na	21.0
Sikkim	2281	59.9	38.6	57.0
Assam	2406	60.1	25.5	47.0
Arunanchal Pradesh	2620	75.7	20.2	52.0
Meghalaya	2430	62.5	28.7	51.0
Mizoram	2576	72.4	27.4	41.0
Nagaland	2667	74.7	19.0	28.0
Manipur	2664	68.0	15.3	30.0
Tripura	2350	62.5	26.5	50.0
India	2683	75.0	31.4	35.0

Source: NSSO (1996)
NA = Not available

Table 10.10: Changes in rural poverty during 1973-93

State/Region	1973	1983	1993	% Change 1973-83	% Change in 1983-93
	% of population below poverty line				
Jammu & Kashmir	45.5	26.0	30.3	-19.5	4.3
Himachal Pradesh	27.4	17.0	30.3	-10.4	13.3
Uttar Pradesh Hills					
Sikkim	52.7	42.6	45.0	-10.1	2.4
Assam	52.7	42.6	45.0	-10.1	2.4
Arunanchal Pradesh	52.7	42.6	45.0	-10.1	2.4
Meghalaya	52.7	42.6	45.0	-10.1	2.4
Mizoram	52.7	42.6	45.0	-10.1	2.4
Nagaland	52.7	42.6	45.0	-10.1	2.4
Manipur	52.7	42.6	45.0	-10.1	2.4
Tripura	52.7	42.6	45.0	-10.1	2.4
India	56.4	45.6	37.3	-10.8	-8.3

Source: Planning Commission 1992

10.6 Issues of Sustainability

There is not much information available in official records about the sustainability of natural resources in the hill states. We have made use of pieces of information on this aspect available here and there to draw some inferences about the sustainability issues. It is widely believed that excessive pressure of human beings and livestock and the extent of dependence on natural resources affect sustainability of the economy. These and similar issues are discussed in the following sections.

Livestock population and density

The livestock population in total and by the large and small ruminants and growth rate in their population are presented in Table 10.11. The numbers of both cattle and sheep and goats showed numbers in all areas declining between 1982 to 1992, except in the state of Manipur. The highest increase is in the order of around nine per cent in Nagaland, followed by Arunachal Pradesh. Livestock population increase was lowest (0.2 % per annum) in Himachal Pradesh. In contrast, in Jammu and Kashmir, the population of cattle increased at the rate of 2.7% and that of sheep and goats by 5% per annum.

Table 10.11: Total population and growth in livestock in India's hill states/region

States	Cattle '000		Growth Rate	Sheep and Goats '000		Growth Rate	Total Livestock '000		Growth Rate
	1982	1992	%/year	1982	1992	%/year	1982	1992	%/year
Jammu & Kashmir	2888	3784	2.74	2913	4712	4.93	5801	8496	3.89
Himachal Pradesh	2790	2865	0.27	2151	2194	0.2	4941	5059	0.24
U.P Hills		2772*			1268*			4206*	
Assam	7308	11077	4.25	1775	3603	7.34	9083	14680	4.92
Manipur	885	833	-0.6	56	52	-0.74	941	885	-0.61
Meghalaya	579	668	1.44	212	217	0.23	791	885	1.13
Mizoram	53	66	2.22	29	21	-3.18	82	87	0.59
Sikkim	177	200	1.23	106	129	1.98	283	329	1.52
Tripura	696	969	3.36	348	434	2.23	1044	1403	3
Arunachal Pradesh	180	329	6.22	96	157	5.04	276	486	5.82
Nagaland	160	364	8.57	62	152	9.38	222	516	8.8
India	262236	288755	0.97	144020	166062	1.43	406256	454817	1.14

Source: Ministry of Agriculture 1982, 1987 & 1992

* Refers to the year 1988

The number of livestock per thousand persons and livestock intensity per hundred hectares of net sown area (NSA) and per hundred hectares of forest area in different states are shown in Table 10.12. The ratio of population of cattle and buffaloes to human population is highest in Himachal Pradesh and lowest in Mizoram. There were 55 cattle per hundred persons in Himachal Pradesh and only about ten in Mizoram. The number of sheep and goats per hundred persons was highest in Jammu and Kashmir. There were 61 sheep and goats per hundred persons in Jammu and Kashmir, followed by Himachal Pradesh with 42 sheep and goats. The number of sheep and goats was below 3 per 100 persons in Manipur and Mizoram. In the other states, the number of sheep and goats per 100 persons varied between 12 to 32.

The number of total livestock was higher than human population by about 13% in Jammu and Kashmir, while in Himachal Pradesh, Arunachal Pradesh, and Sikkim,

Table 10.12: Density of livestock in India's hill states/region 1992

States	Livestock/ '00 Persons			Livestock/ '00 ha NSA			Livestock/ '00 ha Forest Area		
	Cattle	Sheep & Goat	Total	Cattle	Sheep & Goat	Total	Cattle	Sheep & Goat	Total
Jammu & Kashmir	49	61	113	518	645	1191	138	172	317
Himachal Pradesh	55	42	99	499	382	890	277	212	493
U.P Hills*	47	21	71	417	191	632	81	37	123
Assam	49	16	72	409	133	594	558	182	810
Manipur	45	3	70	595	37	921	138	9	214
Meghalaya	38	12	67	331	107	585	71	23	126
Mizoram	10	3	30	102	32	312	5	2	16
Sikkim	49	32	95	211	136	405	78	50	150
Tripura	35	16	58	368	165	605	160	72	263
Arunachal Pradesh	38	18	97	221	105	565	6	3	16
Nagaland	30	13	89	192	80	565	42	18	124
India	34	20	56	202	116	330	425	244	693

Source: Ministry of Agriculture 1982, 1987 & 1992
* Refers to 1988

livestock population was slightly lower than human population. There were about 3 animals per 10 persons in Mizoram, which is the lowest among all the hill states.

Jammu and Kashmir also topped in the number of livestock per hectare of net sown area. There were about 12 animals per hectare of net sown area in this state. The second highest pressure of livestock on net sown area was in Manipur, and the lowest livestock pressure was observed in Mizoram where one hectare of net sown area supports about three livestock units.

When area under forests is used as a denominator, then livestock density turns out to be highest in Assam where one hectare of forest area supports about eight animals. The lowest livestock pressure on forest land is found in the states of Arunachal Pradesh and Mizoram where there is one livestock unit per six hectares of forest area.

Demand for fuelwood

Demand for firewood is one of the factors that effects tree cover in the forests. Because of the harsh climate and scarcity of alternative sources of energy, use of firewood in hill states is quite high. It can be seen from Table 10.13 that per capita use of firewood in the western Himalayan zone is estimated to be 710 kg and that in the eastern Himalayan zone is 621 kg. This is in contrast to other agro-ecological zones where per capita use of firewood varies between 130 to 582 kg.

Forest cover and land degradation

Changes in forest cover, distribution of area under forest cover according to crown density, and area under problem lands like those suffering from land erosion and

Table 10.13: Average per capita use of non-commercial fuels in various agro-climatic zones

Agro-climatic Zone	Firewood kg	Crop Residue kg	Cow Dung kg
Western Himalayan Zone	710	52	79
Eastern Himayalan Zone	621		
Other Zones	130-582	11-321	47-182

Source: Planning Commission 1992

degradation are presented in Table 10.14. During the short period of the last six years for which information is available, the area with forest cover has increased at a rate varying from 1.9 to 6.2% in the states of Jammu and Kashmir, Sikkim, and Himachal Pradesh, while there was no significant change in Tripura. In the remaining six states, area under forest cover declined.

Table 10.14: Area under forest and degraded lands in Indian hill states

State/Region	Changes in Forest Cover (100 sq. km.)			Forest Area Based on Crown Density (%)		Degraded Land As % of Total Rep. Area
	1987-89	1993-95	% change	>40 %	10-40%	
Jammu & Kashmir	200.6	204.4	1.89	54.8	45.2	19.82
Himachal Pradesh	117.8	125.2	6.28	75.6	24.4	56.38
Uttar Pradesh Hills				NA	NA	NA
Sikkim	30.3	31.3	3.30	79.2	20.8	42.68
Assam	247.5	238.2	-3.76	64.0	36.0	38.19
Arunachal Pradesh	687.6	686	-0.23	79.3	20.7	48.26
Meghalaya	158.7	156.6	-1.32	20.8	79.2	49.22
Mizoram	188.5	187.7	-0.42	22.7	77.3	29.02
Nagaland	143.2	142.2	-0.70	24.7	75.3	67.40
Manipur	176.8	174.2	-1.47	30.0	70.0	33.20
Tripura	55.3	55.4	0.18	33.0	67.0	26.60
India	6391.8	6333.9	-0.91	60.2	39.1	57.37

Source: CSO 1998

In the Western Himalayas, about 45% of the forest cover in Jammu and Kashmir and 24% in Himachal Pradesh has a crown density of between 10 to 40%. The rest of the forest area has a crown density above 40%. In the Eastern Himalayas, the density of forest cover was better in Sikkim, Assam, and Arunanchal Pradesh. In the rest of the states more than two-thirds of the forest area has a 10-40% crown density.

The extent of land mass prone to soil erosion and degradation constitutes about 20% of the geographic area in Jammu and Kashmir and 56% in Himachal Pradesh. In the north-eastern region, the proportion of problem lands in the geographic area is highest in Nagaland (67 %) and lowest (27%) in Tripura.

10.7 Conclusions

The paper shows that per capita income in all the hill states of India is lower than the average of the country as a whole and that the incidence of poverty is quite high in the north-eastern states. Although the productivity of agriculture per unit area is higher than the national average, agricultural income is low because of the scarcity of per capita net sown area. Similarly, considering the potential, the agricultural output in hill states is low, and there seems to be several factors underlying this. One, fertiliser use is poor and irrigation systems quite scarce. Two, hill states have poor infrastructure, particularly in terms of accessibility to roads and markets, and accessibility is vital for harnessing the production potential and for translating production into income.

Although the north-eastern states have been allocated quite a lot of resources for agricultural infrastructure, this has not resulted in commensurate growth in output. It seems there are serious institutional constraints hindering the progress of agriculture in the north-eastern region. These relate to marketing, farming systems, access to institutional credit, and need-based infrastructural development with the involvement of local people.

There are indications of unsustainable use of natural resources.These are reflected in (i) decline in area under irrigation due to degradation of water resources, (ii) heavy livestock pressure, (iii) poor and declining forest cover, (iv) a high proportion of problem lands in total land mass. The pressure on natural resources can be reduced only by raising the socioeconomic status of people by raising incomes through agricultural growth and development. There is also an urgent need to introduce measures to curtail the rapid population growth in the hill states. It must, however, be recognised that there is tremendous heterogeneity across and within each hill state/region and, as a result, it is difficult to generalise the factors contributing to growth and alleviation of poverty, and, therefore, it is necessary to identify the constraints and options and devise a strategy for agricultural development and diversification at the micro-level.

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Chapter 11
Commercialisation of Natural Resources for Sustainable Livelihoods: the Case of Forest Products

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11.1 Introduction

Mountain communities in South Asia, especially those who live in the Hindu Kush-Himalayan region, are characterised as marginalised communities in terms of their access to capital, technology, and decision-making authority; fragile in terms of the health of the ecosystems they live in; and vulnerable in terms of their overwhelming dependence on natural resources. The region is facing greater and more difficult challenges than ever before in achieving balanced economic growth, alleviating poverty, and sustainably managing their renewable natural resources. People's dependence on forest and related natural resources is historic, cultural, and inevitable as other viable alternatives for earning a living have been few and far between. As the economies of the predominantly mountainous countries in the region are gradually liberalised and a wave of consumerism is setting in, the income needs of the people have been steadily growing. The consequence of this trend has been the commercialisation of forest products, mainly non-timber forest products (NTFPs). Among the NTFPs, the preference for a particular commodity is generally guided by the prevailing market forces, and these are of both a traditional and economic nature.

Medicinal and aromatic plants, rattan, wildlife products, and different types of food supplements dominate the list, as they are relatively high-value and low-volume commodities. The timber trade, which used to be strong in some areas during the early fifties and sixties, has been rapidly losing ground , and almost all the South Asian countries are now net importers of timber and timber products.

Value of forest resources

The Hindu Kush-Himalayan (HKH) region is rich in natural resources such as forests, rangeland, rugged but awe-inspiring snow-clad mountains, and marginal lands. It is estimated that only around 20% of the total landscape of the region is forested. However, the remaining 55% of wild lands are classified as shrub lands and rangelands, most with more than 30% slopes, and these are also rich in related natural resources (Myint 1998). Together these lands are home to more than 140 million people and a large number of domesticated and wild animals (ICIMOD 1998).

The role of forest resources in meeting increasing human needs and the deteriorating plight of mountain forests during the past four decades have caused intense national and international debates and raised concerns in the Himalayan region. However, attention and interventions have so far focused mainly on resource degradation, loss of biodiversity, and the effects of loss of forest cover on the regional and global climates. Inadequate attention has been paid locally, nationally, and internationally to the serious implications of diminishing forest resources for local people who depend on forests for their livelihoods.

Despite the number of bilateral and multilateral programmes and projects designed and implemented during the last three decades in most of the countries of the HKH region, the forest-dependent communities remain among the poorest. In recent years, the community and participatory forestry programmes being implemented under various names in most of the countries in the HKH region have somewhat enhanced the access to forest resources by local communities as well as raising greater awareness regarding their rights over and responsibilities towards the protection and management of the forests. Yet, as the forest areas are not uniformly distributed across the population regions and the quality thereof is not similar, there remains a built-in inequity in access to and benefit from the forest resources. Most of the public forest lands in the HKH region are located in remote areas where transportation facilities are either non-existent or difficult, markets are distant, and public services such as schools, health care, telephone, and extension services are limited. Employment opportunities are severely limited as the mainstay of the economy is agriculture, and this in itself is subsistence oriented, the main reason being the unsuitability of predominantly sloping lands for intensive agriculture. These conditions severely limit villagers' livelihood opportunities. To make the situation worse for local communities, because of their ethnic, geographic, and economic marginality, they also have become marginalised politically, lacking a forceful voice and proper representation in the seats of power. In such a situation,

local communities have developed their security strategies based on forest resources, and especially on non-timber forest resources.

Recent initiatives

In recent years, as part of a move to empower the local communities, a number of political, legislative, and development initiatives has been launched for the benefit of the local communities of the HKH countries. The 73rd and 74th amendments to the Constitution of India, establishment of an autonomous Chittagong Hill Tract Autonomous Council in Bangladesh, implementation of a Decentralisation Act in Nepal, and ongoing moves to form district-level governments in Pakistan are some of the examples of serious efforts to delegate resource management authority to local self-government. These efforts auger well for the sustainable management of forest resources, as among the best incentives for better management of open access resources are assignation of legal and administrative ownership to the actual stakeholders and exclusion of free riders. However, assigning the management authority for and usufruct rights over the forests to local communities, which in most cases lack financial resources, technical know-how, managerial expertise, and information infrastructure, is fraught with danger. Communities with a shorter planning horizon and a propensity to develop cash-oriented management systems may end up in a trap of unsustainable commercialisation of their forest resources , as witnessed in the case of some FUG-managed forests in Nepal.

As mentioned above, the main purpose of this paper is to highlight the importance of commercialisation of forest products to the peoples of South Asia, especially NTFPs; the increasing risks and danger of unmanaged commercialisation in the HKH region; the diversity of cases prevalent in the region; lessons learned for the countries of South Asia; and possible follow-up activities that can arise from these experiences.

The paper argues that devolution of forest management authority to local communities in the HKH region , on the one hand, does provide a good opportunity to improve the living standards of the poor; however, on the other hand, it may lead to an increase in exploitation of resources in order to raise the incomes of local people. In addition, to create sustainable means of earning a living, the commercialisation process has to be well planned, designed, and monitored. Above all, the people at the collection and production levels need to understand and participate in the process in order to reap an equitable benefit from it. It is also argued that commercialisation of forest products is inevitable in the HKH region, which is not only known to be one of the 12 biodiversity ‘hot-spots’ in the world but is also an area beset with extreme poverty and deprivation. Governments, NGOs, and the private sector need to plan the commercialisation process to meet basic human needs, achieve high literacy rates, improve access to education and health care facilities, improve the quality of life, and provide a clean and safe environment. Before discussing the strategies, the role of the forest in supporting livelihoods is discussed.

11.2 The Forest and Sustainable Livelihoods

Sustainable livelihoods

Livelihood implies capabilities, assets (resources, infrastructure, claims, and access), and activities required to earn a living. A sustainable livelihood is one that can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide opportunities for future generations (Chambers and Conway 1992, cited by IFAD 1999). Forest and allied resources in the HKH region are highly suited to secure the livelihoods of local people, and this is due to reasons that will be discussed later in the paper.

Forest dependent livelihoods

Mountain people earn their living from the forests in many ways: 1) earning cash income; 2) satisfying their needs for fuel, medicine, shelter, and supplementary food; 3) using traditional agricultural inputs such as leaf litter, fodder, small tools, and water; and 4) cultivating land inside the forest boundaries as forest encroachers. Because of the physical remoteness, the linkage between the local community and forestry is traditional, and they are economically and ecologically inseparable from each other. Dependency on forest resources is both historic and cultural — so much so that it is an integral component of the forest ecosystem of the region. The forest and many tribal groups in the northeastern Himalayas are inseparable and, therefore, very rightly, they consider the forest as their nourishing mother. Some of the distinct items on which the communities in the HKH region are dependent on forests for their livelihoods are described in the following passages.

Sources of food

Forests and trees contribute to household food security and family nutrition through a variety of mechanisms. Hill and mountain communities, especially those in remote areas, are found to use forest products in a significant proportion of their regular diet. In predominantly subsistence economies in South Asia, many forest and tree foods make important contributions to household nutrition. Tree foods are comprised mainly of fruit and seeds, nectars and saps, stems and tubers, and leaves, twigs, and mushrooms. In Yunnan Province in China, the middle hills of Nepal, and the northeastern region of India, bamboo shoots are commonly used as fresh or preserved vegetables. Producers in China, Northeast India, and Nepal export these to domestic and international markets.

Sources of fuelwood

Fuelwood from the forests forms a critical component of the food security of the people, since, without fuelwood, food consumption or meal frequency may decrease , and this contravenes the cultural practice of mountain communities. In mid-hill regions of the Himalayas, fuelwood has become scarce and ,as a result, women spend more time collecting it, leaving less time for food production, food preparation, income generation, child care, and personal rest. Lack of fuelwood in sufficient

quantity and quality is also having a serious impact on the quality of nutrient intakes by mountain people.

Sources of medicine

Wild or domesticated plants constitute the main medicinal sources in most mountain societies in the HKH region. Mountain communities use them to treat most common ailments and correct micro-nutrient deficiency. Many animal diseases are also treated with herbal medicines. By preventing and treating diseases, medicinal herbs not only improve the effective biological use of food but also improve the nutritional status of the family. A large number of mountain communities also collects and sells medicinal plants in their raw form, including through barter trade. This trade is mostly trans-border and is based on traditional trade channels and networks that ,in this age of information technology, work against their interests and the outside traders mostly exploit them.

Sources of employment

Forests provide one of the good avenues for employment in the HKH region. Collection and sale of medicinal plants and other NTFPs alone are considered to be one of the biggest sources of seasonal employment (three to four months a year) for the mountain communities of the HKH region. Bamboo and rattan are another group of NTFPs providing large-scale employment to the artisans and village craftsmen. In order to ensure year-round employment and a better income for the collectors, integration of other development activities with NTFP conservation and use is necessary.

Sources of cash income

Although, large amounts of NTFPs are collected by the mountain communities in the HKH area, no comprehensive study on the amount collected, number of people(especially women) engaged in collection and trading, and the marketing chain involved has been carried out to date. However, several case studies (Edwards 1993; Bajaj 1996; Karki et al. 1997; and Karki and Karki 1997) have been carried out to highlight the importance of NTFPs in sustaining the local economy and supporting livelihoods.

According to Bajaj (1996), collectors in Jan and Bahraini villages of Kullu district in Himachal Pradesh (HP), India, earned an average annual income of IRs 6,000 and 18,250 per annum respectively. Karki and Karki (1997) estimated a monthly family income of IRs 4,960 from making bamboo furniture in a study conducted in eastern Nepal. In North Cachar district of Assam, India, the contribution of NTFPs to the annual household income of the family is 25-30% (Myrboh et al. 1995). Thus, the commercialisation of forest products in South Asia has already started, especially in forest rich areas like the mountains. There is, however, a wide variation in the nature, process, and impact of commercialisation in the region.

11.3 Forces of Commercialisation

Dwindling importance of timber products

Until some years ago, forests were known to be a source of timber and other 'minor forest products'(MFPs). The actual and potential roles of the multiple products and environmental services offered by forests were virtually ignored (Ruiz and Byron 1998). Since the early eighties, MFPs have been given greater recognition both in name and content and are known as non-timber or non-wood forest products (NTFPs or NWFPs). Today, forest products invariably refer to NTFPs, especially in relatively inaccessible and mountainous regions such as the HKH. In the HKH region, although subsistence and economic values of both timber and NTFPs can be substantial and, by managing a judicious mix of both, it may be possible to ensure a continuous flow of diverse products and income to local community members, it can be safely argued still that, in the context of mountain economies, NTFPs have greater potential to contribute to achieving sustainable livelihoods (FAO 1996). NTFPs play a vital economic role for at least 25%(or around 30 million) of the people living in and around forests and rangelands in the HKH region who still depend for food, medicine, and shelter on these products. Table 11.1 below indicates the dependency of typical hill communities on NTFPs for their livelihoods and Annex A, Table 11.1 gives the contribution of NTFPs to the rural economy in north-eastern India.

Table 11.1: Extent of household dependency on NTFPs in the HKH Region

Country/Region	% of HHs Engaged in Collection	Av. Income by % of HHs	Remarks
Humla, Nepal[1]	52.5%	< Rs. 2000-06-21 (18.6%) > Rs. 2000 (53.6%)	Between 1990 and 1998 the % of HHs collection of NTFPs rose from 2 to 72%
H.P. India[2]	100%	Rs. 5125 (100%)	Data based on a total of 359 HHs in Kullu dist.
Assam and Meghalaya India[3]	5-100%	Rs. 1500-3000	

Sources: SEEPORT/ANSAB 1999
Bajaj 1996
Myrboh et al. 1995
North East Council (See Annex A Table 1)

Growing potential of NTFPs

NTFPs have a number of advantages for people in the mountain region: the products are small in volume and production is often household based; they often involve a diversity of products; they are generally seasonal in nature providing food and supplementary income often during periods of food shortage (Campbell et al. 1996). As well, they are labour intensive, use simple technologies, provide direct benefits to the local people, and, most importantly, they are accessible to low income and

socially disadvantaged groups; and to women especially. In the hills and mountains where, in general, poverty is rampant and inequity pervasive, NTFP-based forest management is likely to distribute benefits more equitably within communities and families targeting women and landless people.

There is also an ecological reason for the increase in promoting commercialisation of NTFPs. In contrast to 'timber-only' harvesting regimes, many NTFP-based activities involve the harvesting of annually renewable plant parts and products. If the extraction rate is at par with annual growth, harvesting forests for NTFPs could be an ecologically benign and economically sustainable activity.

In the context of commercialisation of forest products, NTFPs have been, therefore, selected for discussion in this paper. It is argued that NTFPs play a vital economic role for the people living in the remotest areas of the HKH, not to mention the vast majority of the population who still depend, to some extent, on forest-based traditional medicinal products such as the Ayurvedic, Unani, Tibetan, and folk medicine systems.

Small-scale, forest-based enterprises, many of them based on NTFPs, especially bamboo and rattan, provide significant employment and income sources for poor people in the region. In Bangladesh, about 0.3 million in the hills are employed as part-time labourers harvesting, processing, and transporting bamboo from the forests (Banik 1997). In Nepal, bamboo and rattan provide employment to an estimated 0.1 million people (Karki and Karki 1997) and in India the figure is 40 million days of employment in the medicinal plants' sub-sector only (GOI 2000). However, in the mountain regions of South Asia, medicinal and aromatic plants play by far the most important role in providing a secure living, especially for food and medicinal products and cash for emergencies.

Medicinal plants as keystone products

Of all the NTFPs, medicinal plants are the most significant products from the point of view of their potential for economic development and creation of sustainable livelihoods. Medicinal plants provide the bulk of the raw materials for preparation of formulae used in traditional systems of medicine such as the Ayurvedic, Tibetan, Unani, and folk systems of health care that are extensive throughout the HKH region. The growing popularity of natural product-based medicines both nationally and internationally, has increased commercial demand for plant materials, putting additional pressure on limited resources[1]. Large volumes of medicinal and aromatic plants (MAPs) are collected and traded through legal and illegal channels. India is at the centre of the HKH region's export trade in MAPs. Taking advantage of its size, well -developed trading networks, and relaxed border controls with Nepal, Bhutan, and Myanmar, Indian traders are able to obtain raw materials easily and regularly.

1. In India, the Ayurvedic drug market alone is worth over IRs. 25 billion, while the export earnings in 1998/99 were estimated to be around IRs. 4.463 billion (GOI 2000; CHEMEXCIL 1999).

As the conservation status of several medicinal plant species continues to worsen, the Indian government has put an export ban on 54 medicinal plant species (Appendix B, Table 11.1)and is proposing to include several native medicinal plant species in the appendices of the Convention on International Trade in Endangered Species (CITES). Nepal has also banned 10 species (Appendix B, Table 11.2) - eight for export in raw form and two for collection, use, sale, transport, and export (Kanel 1999). However, policy mechanisms that aim to control harvesting and trade of threatened species are often ineffective because of the weak and faulty enforcement measures adopted by regulating agencies, and collection and trade of these species continues illegally. Indeed, the traders often prefer banned species as the economic margins are greater than those for species that are not banned due to the increased difficulty of obtaining and transporting these species. The experience of NTFP trade between India and Nepal can help to improve understanding of the issues of cross-border trade between other countries in the HKH region.

Unsustainable exploitation of wild resources

Although both wild populations and cultivated crops provide the raw materials needed for commercial production of medicinal plant products, the supplies from wild sources are preferred because of their perceived high potency and low prices. Economically poor and landless collectors rely on the cheap, readily available, wild populations, often engaging in unsustainable harvesting practices in order to meet their daily needs and, in part, unaware of the potential negative consequences of their practices. It is estimated that more than 90% of the raw materials used for commercial purposes originate in the wild, and this has caused growing environmental concern, especially about the rapid erosion of genetic resources.

11.4 Risks and Dangers of Commercialisation

Pitfalls and dangers

Commercialisation of NTFPs poses a number of pitfalls and dangers. As most of the NTFPs are common property (open access) goods, they have the potential for exploitation as public goods. Thus, unregulated commercialisation can wipe out valuable biodiversity resources completely within a short period of time, for example, *Taxus baccata* in Himachal Pradesh and *Swertia chiraita* in the Eastern Himalayas have been harvested unsustainably due to their high market demand. As a result, the latter is no longer found in India and is imported from Nepal. Rattan in Nepal is another example of a product that has been subjected to unsustainable commercialisation, and this has led to its near extinction from natural habitats.

An unplanned, poorly implemented, and unmonitored commercialisation process can be damaging to the environment as well as to the communities involved, as it may lead to mining of forest land for raw materials and its use as a sink for waste and pollution. It may also degrade and erode hilly slopes by over-harvesting and unsustainably consuming the forest products. Many multinational companies,

especially those involved in the pharmaceutical and timber trade, have been accused of operating in developing countries, often using unscrupulous means of extracting natural resources in the most unsustainable ways. The commercialisation of forest products is certainly a controversial and sensitive issue in the HKH region, although it is increasingly becoming an economic necessity for both the countries and the people, especially those living in marginalised areas.

Resource depletion through unsustainable use

The increasing use of medicinal plants for health care can help conserve the environment, fostering a consciousness of the value of biodiversity, but their increased demand can also destroy local ecosystems and push threatened plants to the brink of extinction. The traditional uses of medicinal plants may also decline as a result of increasing commercialisation of the medicinal plant sector and diversion of raw materials for sale on the market. Indigenous communities in northeast India had traditionally used Mishmi Tita or *Coptis teeta*, a bitter root, for treating various ailments. With practically all the supplies being exported today, it has been replaced by a poor substitute, i.e., opium, the use of which has greatly increased among local communities endangering their health and welfare (Aryal 1993). Secondly, the gatherers and local traders are themselves put at risk because of the unsustainable extraction practices which is fuelled by their desire to earn more cash in a short period of time. This tendency arises if the local community does own the resources. Therefore, the second danger of commercialisation of forest products is its potential to destroy the natural resource base permanently and leave the poor people worse off than ever before, unless, of course, it is strategically planned, carefully regulated, and pragmatically supported.

The lack of resources has also led to rampant adulteration, of both raw materials and formulas. Popular name brand traditional drugs such as 'Chavanprasha' are generally believed to lack the full complement of ingredients or to have one or more major ingredients missing or replaced by substitutes (Narayan 1998). Plant parts, such as stems, roots, and leaves, that resemble genuine medicinal plants are sold and used widely to prepare spurious formulations (CSE 1997). This has raised serious health concerns because of the poor and unknown safety and efficacy parameters of these formulas and highlights the need to address issues of standardisation and quality control in the commercialisation of plant-based drugs. Legislative and regulatory mechanisms must be developed to ensure that herbal products are safe and efficacious for the consumers, most of whom are unaware of the minimum quality and efficacy parameters.

Threat to traditional knowledge systems

Many rural and tribal women and men have specific knowledge and skills about the use and management of medicinal plants that pharmaceutical companies and other industries rely on for the development of new pharmaceutical products and treatments. Some 30% of pharmaceutical drugs have been developed through examination of

the use of these plants in traditional medicine (Tempesta and King 1994). It is claimed that, by referring to indigenous knowledge and consulting indigenous peoples, the success rate from bio-prospecting can be increased from approximately one in 10,000 to one in four (Holley and Cherla 1998), although this figure can be disputed given the very wide range.

However, local people generally receive little or no compensation for their indigenous knowledge in the current process of commercialisation. A comprehensive understanding of the application of intellectual property rights' regimes and establishment of alternative mechanisms are needed to ensure a more equitable system of recognising the value of local and indigenous knowledge. Similarly, there is a clear need to develop working mechanisms to create frameworks for sustainable partnership between industry and rural communities to enhance both the sustainable uses of medicinal plants as well as the economic development of rural communities. According to several studies (Olsen Smith 1997; CECI 1999; ANSAB 1999), although the main participants in the trading activities of NTFPs are the collectors, presently the bulk of the market return from NTFPs is earned by private traders who practice non-transparent systems of trading and exploit local collectors, often paying them less than the equivalent of the normal wage for their labour. In some states of India, NTFPs have been nationalised, ostensibly to increase the benefits to collectors. However, this has merely shifted the exploitative roles from traders to the government and quasi-government agencies. In the hills of the Western Himalayas, the government of Uttar Pradesh has established district cooperatives to promote sustainable harvesting of medicinal plants and to provide market guarantees for produce collected. However, the district-level Medicinal Plants' Committee, which issues licenses and area permits for collection and trading, controls the process by distributing the permits evenly between two government-run cooperatives, viz., Bheshaj Sangh in Kumaon and Garhwal Vikas Mandal Nigam in Garhwal. The poor gatherers still work as labourers, although at supposedly fair wage rates provided by these cooperatives. Marginalised communities, in general, lack information regarding the official procedures and are therefore often prevented from receiving the benefits due from the entire NTFP collection and trade.

11.5 Status of Commercialisation of NTFPs in the Region

Multiplicity of stakeholders

Commercialisation of NTFPs has been receiving fervent attention in recent years from both government and private sectors alike, because of the increasing demand for natural products, especially products related to food and health, in the national and international markets. As there is a growing demand for phyto-medicines and dietary supplements in the western market and traders from the HKH region have a comparative advantage in terms of cost and resource endowment, they might be able to dominate the market in countries such as the USA and Germany for certain products such as *Taxus baccata*. Other reasons for such high stakes being attached to the

commercialisation of NTFPs arise from their habitats being in the biodiversity hot spots of the world: rainforests in the tropics, cold deserts in the Himalayas, and dry deciduous forests in the hilly regions. Various international covenants ,such as the Convention on Biological Diversity (CBD), Trade Related Intellectual Property Rights (TRIPS), and World Trade Organisation (WTO), have also highlighted a close linkage between commercialisation of NTFPs and misuse of indigenous knowledge, thereby making a close link between protection of Intellectual Property Rights (IPR) and unregulated commercialisation of NTFPs. Several studies have been carried out,therefore, on commercialisation of NTFPs (Karki and Holley 1998; Subedi and Bhattarai 1999; and Vedanand 1998) highlighting the need for a more comprehensive and pragmatic approach.

Studies have shown that, despite the overall economic importance of NTFPs, the proportion of the final sale price that small-scale collectors, producers, or processors are able to get is only a fraction of the actual price paid by the consumers (Boaz 1999). Although the incomes from NTFP activities are competitive with other income-generating activities in the HKH region, the share of the collectors from total gain in commercialisation is only a fraction of the actual return. The main reason for the exploitative nature of the trade is the lack of information on market prices for collectors and the oligopolistic or monopsonic nature of buying strategies practised by the wholesalers. For example, in the Gorkha district of Nepal, the margin earned by the collector is 46.6%, by the road-head trader 12.3%, and by the wholesaler 41.1%, and this appears to be unfair to both the road-head trader and the collector (Olsen Smith 1997). In Himachal Pradesh (HP), the difference between the final prices and village prices was found to be between 1.2 and 3.5 times (Bajaj 1997). Collection of NTFPs in many countries of the HKH region is not an illegal activity in itself. However, trade in a number of medicinal and aromatic plants is regulated by the government by imposing complete or partial bans on their sale, processing, and trading outside the local area. Unscrupulous traders take advantage of these ineffective regulations to exploit the collectors and local traders (See Tables 11.2 and 11.3 under case study No. 1 on pages 280-281).

Common problems in commercialisation

Common problems facing commercialisation include difficulties in gathering NTFPs from the wild in adequate quantity and quality, domestication of endangered species to augment supplies, lack of skills for primary processing and marketing at the local level, and need for various product transformations beyond the original forms and constituents at the end-use level. Some of the specific issues common in the HKH region are as follow.

- Lack of basic infrastructure in the hilly and mountainous areas making access to market difficult and costly
- Low and erratic volume of raw materials supplied due to seasonal production
- Poor or variable quality of products

- Poor reliability and continuity in maintaining supplies due to lack of professionalism and business ethics
- Lack of an organised information system to benefit collectors and the producers
- Poor handling and storage facilities at the collectors' end
- Limited knowledge of products among consumers and products not meeting consumers' tastes, preferences, and values
- Archaic rules and regulations causing innumerable legal and administrative hindrances to the free movement of tradeable goods
- Lack of government support for credit facilities, godowns, and minimum price support

11.6 Lessons Learned and Future Directions

Micro impact of globalisation

In an increasingly interdependent world, commercialisation of goods and services is one of the most important factors determining a region's or a country's prospects for development. With continued decline in foreign aid to poor countries and of central budgets to poorer regions within a country during the past few years, trade and enterprise activities based on local resources are becoming increasingly important sources of livelihood. Neo-liberal economic theory states that trade allows for economic growth by creating new market opportunities, the generation of wealth, and increase in efficiency by maximising output for a given input of resources (Brack 1995; Cho 1995). However, in the context of a developing region such as the HKH, how the commercialisation of forest products can address the basic livelihood issues by creating new economic opportunities is a topic that needs redefining and redesigning in terms of development models with the aim of creating sustainable livelihoods.

Growing roles of civil society and the private sector

In the HKH region, because of the combined forces of democratisation and liberalisation, governments are shifting environmental monitoring action and management to civil society groups and CBOs. Also, because of the decrease in government funding of public goods, CBOs, NGOs, and the private sector are taking on more and more responsibility for forest protection and management. Given these and a number of other factors, the role of the state in regulating commercialisation is becoming less important or is in the process of redefinition. The vacuum is increasingly being filled by CBOs, NGOs, and INGOs that play the role of facilitators, honest brokers, and monitors of the commercialisation process to ensure equity, fairness, and simple business ethics.

Move towards sustainable forest management

In order to successfully embrace the trend of decentralised management of forest resources, it is imperative that both local governments and commercial companies

understand the magnitude of the resource crisis and the need to develop partnerships integrating socioeconomic and environmental criteria at both the policy and operational levels. They will also need to devise and implement a regime of sustainable management criteria and indicators to extract the raw materials sustainably. For example, international consumers are influenced increasingly by green labels such as 'fair trade', 'organic products' ,and 'sustainably managed' on the consumer products in making decisions related to consumption of one product over another. This trend will hopefully lead to a process that can be called 'sustainable commercialisation', which, incidentally, may be easier to establish in poorly developed areas of the HKH that is believed to have greater biodiversity enriched with rare medicinal plants, diverse foods, and other valuable flora and fauna than found in industrialised regions, as there is less infrastructure to transform and less resistance to changing the status quo.

Conservation and livelihood-oriented commercialisation

Working towards sustainable commercialisation will require integration of trading practices with biodiversity conservation activities. The key question is how to operationalise the all-encompassing concepts of community-based conservation and livelihood security together. While there may be political pressure and a local constituency to promote domestic markets and subsistence use, in the increasingly globalised markets commercialisation cannot be sustainable without ensuring national, regional, and global connectivity and networking. This is more so with respect to products that thrive in niche markets and/or for which there is a poor or no domestic market. A case in point is the marketing of raw medicinal plant materials from western Nepal (see later as a case study). However, reaching the export markets will require development of standards; good collection, processing, and manufacturing practices; and labelling and packaging compatible with national and international standards.

Social responsibility of industry

Trade and industry concerns especially multinational companies (MNCs) that can and will play a central role in developing sustainable policies and guidelines for promoting commercialisation strategies for NTFPs. Their widespread market linkages, global networking, and expanding economic power and influence are certainly unquestionable. It is logical that government organisations, civil society groups, and community-based organisations work in partnership with them to ensure that the commercialisation of NTFPs can also help promote sustainable livelihoods for poor communities. Although making the MNCs work as an equal partner in social cum business development is a challenging task, there is a need to determine the most appropriate mechanisms/structures to bring them into the picture to reconcile conservation of NTFPs and development of sustainable production and consumption systems - the twin pillar of sustainable livelihood systems in natural resource dependent societies.

11.7 Prerequisites for Sustainable Commercialisation

Campbell (1996) listed a number of criteria on which to base analysis of products for commercialisation in the South Asian context. These are given below.

- Adequate availability of raw material (NTFP) in terms of quantity, quality, and regularity of supply
- Level of market demand, market accessibility, and scope for market promotion: international, regional, national, and local
- Possibility of augmenting raw material supplies through domestication and cultivation
- Access to processing technology, availability of skilled labour, infrastructure, and capital
- Potential for decentralised production and thereby downstreaming benefits to the local people
- Economic viability of raw material collection, downstreamed processing, and marketing
- Availability of a reliable market offering a buyback guarantee to collectors
- Availability of support services, e.g., credit, extension, and market information

Need for an integrated approach

In order to achieve sustainable livelihoods in the HKH region through commercialisation of forest products, support to integration of locally-based trade and commercial activities in NTFPs with national, regional, and global trade and a commercial network is essential. Local-level commercial ventures will remain marginalised and vulnerable unless they operate beyond niche markets and participate in the broad-based production to consumption chain with a regional and global span. The communities and trading partners need facilitation in developing partnerships with commercial agencies, but the partnership should be based on the philosophy of business responsibility towards the environment and local community (Karki and Holley 1998). Creation of small and medium enterprises based on NTFPs might be one of the strategies that can improve a secure means of livelihood. Finding an appropriate type, size, and scale of small and micro-enterprises (SMEs) should be guided by the economic feasibility and amount of resources available. There is, however, debate concerning the determination of an appropriate type and scale of enterprise in inaccessible areas such as in the higher areas of the HKH region. Experience to date indicates that small enterprises based on primary processing of NTFPs may be an appropriate choice. However, some of the experiments carried out by research and development agencies (ANSAB 1999) indicate that guarantee of readily available buyers, if not an outright buyback guarantee in the initial phase, is necessary to stabilise the enterprise. The enterprises have to be community-based, i.e., participation by a large number of stakeholders in designing, managing, and operating the venture is a prerequisite. This will be possible if the commercialisation

process is built on the concept of a production-to-consumption system , giving it a holistic approach to commercialisation.

Production-to-consumption and marketing (PCM) approach

The HKH region is characterised by problems of inaccessibility, marginality, fragility, and seasonality; and in such a case, linking collectors and producers to end users is indeed a challenge and only a holistic approach can meet this challenge. The PCM approach helps us gain a more comprehensive understanding of the factors, players, and processes that link production to consumption and marketing networks. This process is holistic, as it has a built-in mechanism for making the system dynamic in linking the producers to consumers through a mutually dependent and beneficial mechanism.

Given the vast list of forest products, the different channels or routes of product transformation and movement within a particular PCM chain can be many. Some of the possible strategies for working towards sustainable and equitable commercialisation of NTFPs are as follow (Courville 1997).

1. Multinational best practices that incorporate social and environmental considerations such as sustainable harvesting and ethical business practices on the part of trading partners
2. Alternative trade linkages that rely on eco-labelling such as 'fair trade' and 'sustainable management' and 'organic' certification that links good practices to markets
3. A'social contract' concept developing business and community relationships that mandate minimum environmental and performance criteria for both parties
4. Benchmark approach - in this approach, conventional public companies or private companies can be decided as benchmark standards to be achieved by others

11.8 Case Studies

Two case studies are being presented to describe the scope and potential benefits of applying the production-to-consumption and marketing chain approach (PCMCA) to the commercialisation of NTFPs in the HKH region

Case No. 1: Commercialisation of MAPs from Karnali Zone, Nepal (CECI 1999)

Approximately 2,000 tonnes of medicinal and aromatic plants valued at about USD two million are harvested from the Karnali Zone of Nepal annually. Among the products marketed, 'jatamansi' (spikenard) or *Nardostychus jatamansi* is the most important in terms of both volume and value (CECI 1999). Almost 95% of the trade is channelled through India. It should be remembered that this species is banned for export in raw form from Nepal, although export of its derivatives are banned from India.

Trade in NTFPs is the most important source of cash income in the Karnali Zone. The harvesting and collection are very difficult and arduous tasks and are undertaken only by the poorest , illiterate people. These people also belong to the lowest castes on the Hindu hierarchy which makes them vulnerable to rampant exploitation by commission agents. Medicinal plants have a small local market as well, as most communities depend on traditional medicine based on these plants. However, only local healers can prepare and use these herbs to provide health care.

Trade patterns

Appendix C, Table 11.1 presents a trade channel in medicinal plants involving five species: (*Picrorhiza kurroa*), Atis (*Delphinium himalayas*), Padamchal (*Rheum australe*), Bhutkesh (*Selinium telnuifolium*), and Kaladana (*Eulophia spp).* The village traders, who are mainly from Jumla but also from Kalikot, Mugu, and Dolpa districts, collect the products and sell to the airport traders in Jumla. Airport traders arrange the necessary permits, tax clearance certificates, and the cargo planes and ship the materials by plane to Nepalganj. These traders usually have some prior price information and fixed buyers before shipping the consignments. Nepalganj traders in turn negotiate with traders in Lucknow and Delhi in India to pay the export duties at the border and transport the products to a predetermined destination. Indian traders (known as Pansari) then bulk the materials in to a mixture and sell them to Ayurvedic drug manufacturing companies such as Dabur, Vaidyanath, Himalaya, and Zandu in India. The drug manufacturing companies produce the drugs based on the traditional formulas or on their own pharmacological innovations and sell the drugs to retailers. Many of the drugs do come back to Nepal for local consumption. The tables below indicate the profit margin for different traders in the case of Kutki (*Picrorhiza scrophulariflora*) and Jatamansi roots (*Nardostachys jatamansi*).

From the above tables, it is clear that in the case of legally permitted products such as *Kutki* roots (Table 11.2), village traders and airport traders make the most profit (19% and 43% respectively). However, in the case of banned products such as *Jatamansi* roots (Table 11.3), Nepalganj traders make the most profit. The traders

Table 11.2: Profit margin for Kutki roots from Karnali Zone, Nepal

Participants	Buying Price, NRs/kg	Royalty NRs/kg	Product & Market Cost NRs/kg	Selling Price, NRs/kg	Margin NRs/kg	Margin %	Profit to Sale Ratio %
Collectors	n/a	n/a	45	55	10	11	18
Village Traders	55	n/a	3	75	17	19	23
Airport Traders	75	10	27	150	38	43	25
Nepalganj Traders	150	n/a	10	170	10	12	6
Indian Traders	170	n/a	10	193	13	15	7
Total	--	--	98	--	88	100	--

Source: CECI 1999

Table 11.3: Profit margin for Jatamansi roots from Karnali Zone, Nepal

Participants	Buying Price, NRs/kg	Royalty NRs/kg	Product & Market Cost NRs/kg	Selling Price, NRs/kg	Margin NRs/kg	Margin %	Profit to Sale Ratio%
Collectors	n/a	n/a	34	40	6	7	15
Village Traders	40	n/a	3	45	2	3	4
Airport Traders	45	15	27	105	18	22	17
Nepalganj Traders	105	n/a	25	172	42	52	24
Indian Traders	172	n/a	10	195	13	16	7
Total	--	--	99	--	81	100	--

Source: CECI 1999

also practise an oligopolistic strategy by forcing the airport traders to negotiate the price on their terms. Since these traders are also knowledgeable about the forward linkages, i.e., markets in India through their network of family members and business connections, it is very difficult for small traders, such as airport traders, to enter this illegal business (CECI 1999).

Critical findings

CECI (1999) in its analysis concludes that for products for which export is legal, the trade risks are less and the trade is therefore less controlled by Nepalganj traders with more benefit flowing to local traders than is the case for illegal products. The poor collectors seem to receive somewhat better returns than in illegal trading. The researchers also indicate a recent trend of increased competition between local traders and airport traders due to the presence of local processors. Perhaps the increased profit margin enjoyed by the Nepalganj traders is due to the paucity of competition. Recommendations for improvement in the medicinal plant sub-sector are are given in the following section.

i) Increase the bargaining power and marketing capacity of local users by organising them into collectors' or traders' associations in order to increase market efficiency.

ii) Limit risks by providing them with working capital and storage facilities at both Jumla airport and in Nepalganj. This will increase their bargaining power with wholesalers, decrease risks of deterioration in stock, and prevent distress selling.

iii) Increase competition in Nepalganj and other towns in the Terai by making appropriate legal changes, and these should include a review of the ban on species and making the trade more transparent.

iv) Explore the possibilities of increasing technical efficiency by establishing primary processing units in socioeconomically and environmentally feasible locations.

Case No. 2: China Bamboo Sector - A Case Study of an Intensive Production to Consumption System in Anji County, China (based on Maogong et al. 1996, cited by Belcher 1998)

Commercialisation process

Bamboo is one of the most important forest resources in China. There is a long history of bamboo plantation in the country, especially in the mountain regions and on degraded lands. Beginning in the 1980s, a series of economic policy reforms led to a great increase in bamboo-based industries triggering unprecedented activities related to trade and commerce. The case study looked at a thriving bamboo sector in Anji county of Zhejiang Province in China. With only 0.054 ha of per capita arable land, agriculture is of a subsistence nature. Rural people have a high dependence on forest products which are dominated by bamboo, occupying 30% of the forest area and accounting for 51% of the total production. Bamboo culm production reached 30,000 tonnes in 1995, along with 3,200 tonnes of bamboo shoots and 6-8,000 tonnes of bamboo by-products. Bamboo industry outputs contribute 50-80% of the total industrial production of the townships and earn 30% of the county's revenue.

The key market participants in the market trade are farmers, traders, product manufacturers, sub-contractors, domestic wholesalers , and foreign trade companies. The PCM system is very dynamic. Triggered by the incentive-oriented policy changes that lifted the land ceiling and production quotas in China, levels of production and productivity of culms, shoots, and by-products have increased rapidly over the past 15 years. Processing industries have expanded rapidly as a result of the infusion of cash and technology from expatriate Chinese families and the favourable market response from domestic and international markets.

Critical findings

The lessons learned from this case study are many. First of all, farmers were allowed to capture a 100% productivity increase above the land rent which was set low based on the historical trend. The result was startling, as bamboo production rose from 9.5 million culms in 1981 to 17.3 million in 1995. Secondly, an open market policy removed price and trade control and monopoly marketing. This led to a fundamental change in the market. In 1983, less than two million bamboo culms were traded privately; by 1994 the figure had risen to 16 million culms. In 1984, the policy was changed permitting private, collective, and joint investment in the bamboo sub-sector. In 1985, there were 154 bamboo-based enterprises, of which 43 were privately run. By 1995, there were 527, 61% of which were privately run, with 18 with joint venture companies. The joint ventures have been especially important in introducing new technologies and products. The collaboration between domestic and foreign companies was crucial for access to new technologies and capital in the trade.

The rapid expansion of the volume of production was matched by dramatic improvement in quality as well. Production shifted from agricultural tools aimed at low-end markets to consumer goods meant for a high-end export market. Products

such as mats, panel boards, floorboards, and good quality handicrafts now dominate the sector along with a range of processed bamboo shoot products. In 1994, export of bamboo products earned USD 117 million for the county. Since 1990, exports have grown by 320%. Among the problems faced by the sector is scarcity of raw materials , the prices for which have increased by more than 250% in real terms since 1980. Manufacturers, especially of bamboo shoots, run below capacity because of insufficient raw materials. Harvesting of bamboo has been regulated to promote sustainable management, and this has led to drastic fluctuations in the prices of raw materials Institutional solutions are emerging, with factories buying in advance to guarantee raw material supplies and prices. Some factories have diversified and others have modified technologies, operating round-the-clock during bamboo shoot seasons and later using canned shoots for further processing.

11.9 Conclusion and Recommendations

Policy and institutional frameworks

The commercialisation of forest products, especially NTFPs, in the HKH region needs to be carried out using a holistic, pragmatic, and participatory approach. It is absolutely necessary that gatherers and producers are directly involved in the collection, production, primary processing, and trading of the NTFPs to strengthen the PCM chain. This will require an enlightened forest policy - a policy that is informed by the local collectors, community leaders, professionals, and civil society groups. An issue of equal importance is the need to change the mindset of all three key stakeholders: i) relevant government agencies; ii) local people who have the usufructs rights; and iii) commercial agencies involved in NTFP-based trade and industry. Governments need to be made aware of the amount of goods and services the rural people draw from the forests, as well as the real value of NTFP resources to their national economies. The people also need to realise that, like trees, NTFPs also need serious management inputs of both a technical and socioeconomic nature if instability in the supply and processing systems is to be avoided.

The goal of achieving sustainable livelihoods in the hills, valleys, and mountains of the HKH region will require changes at different levels. At the policy level, there is a need to understand the multifaceted nature of products that have the potential to trigger off rural development provided right incentives are provided to key players such as collectors and local traders. Imposing an outright ban on the collection and trading of endangered species is definitely not an answer to the problem of species' depletion. Giving forest stewardship to the community and making them aware of the value of the forest is a better policy. Value-added benefits should be given priority over increasing collection and harvesting rates for raw materials. Attention should be paid to improving quality, standardising harvesting practices, developing storage technologies, and improving marketing. Product diversification and upgrading technology should be regular features of small enterprises to ward off price fluctuations and change in consumer interest. The key point is that development of reliable and

equitable markets is the basic condition for investment in sustainable management systems for NTFPs.

Application of the PCM approach

The PCM approach provides a framework within which many issues pertaining to commercialisation of forest products can be organised. It focuses on greater understanding of various marketing and processing options, with emphasis on the linkages between different transformation points and among firms at any particular transformation point. The PCM approach also introduces the dimension of product intensity to address the aspects of system dynamics. This is particularly important in forest product development, especially at the level of raw material production, because domestication and commercialisation have to be carried out by maintaining a number of conservation oriented trade-offs and compromises. The PCM approach considers the various participants in the system and their functions in three dimensional forms: vertical linkages, horizontal linkages, and product intensity (Belcher 1998). This is quite relevant to the process of NTFP commercialisation in the HKH region as currently there is an acute lack of backward and forward linkages in the production and trading practices.

Development and implementation of market information systems

One of the main reasons for lack of commensurate local-level benefits from the on-going commercial activities in the NTFP sub-sector in the HKH region is due to lack of information, especially market-related, for local collectors and traders. There is also lack of technical knowledge among the local people about the actual and potential uses of different NTFPs, their national and global markets, and processing technologies in the PCM chain. Knowledge and correct information illuminate every economic transaction, revealing preferences, giving clarity to exchanges, and informing markets. Lack of knowledge causes markets to collapse, or never to come into being. Loss of 'prior' knowledge, traditional knowledge in the case of medicinal plants, will also result in the loss of an age-old practice or an economic use in the furtherance of human welfare. A commercialisation process for NTFPs can also benefit from the new possibilities afforded by the ongoing revolution in information and communication technologies, provided the extension agencies, including the NGOs, facilitate the right kind of information flow and promote equitable dissemination among all the collectors and traders.

Key recommendations

Recommendations for improving the sub-sector are as follow.

i) Intensive management of NTFPs to increase production as currently only a fraction of forests are properly managed.
ii) A shift to a household responsibility from a community responsibility system and introduction of family or individual leases to enterprising members of the community with a lease duration of at least 20 to 30 years.

iii) Finding means to address the volatility of the raw material market; e.g., farmers should form marketing associations to build and retain bargaining and negotiating powers.
iv) Government and NGOs should provide support to build marketing infrastructure such as godowns and transport networks in order to reduce the transport costs and distress selling.
v) Private sector agencies in partnership with NGOs should support information networking, especially to disseminate market and price-related information to collectors and producers.
vi) Manufacturing industries should diversify their products and markets to their optimum capacity.
vii) Research should be promoted to increase NTFP productivity in both raw materials and key constituents; for example, in bamboo, both shoot and culm production should be increased so that a sustained yield can be maintained

To sum up, commercialisation of forest products, especially NTFPs, has great promise for promoting economic growth in the poverty-stricken areas of South Asia. However, the current process is highly inequitable and unsustainable. The forestry sector, especially the NTFP sub-sector, needs to be given the requisite recognition by governments and industry by formulating policy and institutional changes to decentralise production-related decisions, provide necessary incentives, and develop partnerships between industry and community groups such as Forest User Groups, Forest Protection Committees, and local government bodies. A holistic approach based on the production to consumption and marketing system (PCMS) is recommended as appropriate and should be applied by the relevant government and commercial agencies to lead the NTFP sub-sector towards sustained growth and development. Lessons learned from the case studies described on medicinal plants and bamboo have important lessons for future commercialisation plans and programmes in the HKH region. It can be safely argued that commercialisation, if managed properly, has the potential to increase income, enhance social equity, and strengthen the security of a large number of poor people in the HKH region.

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Table 11.1: Non-timber forest products in the rural households economy in the north-east region of India

Items	North Cachan Hills Assam	Karbianglong, Assam	West Khasi Hills Meghalaya	West Gano Hills, Meghalaya
% of HHs Involved in Extraction				
Bamboo				
- Subsistence Uses	50-60	45-50	100	100
- Commercial Uses	2-3	3-4	0.5	0.7
Cane				
- Subsistence Uses	10-12	12-15	-	-
- Commercial Uses	3-4	5-6	0.15	-
Others				
- Subsistence Uses	-	-	45	-
- Commercial Uses	-	-	0.3	1
Quantity Used/Sold				
Bamboo				
- Subsistence	0.25 t/yr	0.25 t/yr	0.45 t/yr	0.3 t/yr.
- Commercial	20-30 t/day	35-40 t/day	3-4 t/day	30-40 t/day
Cane				
- Subsistence	12-15 kg.	10-15 kg.	5-10 k/yr	-
- Commercial	120-150kg.	215 kg/yr.	225 kg/ear	-
Others				
- Subsistence			5 kg/yr	70-75 kg//yr
- Commercial				
Contribution to HH Economy				
- Bamboo	25-30 %	25-30%	15-20%	50-60%
- Cane	25-30%	30-35%	15-20%	-
- Others	10-15%	15-20%	55-70%	30-35%

Source: North-Eastern Hill University, Shillong
Key : HHs - Households

Table 11.2: List of plant species banned for export by the Government of India

(Vide Government of India, Ministry of Commerce; Public Notice No. 47 (PN)/92-97

New Delhi: Dated 30th March, 1994)

1. *Acontinum* species
2. *Attropa* species
3. *Aristolochia* species
4. *Angiopteris* species
5. *Arunadinaria* Jaunasarensia
6. *Balanophora* species
7. *Colchicum luteum* (Hirantutya)
8. *Commiphora whightii*
9. *Coptis* species
10. *Drosera* species
11. *Gentiana kurroo* (Kuri, Kutki)
12. *Gloriosa superba*
13. *Gnetum* species
14. *Iphignia indica*
15. *Meconopsis betonicifolia*
16. *Nardostachys species* (Jatamansi)
17. *Osmunda* species
18. *Rhododendron* species
19. *Physochliana* praealta (Bajarbang)
20. *Praltia serpumilia*
21. *Rheum emodi* (Dolu)
22. *Berberis aristata* (Indian barberry; Rasvat)
23. *Acorus* species
24. *Artemisia* species
25. *Coscinium fenestratum* (Calumba wood)
26. *Costus speciosas* (Keu, Kust)
27. *Didymocarpus pedicellata*
28. *Dolomiaea pedicellata*
29. *Ephedra* species
30. *Gynocardia odorata* (Chaulmogri)
31. *Hydnocarpus* species
32. *Hyoscymus niger* (Broseword)
33. *Strychnos potatorum* (Nirmali)
34. *Swertia chirata* (Charayatah)
35. *Urginea* species
36. *Beddomes cycad* (Charayatah)
37. (*Vanda Coerulea*) Blue vanda
38. (*Saussurea Lappa*) Kuth
39. Ladies slipper orchid (*Paphiopedilium species*)
40. Pitcher Plant (*Nepenthes khasiana*)
41. Red Vanda (*Renanthera imschootiana*)
42. *Rauvolifa serpentina* (Sarpagandha)
43. *Ceropegia* species
44. *Frerea indica* (Shindal Mankundi)
45. *Araucarta araucana* (Monkey-puzzle tree)
46. *Podophyllum hexandrum* (emodi Indian Podophyllum)
47. *Cactacea* species
48. *Cyatheacea* species (Tree Ferns)
49. *Cycadacea* species (Cycads)
50. *Dioscoreae* species (Elephant's foot)
51. *Euphorbia* species (Euphorbias)
52. *Aloe* species (Aloes)
53. *Orchidaceae* species (Orchids)
54. *Pterocarpus santalinus* (Red sanders)

Table 11.3: List of notified medicinal plant species of Nepal

Banned for Export in Raw Form

Nardostachys jatamansi DC.

Rauvolfia serpentina (L.) Benth. Ex Kurtz

Cinnmomum galucescens DC.

Valerina jatamansi Jones,

Abies spectabillis (D.Don)

Usnea barbata Hoffm.

Parmaia nepalensis L.

Taxus baccata L. subsp.*wallichiana* (Zucc.)

Banned for Collection, Use, Sale, Transport and Export

Dactylorhiza hatagirea (D.Don) Soo

Cordyseps sinensis (Berc.) Sacc.

CITES List (Appendix II)

Picrorhiza scrophulariiflora Pennell,

Panax pseudo-ginseng Wall.

Dioscorea deltoidea Wall. ex Griseb.,

Podophyllum hexandrum Royle

Brachycorythis obcordata (Lindl.) Summerh.

Species in Red Data Sheets

Dendrobium longicornu Lindl.

Nardostachys grandiflora DC.

Aconitum ferox Wall. Ex Seringe

Picrorhiza scrophulariiflora Pennell,

Dioscorea deltoidea Wall. ex Griseb

Table 11.4: Sub-sector channels-map of medicinal plant trading in western Nepal

Functions	Participants
Manufacturing/Retailing in India	Indian Retailers
Processing in India	Indian Processors
Wholesaling in India	Indian Traders
Trade in India	Nepalganj Traders
Storage	Nepalganj Traders
Trade to Nepalganj	Airport Traders
Certificates of Origin	Dept. of Plant Resources, KTM
Product Certification	Dept. of Plant Resources
Transport to Nepalganj	Airport Traders
Storage & Packaging	Airport Traders
Collection & Transport Permit	Dist. Forest Officer
Airport Trade (Buying)	Airport Traders
Local processing	Local processors
Village Trading	Village Traders
Cleaning & Drying	Collectors
Collection & harvesting	Collectors
Financing for collection	Traders (both Nepalganj & Airports)
Forest Management	Forest users group and district forest officer
Research	Govt. & NGOs

Source: CECI 1999

Chapter 12
Enterprise Development for Poverty Alleviation with Sustainable Resource Management: Trends, Experiences and Policies in the HKH Region

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12.1 Introduction: Rationale, Concept and Nature of Enterprise Development

The rationale

Economies of mountain areas have traditionally been dominated by subsistence agriculture. Limited non-food needs have mostly been met by remittances from out-migrants. Mountain economies have thus remained at a low level of equilibrium between needs and supplies, mostly endogenously maintained with only limited exogenous inputs. Over the years, this equilibrium has been seriously disturbed and has become unstable on account of the following two trends: one, a rapidly growing population in mountain areas has necessitated extension of food crop cultivation to marginal and fragile lands and forest areas, resulting in a decline in the average fertility of land, thus making subsistence agriculture both ecologically and economically unsustainable. Environmental degradation and poverty, with food insufficiency as its major manifestation, have consequently become widespread characteristics of mountain areas.

Secondly, improvements in access to other areas, with the development of transport and communications, have exposed the mountain people to the vastly different and improved lifestyles of people in other naturally better endowed and developmentally advanced regions, thus raising their aspirations. This situation warrants not only alleviation of poverty among the population, but a progressive and sustainable increase in their levels of income. Yet this cannot be guaranteed by continuation of dependence on subsistence agriculture; and, therefore, diversification of their economic activities from food-centred subsistence agriculture to more gainful use of limited arable land for growing high-value commercial crops and to non-agricultural and non-land based activities becomes necessary in this context.

The concept

A shift in the mode of production, from being principally subsistence oriented to being focused on income from sale, brings the market into the picture and, therefore, implies that the producers are ready to bear market-related risks, besides whatever natural and man-made risks and uncertainties are generally involved in production. That is why enterprise, the risk-bearing function of producers, becomes an essential element in any diversification of economic activities away from subsistence agriculture. In common parlance, however, the term enterprise is often used to mean production unit, product, and the risk-bearing function. In the context of predominantly agricultural economies, development of non-agricultural products has often been described as the only form of development of enterprises. That is, however, too limiting a use of the term enterprise, particularly in the mountain economies where the first natural development of enterprise is seen in terms of the introduction of commercial crops within agriculture, and diversification outside agriculture mostly takes place only as a subsequent development.

In view of the fact that the risk absorbing capacity of entrepreneurs in mountain areas is limited by the small size of their resource base and inaccessibility to markets, and the scope for diversification of economic activities is limited because of the small, scattered, and often fragile resource base, enterprises in these areas have to be based primarily on products that

i) use the minimum amount of limited arable land;
ii) do not severely disturb ecological balance by large-scale and indiscriminate use of environmentally sensitive and non-renewable or not easily renewable resources;
iii) are not heavy, bulky, and perishable entailing high transport costs and loss in transit;
iv) do not use heavy raw materials that need to be imported from outside the region;
v) are not in direct competition with products from more advantageous locations in the plains; but are based on comparative advantages (niche) in their production in mountain areas; and
vi) are of value-adding rather than of a mere extracting nature, in order to maximise economic returns per unit of resources used locally.

Conditions for enterprise development

Identification of products and activities is only the first, though very crucial, step in the development of enterprises in mountain areas. Inaccessibility, thin spread of resources and materials, lack of forward and backward linkages, and deficiencies in infrastructure and services render commercial production extremely risky. Selection of appropriate products and activities may reduce the risk to a certain extent. Still, the risks associated with marketing products are high due to the problems of scale of production and access to markets. Therefore, provision of infrastructure and institutional and organisational mechanisms for supply of inputs and for marketing, with a view to ensuring a minimum scale of operations, becomes essential for the survival and growth of enterprises in mountain areas.

Another necessary condition for development of enterprises for commercial production in mountain areas is the provision of food security. An important reason for mountain people to continue food-based subsistence agriculture is the lack of food from outside because of inaccessibility and lack of purchasing power. Thus, subsistence agriculture has been primarily a strategy for survival. Food security, in the sense of local self-sufficiency in food production is, in any case, now seriously threatened because of the increasing population and stagnant productivity of limited arable land. It has, therefore, to be seen not in terms of local production of all the required food, but in terms of income to purchase food and its physical availability in local markets. With increasing incomes and, therefore, assured demand, private trade could take care of food supplies, but, in the initial phases of switching over from food production to commercial enterprises, food security may have to be maintained in inaccessible and poor mountain areas through public provision of food, possibly at subsidised prices.

12.2 Stages of Development and Products of Mountain Enterprises

Given the limitations of resources and their use, inaccessibility and isolation, and under-developed infrastructure and markets, the choice of commodities that could be advantageously produced in mountain areas is obviously limited. Yet, diversity of resources and the capacity of mountain people to improvise, innovate, and persevere has led to the prevalence of a highly varied product structure in many mountain areas, albeit on a small scale and mostly without significant remunerative returns. Most of them have been produced either for self use, like the food crops, or for meeting the basic consumption and production needs of local communities, either exchanged under the traditional systems of mutual obligations, or sold to acquire cash for buying items for basic needs not produced on the home farm. Thus, the village blacksmith made and repaired agricultural and household tools and implements; the oil presser crushed farmers' oilseeds to produce oil; craftspeople made mats, baskets, and other items of household use from local agricultural and forest produce; carpenters prepared timber for house construction and made household

furniture; and priests rendered religious and ceremonial services for farming households. Traditionally, they received food in exchange from the farmers, not based on economic values alone but as part of community obligations. Profit or increased incomes was rarely a motive in such a production system.

The above 'idyllic' portrait of a mountain community is, however, no longer true of increasingly large areas of the mountains. Improved accessibility resulting from development of transport and communications, increasing movements of people in and out of these regions, and, consequently, greater exposure to lifestyles, technologies, and markets outside have led to increased aspirations and opportunities for diversified production structures to raise income levels. The nature of diversification in an area depends on its resource base and the degree of accessibility. But, historically, the following stages in enterprise development have been followed in most mountain areas.

Livestock-based enterprises

Since subsistence farmers keep some livestock to support agriculture (for ploughing and supply of manure) and for essential consumption items (milk, milk products, and, occasionally, meat), the most natural option they identify for raising their incomes in the wake of declining adequacy of agriculture to meet their needs is animal husbandry. The scope for development of livestock-based enterprises for products such as milk, milk products, and meat, of course, depends on the proximity and transport links to the market. On the other hand, development of enterprises in woollen products will, in addition, depend on the competitive quality of local wool, skills for production of woollen products, and marketing arrangements.

Enterprises based on diversified farming

With improvements in accessibility, farmers are willing to risk diversion of their limited land - their basic source of survival - from low-yield food crops to high-value items like vegetables and fruit and, further, to plantation crops like tea and to cultivation of spices. These items involve relatively greater marketing risks than animal husbandry products, as they require more market information, which may often be imperfect and also involve wider markets with unpredictable fluctuations in demand and prices. Therefore, development of enterprises based on livestock depends on a minimum level of development of transport, communication, and marketing channels.

Nature and natural resource-based enterprises

Natural resources have always played a pivotal role in the survival strategy of mountain people. For most of their basic needs — food, housing, and health — they have depended on natural resources. The idea that these resources could also be used to increase incomes primarily came from external influences. In fact, it is the people from outside who have received most benefit from the commercial use of mountain natural resources such as water, forests, and non-timber forest produce like medicinal herbs and plants. Mountain tourism, a unique nature-based product of the climate,

scenic beauty, and adventure niche of the mountains has also had little beneficial impact on local people; as is the case of commerce based on timber, hydroelectricity, and non-timber forest produce, both the operators and beneficiaries of tourism have been outsiders with relatively better knowledge, resourcefulness, and enterprise than the mountain people. It is only recently, with development of transport and communications, greater knowledge, and awareness, and also the need to look for new avenues of income, that mountain people have ventured into these lines of activity. But now, greater awareness about the environmental sensitivity of mountain natural resources and, therefore, restrictions on their use have placed the onus for their protection and conservation on mountain people.

Value-addition by processing and manufacturing

In most of the above cases, enterprises engage in growing, extracting, and collection of material with very little processing. As such, even when the material is used subsequently to make high-value products, incomes derived by the mountain people from the sale of primary produce are meagre. Once, however, an area is quite well connected by transport and communications and access to technology and markets improves, processing takes place locally and income derived from the processed output increases significantly. In addition such development also reduces the risk of loss in transit of such perishable items as milk, vegetables, and fruit. Mountain people and those interested and engaged in the development of mountain areas would like to see more and more mountain enterprises engaged in processing and value-adding activities, but the process of change is slow and difficult due to inaccessibility and the small scale and dispersed availability and production of primary materials, as also to the lack of adequate attention to mountain-specific issues in the policies framed by the mainstream governments.

These stages in enterprise development may not necessarily occur in the sequence described above. Interventions resulting in improvements in accessibility, opening up of new markets, scientific and technological breakthroughs, availability of energy, and new organisational and institutional initiatives have led to speedy transformation of the pattern of activities and enterprises from those confined to growing and collection of material to meet essential local requirements to processing for wider and growing markets in some mountain areas. In addition, many mountain areas also have activities and enterprises based on traditional local skills that co-exist with any of the above to a varying extent and varying potentials for income generation. They are mostly, but not always, based on local raw materials, cultural traditions, and past reputation. They include handicrafts, special woollen products such as carpets, and, also, in some areas, metal crafts and cultural artifacts.

12.3 Products and Stages of Development of Enterprises in the HKH

It is in the above context and understanding that an attempt has been made in the rest of this paper to portray the trends and structure of enterprises for various products in

different areas of the Hindu Kush-Himalayan region. The paper is based primarily on a series of case studies recently undertaken to document the experiences of enterprise development covering different areas and some specific products and aspects such as credit, training, and policies relating to enterprise development in mountain areas in Bangladesh, China, India, Nepal, and Pakistan. It also draws upon findings from the earlier work of ICIMOD on diversification of farming systems, off-farm employment, and tourism.

Product structure of enterprises

Enterprises in most mountain areas in the HKH region are generally in an underdeveloped, if not primitive, stage. They produce a wide variety of goods and services primarily to cater to the subsistence needs of local people. Most of them are tiny in size and household based in character. In the majority of cases, enterprise activities are secondary to the main household vocation, viz; agriculture, and are carried out to earn cash to buy non-farm products that are basic necessities. Most production is, thus, for local markets; and earning some income by using otherwise idle hours, rather than profit, is the main motive.

In such an economic environment characterised by a general lack of 'enterprise', the attempts to use local or regional niches for production of items having a comparative advantage with a view to selling them in outside markets are still very limited. As a result, the product structure of mountain enterprises is dominated by such activities as small-scale processing, trade, and repair services. This is true of most of Nepal, Chittagong Hill Tracts (CHT) in Bangladesh, most hilly and mountainous areas of Pakistan, and north-eastern areas of India.

For example, in the **CHT,** 97% of enterprises in the non-farm sector are in the micro-enterprise sector (i.e., each enterprise is employing less than 10 workers). Trading enterprises, including hotels and restaurants, dominate the micro-enterprise scene, accounting for 59% of the total. Enterprises in community and personal services come next with another 29%. Manufacturing enterprises account for nine per cent and financial and business services three per cent. Most (55%) enterprises are located in urban areas, but manufacturing enterprises are more urban-oriented (62%) (Mondal 1997).

Micro-enterprises in the manufacturing sector are distributed widely over more than 20 major product groups. Wood and other forest product based enterprises, wooden furniture, plywood, saw mills, and bamboo and cane products account for the largest group, around one-third of the total, bamboo and cane products alone for 22%. The next largest number of enterprises is in tailoring (23%). Rice mills, sweetmeats, hand tools, and jewellery are other important categories, each accounting for at least five per cent of the total enterprises. On the whole, the product structure is dominated by two broad groups - forest products and food products. Besides forest-based products, honey processing is the only other mountain-specific product accounting for about 2.5% of all enterprises. Handlooms, however, are the most widespread

enterprises in the CHT. There are as many as around 50,000 units, with about 67,000 looms, employing over 61,000 persons. These units are family based and employ mostly (96%) women.

Similarly, in **Nepal**, with over 80% of the area and about 50% of the population in hilly and mountainous areas, the product structure of enterprises is similar to that of any less developed area in the plains. Over 95% of industrial enterprises are in the small and micro sector. Of over 900,000 registered enterprises in the small and cottage sector, 30% are in processing of grains, oilseeds, and other agricultural products. The next largest group is of construction enterprises, accounting for eight per cent of the total. Metal products, textile weaving, furniture, garments, hotels and restaurants, and repair workshops are other significant categories, each accounting for over two per cent of enterprises. About one-fourth of the enterprises are in other services, important among them being training, consultancy, transport, travel, and advertising (Gurung 1999).

The product structure of enterprises, however, varies greatly among districts and regions. This is seen even within the same region. For example, in eastern Nepal, significant differences are seen between the two districts, Ilam and Bhojpur, studied by us. **Ilam,** with a relatively better agricultural base than Bhojpur, has a product structure dominated by agro-processing enterprises - rice and flour mills, accounting for 43% of units registered with the Cottage and Small Industries' Development Committee (CSIDC). Garment (16%) manufacturing is another important enterprise group. Nepali paper (lokta) and broom are two specific products based on local natural resources, but with wider markets in Nepal and elsewhere. Tea processing units have also emerged as significant based on locational advantage. Dairy enterprises have also emerged with improved connectivity to towns and markets. Ilam is also an established centre for production of local handloom cloth or dhaka. Other products such as metal products, noodles and potato chips, and service enterprises in printing, consultancy, electric, and electronic training that are growing in Ilam reflect a response to the needs of a growing economy, as is the case elsewhere (Sharma 1998).

The majority (72%) of enterprises in Ilam are located in rural areas. This is the case not only for agro-based activities, such as grain processing and dairy products, but also in product lines like garments and handlooms. Better connectivity among places seems to have not only led to rapid growth, but also to the dispersed location of enterprises in the district. On the other hand, limited connectivity seems to have led to a concentration of enterprises in just two urban areas in **Bhojpur** district. Rural areas that account for 94% of the population have only 50% of the micro-enterprises. Metal crafts, a traditional industry in Bhojpur, are among the largest product groups in terms of the number of micro-enterprises. They account for one-fourth of the total enterprises. The only other group with a large number of units (36%) is construction. Rice mills form a sizeable group of enterprises (14%). The other products with a significant number of enterprises are handlooms (5%), lokta paper (4%), hosiery and furniture (3% each).

In the **Northern Areas of Pakistan,** although small trading outlets still continue to be the major category of enterprises, new product lines such as poultry, dairy, garments, hotels and guest houses, and carpentry have gained in importance in recent years, thanks primarily to the efforts of the Agha Khan Rural Support Programme (AKRSP) (Mohmand 1999).

New niche-based products

Despite the preponderance of traditional items in the product structure of most mountain areas, development of new niche-based products, based on a comparative advantage with dynamic growth potential as a result of access to outside markets and a potential for value-adding processing locally, has been observed in a number of areas. Some examples are given below.

There appears to be a deliberate and conscious effort in **Western Sichuan** (China) to focus on specialised products based on mountain-specific resources. In the structure of enterprises, about two dozen different products in the agro-based, animal husbandry based, aqua-culture, non-timber forest produce based, and wild plant based categories have emerged as important and fast growing in the region. They range from sugar cane and sugar and flue-cured tobacco, which may not be mountain-specific, to products based on highly specific mountain resources such as seabuckthorn, *dioscorea,* and songrong mushrooms. In between there are more common products such as fruit and off-season vegetables, spices, and woollen products in which mountains have a comparative advantage (Rongsen 1998).

Enterprises in product lines with a comparative advantage in mountain areas have also developed in a number of areas and locations in other parts of the HKH region, though not on the same scale and in as systematic a manner as in Western Sichuan. The most important among these products are a result of the diversification of farming and animal husbandry. Development of horticulture in **Himachal Pradesh** (India) and the transferral from cereal production to vegetable farming in **Garampani** (Nainital District) and other locations in north-western India, cardamom production in Sikkim in north-eastern India, tea plantation and processing in Ilam District in eastern Nepal, and livestock and dairy development in areas close to the Kathmandu Valley in Nepal are examples.

Development of local, natural resource based products for elite and tourist markets has also led to emergence of new enterprises in some areas. Nepali paper made from lokta (*Daphne spp*) and nettle and natural fibre-based products like allo (*Gerardiana diversifolia*) in Nepal, and bhimal (*Grevia oppositifolia*) in the central Himalayan area of India are typical examples of such developments. These products have been in existence in these areas for a long time on a small and localised scale and have been used to cater to some common and specific local needs. They were produced using indigenous manual technologies on a small scale by artisan groups. Handmade paper was used to write scriptures and horoscopes and nettles and fibres of allo and bhimal were used to make ropes and baskets and bins. Efforts have recently been

made, mostly through government and NGO project interventions, to produce lokta paper for greeting cards and calendars, while nettles and fibres of various plants are being used to produce textiles and fancy garments.

Mountain tourism

Most common among the products with a comparative advantage in mountain areas, and one that has seen rapid development in several areas, is **tourism**. Mountain tourism has been in existence for quite a long time as a leisure activity, mostly for high-income groups from other parts of the respective countries as also for foreigners. It has increased over the past few decades for reasons of both increasing interest of people in the mountain environment and adventure and special efforts on the part of policy-makers and tourism entrepreneurs to market mountain tourism. Thus the number of tourists has increased manifold in Nepal and the central and western Indian Himalayan region, and new areas have been opened up for tourists in Nepal, India, and Pakistan in recent years.

While tourism-related enterprises have grown in number with the increased influx of tourists in to mountain areas, tourism has also acted as an entry point for development of enterprises in other activities that directly or indirectly support tourism. Thus, while the number of lodges, hotels, restaurants, trekking enterprises, tourist information outlets, and adventure sports' outfits has increased, development of tourism has also provided an impetus to vegetable production, poultry raising, handicrafts, and other activities. Growth of tourism-related enterprises has been by far the fastest in Nepal, followed by the central Himalayan region in India, and to a certain extent also in the Northern Areas and NWFP in Pakistan, but with a varying impact on the development of enterprises and benefits to local people in different countries and different areas and locations within a country.

The overall contribution of income originating from tourism (although **not** income retained in the tourist areas and regions) has been quite impressive. In Himachal Pradesh and the Uttar Pradesh hills in India, tourism was estimated to contribute over 2.0 and 2.5 billion Indian rupees[1], respectively during the mid-1990s, accounting for about 20% of the domestic product in each of the areas. In Nepal, tourism was estimated to contribute about 4% of the GDP and 20% of the foreign exchange earnings. In Pakistan, tourism earned about 120 million US dollars in 1992. China earned 3,947 million US dollars from tourism in 1992, although the contribution of mountain tourism was relatively small. The experience of tourism development in different countries, regions, and areas shows that types of tourism and impacts of tourism are very diverse in different situations. For example, in the hill areas of Uttar Pradesh (India), low-budget domestic pilgrims are predominant; high-yield foreign tourism featured prominently in Nepal; and resort and recreation tourism was the main form of tourism in the Northern Areas in Pakistan. It is, however, seen, as will

[1] There were 40.00 Indian rupees to the US dollar (December 1999). Today there are 46.05.

be discussed later, that the benefits from development of tourism to local communities have generally been minimal and environmental effects have often been negative (Sharma 1995).

Growth performance of different types of enterprise

While tourism has demonstrated relatively rapid growth in most areas, enterprises in other products have shown a variable growth performance. In different countries and areas, the pattern of growth has varied. Natural resource-based products, particularly those with wider and growing markets than others have fared well: lokta paper, tea packaging, and amliso (broom) made sweeping brushes are such examples in the case of Nepal. Agro-processing enterprises were doing well, but not growing, they (e.g., rice mills) mainly catered to local processing requirements. Enterprises in skill-based enterprises, with larger markets, such as handlooms and garments, showed varying performances, their success seemed to depend mainly on the resourcefulness of individual entrepreneurs. On the other hand, some traditional craft-based enterprises were not performing well - metal crafts in Bhojpur were facing problems on both the raw material and marketing front. They use imported raw materials that have become costlier over time, and they also face competition from urban products. So, 90% of the enterprises studied experienced a negative growth in output over the past five years. None of them wanted to expand their businesses.

In the Chittagong Hill Tracts of Bangladesh, micro-enterprises, in general, grew rapidly from 1991-1997. Employment and the number of enterprises are growing faster than investment and value added, implying that the average size of enterprises is declining in terms of capital and value added, although increasing in terms of employment, but productivity and income per worker has declined steeply. It appears that new enterprises are mostly induced by economic distress rather than induced by demand and the market. Forest resources and enterprises based on agriculture did better than the skill-based ones. Yet, tailoring gave a better income than saw milling to the entrepreneurs, as the former used mostly unpaid, family labour while the latter made extensive use of paid labour (Mondal 1997).

In the case of Western Sichuan, enterprises in products based on medicinal herbs and plants seem to have performed best, although most activities based on natural resources have been doing fairly well. Medicines and drugs made by using local herbs and plants are among the most significant high-value products that have also been aggressively marketed abroad. Animal husbandry-based enterprises have grown, but their growth prospects are in decline because of shrinking grass lands. Thus, woollen product enterprises have become stagnant because of competition from large-scale production in other, particularly, urban areas, and similar enterprises, as has been the experience of leather product enterprises. Mineral-based products in the mountains have also not been able to withstand competition, due to the lack of economies of scale; an enterprise is able to turn out only small amounts of products, as only limited quantities of minerals are available at any one location.

Given the problems of inaccessibility to inputs, technologies, and markets, entrepreneurs have often chosen and carried out production of commodities that do not require new inputs and technologies but which have a ready market, preferably locally. Since farming has been the traditional occupation of most entrepreneurs, new products taken up for enterprises have been primarily land and livestock based (e.g., vegetables, fruit, and dairy products in India and Nepal). Problems of technology and markets have sometimes led farmers to reject new products introduced through projects and programmes (e.g., soyabeans in Garampani and rabbit farming in Ilam). In other words, products that farmers had chosen themselves on the basis of market potential and which required minimum external inputs performed better than those thrust on them by development and extension agencies and organisations and that were dependent on outside sources for inputs and technology. Programmes and external support have helped, but mostly when they have focussed on strengthening the production and marketing base of activities that entrepreneurs have been carrying out and/or have chosen on their own.

12.4 Processes and Factors in Enterprise Development

In most cases, therefore, the shift from subsistence-oriented production to enterprise-based production first took place in the form of market orientation of agricultural, natural resource-based, and livestock-based activities, primarily because of the skill and resource base endowment of households. The extent to and pace at which a subsistence food-based activity has been replaced by enterprise-oriented commercial crop production was, of course, dependent upon the availability and price of food procured from elsewhere and accessibility to markets for commercial products. The two factors have often gone together, depending on development of transportation . Also, public provision of food at affordable prices (e.g., in India) has provided reasonable food security to people in some mountain areas, so that they have been able to engage in commercial crop production. Thus, between the two districts studied in eastern Nepal, Ilam, with greater connectivity within and outside, through its relatively better developed road network, has about 19% of the cultivated area under commercial crops, Bhojpur, with a limited road network, has a corresponding figure of only four per cent. On the other hand, in Garampani area in Nainital district (India), proximity to the road (all the villages studied are located at a distance of from two to seven kilometres from the road), combined with fair price shops supplying subsidised food grains, has facilitated the placement of as much as 62% of cultivated area under commercial crops, mostly vegetables and fruit (Badhani 1998).

How does the emergence of enterprises, particularly in new products, take place ? What is the relative role of endogenous and exogenous factors ? Does it have to be always steered by a programme or a project? In fact, it is seen that, in most cases, one or a few enterprising persons, after receiving exposure to products and markets elsewhere, grasp the potential and take the plunge. Favourable location in terms of proximity to a road and market, of course, plays an important role, but availability of

cheap credit, inputs, and other support services under a programme has played mostly a supportive and only rarely a catalytic role. For example, tea plantation was introduced in Ilam on the initiative of a District Governor who was inspired by a visit to Darjeeling, a famous place for tea production in India, across the border. His plantation was emulated by others, including smallholders as well, because of the availability of a market in Darjeeling. Another enterprising tea farmer, later on, saw the value-added and profit potential in tea processing and packaging, and this was also subsequently emulated by others. In the mean time, the establishment of Nepal Tea Development Corporation helped in terms of technological developments and marketing.

Vegetable production in Garampani area was started, about 70 years ago, by a few educated and innovative farmers with the nearby hill station, Nainital, as the market in mind. Until that time Nainital got its vegetables, not always fresh, from some distance in the plains. These farmers started with potatoes, capsicum, and tomatoes, but subsequently brought seeds of beans, peas, and cauliflowers from elsewhere and started growing them. From one supplementary crop in summer, vegetables now form the principal year-round crops, with different vegetables grown in different seasons. It is only during the recent 10-15 years that the farmers have started using the extension facilities from government departments for the use of chemical fertilisers, fungicides, and insecticides. Some enterprising farmers have now adopted such modern techniques as spray-needles for irrigation and polyhouses for seedling cultivation. Initial resistance to the change over to vegetable growing from older members of the farming households (because of their age-old attachment to food crops), from women (due to the loss of fodder), and farmers in general (because of the high risk factor and increased labour requirements) gradually weakened as the high income potential of the new activity was firmly established. However, adoption by different villages took rather a long time. After the first village, closest (about 6 km) to the market in the local town adopted vegetable growing, the next village, about two kilometres further away, adopted it after about 10 years, and the other four villages, three to six kilometres further away, after 20 years. More distant villages adopted it much later, only after a dealers' market was established locally (Badhani 1998).

That enterprises in new products could develop fast and in large numbers, more or less, at the same time, as a result of a strong policy thrust and integrated programme — including research and development, a mechanism for technology transfer, and a market as well as a transport network — is demonstrated by the development of mountain resource based enterprises in West Sichuan. Although these resources have always existed in the area, their widespread use for commercial production for outside markets has taken place only during the last twenty years. A vigorous policy promoting rural industry, first on the basis of town and country enterprise programmes run by the government and the collectives and, lately, through encouragement to individual farmers and entrepreneurs by giving them land lease contracts and auctioning off

bare and non-cultivated land. Tax exemption for new enterprises in the poorer more remote areas and development of a transport network have played key roles in this process. Other important features of this strategy to develop enterprises in poorr and remote mountain areas consisted of incentives to scientists and technologists to work on technologies specific to the products and enterprises in these areas, support to research institutions to actually demonstrate use of technologies in production through factories and workshops attached to them, and promotion of farmer /small entrepreneurs' linkages with larger companies for marketing farmers' products.

12.5 Markets and Marketing

Markets and marketing place the severest constraints on the development of enterprises in mountain areas. They cannot compete with products produced in the plains, even in the local markets, because the latter are better placed in terms of availability and cost of inputs and economies of scale to sell their products in hill and mountain markets, even after incurring transport costs, at prices lower than those of products from local enterprises. Even in products with a comparative advantage in production in mountain areas, marketing remains a problem because of lack of adequate market development and organisations for their sale. Most enterprises are small and not individually capable of product development, market development, and sale in distant locations at home or abroad. As a result, many of them operate on a very small scale, and new enterprises do not emerge, in spite of market potential, and quite often are not able to realise a fair price due to their dependence on exploitative marketing arrangements with traders and contractors.

Marketing arrangements vary with products and areas. For example, in the study area in eastern Nepal, two-thirds of the enterprises are sold directly to the consumers. All of the grain mills, in fact, served local consumers, but garment producers also sold directly to the consumers. So was the case with hosiery units. None of the Nepali paper producers sold to consumers directly - there were probably no local consumers - the product was sold to wholesalers. This was also the case with brooms. Other products,however, were sold by all three methods: to wholesalers, retailers, and (direct) to consumers. In the case of rabbit farming and sericulture, NGOs running projects to promote these activities acted as intermediaries. Only about one-seventh of the enterprises had prior orders for their products, the rest had to look for the buyers after production.

Vegetable growers in Garampani do not sell directly to consumers, this is probably true in most cases of commercialised production of vegetables. Most of them sell to dealers who then sell either to retailers in nearby urban locations or to dealers in larger market centres. About 55% of farmers sell their vegetables mostly to local dealers who are now located in 11 different places on the main road nearest to the vegetable growing villages. In order to transport produce to these centres on the road,47% of farmers use mules, 17% humans, and 37% combine both. Those selling in major urban centres at a distance of 30 to 60 kilometres away use motorised

transport after reaching the main road. Over the years, sale in major urban centres has increased, in spite of the fact that more collection centres with increasing numbers of dealers have come up on the road through the area. That is because the farmers, particularly those with larger quantities of produce, are keen to take advantage of better prices in the market outside, even though the risk factor, as indicated by fluctuations in daily prices, is greater in non-local markets than in local ones. Now about 70% of farmers sell their produce partly or wholly to these market centres; only eight per cent sell their entire produce locally. As a result, the price differences between local and external markets have narrowed: in 1988, prices at the major urban market at a distance of 60 km away were 50-60% higher than at the local market, the difference in 1997 was only about 25%. Also, dealers' credit, which is used by most farmers as vegetable farming is mostly a seasonal operation, has become less exploitative, because the availability of a more widespread and more competitive market and because the local dealers' prices are not much lower than those of dealers in other market centres (Badhani 1998).

When the volume of production is small, however, there is no access to outside markets even if the infrastructure and the demand exist. This is illustrated by the case of natural fibre-based products in the central Himalayan region of India. The field study shows that most products of agave, cannabis, and Grevia are used by the producer or other households in the village. Rope of one kind or another is the main product, only ropes made of *Grevia* find their way to the market (to the extent of about 40%). Products going out of the village to the towns closest by are again sold to villages in the area, and to some extent also to the villages that sell to the market. The market centres do not seem to act as a conduit for sale outside, but mostly as an intermediate mechanism for inter-village transactions, adding a margin to the price which the consumers in the village could have avoided if intra and inter village market networks had been developed. Nevertheless, the market centres play the basic role of finding buyers for products that otherwise would not have been produced or sold (Palni et al. 1999).

The existing markets and marketing arrangements are seen as a major constraint by entrepreneurs. About half the entrepreneurs in eastern Nepal perceive market-related problems as a critical limitation on their operations. About one-third do not want to expand their businesses for this reason, and another one-fourth want to expand but are apprehensive about finding a market for their products. Such a perception prevails among units across product lines; but, in some product lines (e.g., rice mills and metal crafts), all units have given up the idea of expanding as they do not see any outside market for their products. Nevertheless, for garments, bamboo furniture, broom-making, and wooden furniture, most units want to expand but fear marketing problems. Only for tea packaging and sericulture is the market seen as neither a problem nor a constraint in terms of expansion. Rabbit farming, which did not face a market problem initially because of NGO support, is also now in a precarious position in terms of product marketing, and some entrepreneurs do not want to expand, or even want to stop activities.

Nepali lokta paper received strong marketing support from the Government, NGOs, and international organisations. HMG-Nepal has consciously encouraged use of this paper for files and notes in its offices. UNICEF was instrumental in popularising it by using it for greeting cards. Bhaktapur Craft Centre, a joint venture of HMG-N and UNICEF, is involved in the export of paper and greeting cards. It is estimated that greeting cards and paper worth over NRs 100 million are exported overseas annually. Yet, it was found in the study on Bhojpur and Ilam that about 30% of the paper-making units did not want to expand their activities because of market constraints, another 30% wanted to expand but foresaw problems in marketing, and only 40% of units did not perceive marketing as a problem.

Organised market promotion and marketing are essential for products of small mountain enterprises. It is also evident that some external initiatives by a government agency or NGO are necessary for this purpose. Still, if such initiatives do not simultaneously develop the organisational skills and capacities of the producers themselves, sustainability of the marketing arrangements will be threatened. Vegetable growers in Garampani are, no doubt, profitably marketing their produce individually, but, in their case, improved accessibility and expanding markets have enabled them to tackle the marketing problems. Also, it has been found that, with perishable commodities like vegetables, prompt action is required, and this is often difficult if the actual sale is carried out through organisations involving layers of management and authority. A branch of the regulated market centre (mandi) was proposed at Garampani, a building was also constructed for this purpose; but it did not start functioning as the farmers did not find it preferable to direct sale. The building is now used by other government departments! Interventions may thus prove futile and involve waste of resources if they take place without proper needs' assessments. Vegetable and fruit marketing societies established in the area are, however, marketing soyabeans successfully.

Yet, producer-based marketing organisations have greater chances to succeed insofar as they can prevent buyers from playing small producers off against each other, thus improving terms of trade and also pooling resources for market promotion. Technical and organisational support from government and non-government agencies is necessary for this purpose. Thus the Gilgit Agricultural Marketing Association (GAMA) and Baltistan Apricot Marketing Association (BAMA) are reported to be doing well in Gilgit and Baltistan under the AKRSP supported programme for marketing seed potatoes and apricots, as also for vegetables, mainly grown by women. Results of the BRSP training of village marketing specialists, formation of a Kisan Marketing Association, and support for developing new markets in Quetta, Shirkatgarh, Karachi, and Islamabad, for different products would also be interesting to observe in future, as these efforts are relatively recent.

One interesting case is that of the development of transport - trade organisations by farmers, truckers, and retired government officials coming together to market vegetables in Western Sichuan, to prevent underpricing by intermediary traders.

Another mechanism possible for marketing the products of mountain enterprises might be a tie-up with large organisations and companies. This has taken place very effectively in the case of marketing herbal products and drugs in Western Sichuan. Farmers have linkages with manufacturing companies for the sale of unprocessed or semi-processed materials and small manufacturers have linkages with larger companies who sell their products in other parts of China and in other countries. In certain circumstances, the system may, however, turn out to be exploitative and farmers and small producers may fail to get fair prices, but the system assures the market and the impact of its possible exploitative nature could be minimised by collective sale through producer organisations, as is the case with several organisations in Nepal, some of which came together to form the Fair Trade Group (FTG), Nepal, in order to market handicrafts (Shahi and Kachhapati 1999).

12.6 Inputs: Access and Programmes

Next to the market, it is access to inputs like raw materials, credit, and technology that poses a serious handicap for the entrepreneurs in mountain areas. Availability of an adequate quantity and quality of raw materials is obviously necessary, and so is the access to the credit required at an affordable cost. But, in their efforts to reach more widespread markets, enterprises need the know-how and technologies to upgrade their products to suit new consumers. Access to new product designs and improved technologies and suitable energy to use them assume special significance in this context.

Raw materials: sustainable use and regeneration of natural resources

As indicated earlier, significant numbers of enterprises in mountain areas are based on local raw materials; and they have been doing better than the skill-based enterprises using non-local raw materials. Some of the latter (e.g., metal crafts and handlooms in eastern Nepal) are facing serious shortages of raw materials and, therefore, are on the decline. In addition, even those based on local resources face problems of both declining supply and restrictions on use. Even in a situation like that of the dynamic and fast-growing enterprise structure in Western Sichuan, some product lines dependent solely on the collection of existing natural resources are facing the risk of resource exhaustion (e.g., bamboo shoots, songrong mushrooms, and some species of medicinal plants). The number of enterprises has declined as a result of the lack of an adequate supply of raw materials and the consequent decision by the local government to discourage them. A ‘resource tax’ has also been imposed to discourage use of dwindling natural resources. Similarly, enterprises based on animal husbandry are increasingly facing the problem of declining grasslands (some grassland areas in Hongyuang and Ruoergai are reported to have become deserts!). The new policy measure to provide access to each farming household to the limited land area allocated to it has meant downscaling herds and activities based on them.

In some cases, the enterprises have only restricted access to raw material resources, either because the resource is among the protected items (e.g., some rare species of

medicinal plants) or because it grows in the protected forests. For example, the bark of the Daphne tree, used for production of Nepali lokta paper can be collected by a registered enterprise only with the permission of the Forest Department. Permission is granted after due consideration of the request to collect bark of a given quantity from a designated forest area within a stipulated time period and on payment of a royalty charged for every kilogramme of bark collected. Similar restrictions on the raw material for wooden furniture also prevail. Such regulations are, no doubt, necessary but, at the same time, lead to inadequate, and not always timely, supply and higher cost of raw materials. A significant percentage of entrepreneurs in these product lines in eastern Nepal considered 'problems in the supply of raw materials' as an important reason for the relatively slow growth of their enterprises. Instead of a ban or severe restriction on use of plant species threatened by extinction, measures for regulated use and incentives for regeneration as practised in several places in Western Sichuan, China, may serve the goals of both income generation and resource conservation.

Technology and energy

Traditionally,enterprises in mountain areas have traditionally used indigenous, mostly manual, technologies for their production. That was because the technology was good enough for the type and quality of products that were meant primarily for local use and, also, because improved technologies and capital to acquire them and energy to use them were not available. With the development of opportunities to take advantage of non-local markets, research and development and technology have emerged as important factors in enterprise development in new products and for improvement in the quality and design of existing products. They have played an important role in the development and large-scale production of natural resource base products in Western Sichuan, while its absence has left the development potential of, say, natural fibre-based products in the Indian Himalayan region, untapped. Lack of sufficient research support for product improvement has led to some problems in the marketing of lokta paper and products made from rabbit wool in Nepal.

Use of improved technologies to process available natural raw produce and agricultural produce is often seriously constrained by the lack of energy. In most instances in eastern Nepal, enterprises that needed energy for production were using firewood (mainly for heat energy in the production of Nepali paper, dairy products, and metal crafts). Some, mostly rice, mills used commercial fuel, primarily diesel; and only a very small number used electricity, which, in any case, was available only in a limited number of urban locations. In all, 45% of enterprises used some form of energy, mostly, as mentioned, firewood; yet lack of energy was considered by many (45%) as a major problem, next only to access to credit and markets (Sharma 1998). Lack of suitable and adequate quantities of energy forces sale of primary or semi-processed materials, thus decreasing the scope for value-adding, and it is also a constraint to increasing the scale of production. Even in the case of vegetables and fruit, lack of storage facilities, which need a constant supply of power, forces producers

to sell instantly even if the market is not favourable. This is borne out clearly in the case of vegetable growers and fruit growers in the Garampani area.

To the extent that firewood constitutes the main source of energy for production, enterprise development could have an adverse effect on the environment. Also, firewood as an energy source does not provide the quality and efficiency required for processing and production in most cases. Alternative energy sources, particularly electricity, could meet the objectives of both increasing efficiency and scale of production and checking environmental degradation. Indiscriminate use of forest resources without simultaneous efforts for their regeneration could also have an adverse effect, as is evident in the case of bamboo shoots and some species of medicinal plants in Western Sichuan and lokta in eastern Nepal where certain measures to check unlimited exploitation are in place. While restricting use may be necessary, it is also necessary to encourage users to regenerate resources through replantation and conservation.

Credit

Credit continues to be a key constraint to the development and expansion of enterprises. Most enterprises do not have access to institutional credit. Only seven per cent of enterprises studied in eastern Nepal used bank credit and 60% see credit as a major problem in their operations and expansion. In the Chittagong Hill Tracts, bank loans constituted 25% of the total loan amount, but, in terms of the number of enterprises, the percentage was around ten (Mondal 1997). Even with the several programmes providing micro-credit, coverage is as yet only about seven per cent of the target group in Nepal. Further, credit provided by these programmes is often too small to sustain development of enterprises on a commercially viable scale. The average amount of loans provided by different programmes in Nepal ranges between NRs 6,000 (Centre for Self-help Development – CSD) and NRs 12,000 (Nirdhan) (Dhungana and Thapa 1999). Even though most enterprises operate on a small capital base (average investment size of enterprises in the CHT was estimated to be Tk 38,000 and in eastern Nepal NRs 50,000), most of the capital had to be borrowed from informal sources. In the CHT, a good proportion of the loans (46%) was, of course, taken from 'friends and relatives', but about 30% of the capital requirements had to be met by borrowing from traders and moneylenders at an interest rate ranging between 25 to 150%. In the case of Eastern Nepal, about three-fourths of the capital requirements were met through own and family savings (the corresponding figure for 'self-financing' was reported to be only 10% in the CHT) and about 13% with loans from 'relatives'; but they also charged an interest rate not very much lower than that charged by moneylenders who supplied about four per cent of the capital requirements. Interest rates charged by banks, relatives, and moneylenders were reported to be 16, 24, and 27% respectively, their corresponding share in total borrowed capital being 29, 54, and 17% (Sharma 1998).

Several micro-credit programmes have been introduced by the governments and non-government organisations to improve the access of the poor to institutional credit.

In Nepal, micro-credit programmes, such as the Small Farmers' Development Programme (SFDP), introduced in 1975, Production Credit for Rural Women (PCRW - 1982), Banking with the Poor (BWTP - 1991), Regional Rural Development Banks (RRDBs - 1992), Micro-Credit Project for Women (MCPW - 1993), Nirdhan (1991), and the Self-Help Banking Programme (SHBP - 1991), have together provided credit to over 300,000 persons over the years for various income-generating activities. These and other minor programmes significantly improved access to credit for the poor in Nepal, particularly during the nineties. The tendency to avoid the risk of failure on the part of different agencies has resulted in concentration of programme activities in areas with relatively better potential; and areas with really limited access to credit have largely been left uncovered, except by a few government sponsored and run programmes. Only SFDP operates in all 75 districts and PCRW also has a wide geographical spread (18 out of 20 Terai, 24 out of 39 hill, and 13 out of 16 mountain districts), all other programmes concentrate mainly or only on the Terai and hill regions.

A serious limitation to these programmes from the point of view of enterprise development is that their focus is primarily on poverty alleviation, capacity building, and self-help, rather than on the requirements of an enterprise. They do not cater to input, technology, and marketing requirements of enterprises and, in any case, they provide, on an average, too little credit to create and sustain a viable enterprise on a commercial basis. Even an 'enterprise' - focused programme like the Micro-enterprise Credit Programme (MECP), run by AKRSP in Pakistan, has provided loans of PRs[2] 7,300 only on an average. Such is the case in India too with a large-scale government-sponsored loan-cum-subsidy programme called the Integrated Rural Development Programme (IRDP) through which about 40 million poor households have been covered since its inception about two decades back, in different parts of the country, including the mountain areas. The programme, although aimed at promoting self-employment based on income-generating activities, has been basically an anti-poverty programme, with an average loan of IRs 8,000 per assisted household; and, therefore, its impact on enterprise development has been minimal. There have been other programmes also that aimed at enterprise development on the basis of government subsidies and bank credit. A Scheme for Self-employment among Educated Unemployed Youth (SEEUY) earlier and its new variant, the Prime Minister's 'Rojgar Yojana' (PMRY) have been most important among them. The PMRY, introduced in 1993, assists educated unemployed youth from relatively poor households in establishing an enterprise in any sector of activity, with financial assistance of up to IRs 100,000 consisting of 15% government subsidy and 85% bank loan. During the period from 1993 - 1997 about 819,000 potential entrepreneurs were provided with assistance, of which about eight per cent were in the hill and mountain regions of the country (Awasthi et al. 1999).

[2] There are 58.35 Pakistani rupees to the US dollar.

Thus, while access to institutional credit has improved through various efforts on the part of government and non-government agencies, many present and potential enterprises in mountain areas are not able to start or expand their businesses due to lack of capital. Either they have no access to institutional credit or find it unaffordable, due not so much to formal costs but to a great extent to the hidden and open 'transaction costs'. Savings' groups have been able to accumulate funds, but, in many cases (as seen in Nepal as well as in the Northern Areas of Pakistan), have not been able to use them because of the lack of planning and effort to develop enterprises linked with savings' programmes.

12.7 Women and Micro-enterprises

Development of commercial enterprises seems to have had a mixed impact on mountain women. Women participate significantly as both entrepreneurs and workers in micro -enterprises. For example, in the study area in eastern Nepal, 38% of enterprises were run by women; and a similar percentage of workers in enterprises were women, mostly employed as unpaid family workers. Most of the women entrepreneurs are, however, operating tiny units in non-growing or slow growing product lines. Relatively larger sized enterprises in dynamic product lines do not even employ many women, paid or unpaid.

Emergence of new enterprises has given new work opportunities to women, and they are now sharing responsibilities in all aspects of enterprises. For example, the change over to vegetable growing in the Garampani area has led to a two-fold increase in hours of work for both men and women; but since work for men has increased more rapidly than for women, the gender imbalance in the workload has decreased. A woman now works 1.15 times more than a man under the new crop mix compared to over three times with the earlier cropping pattern. Also, commercialisation has led to a reduction in the out-migration of males, so that the work burden on women is less than before. Now men join women in weeding, manuring, and harvesting, which in a farming system dominated by food crops was carried out more or less exclusively by women; and women also participate in marketing, an activity exclusively confined to men earlier. The total workload of women has increased not only because of more work on the farm, but also because of the necessity to collect fodder from the forest due to lack of crop residues earlier derived from food crops.

In the mountains of Western Sichuan, women have become key players in economic activities over the past two decades with a large number of men migrating out to take advantage of the opportunities in fast-growing regional and national economies. Growth of enterprises based on wild plant resources has led to a greater participation of women, particularly in collection of materials. Women are also playing important roles in some plantation crops such as fruit and eucalyptus and in floriculture and sericulture. Their incomes have increased manifold, and they have better control over their household economy. In silk weaving mills in Ningnan, 90% of the employees are women, many of them in supervisory positions, even though they come mostly

from farming families. Still, because of a lower level of education and limited avenues for training, women do not generally occupy directorial, managerial, and engineering positions in most enterprises. Efforts are now being made to pay special attention to girls' education and training through schemes like 'Spring Bud' to facilitate schooling of girls and special training programmes by many factories to enable them to climb up the occupational and hierarchical ladders.

Training programmes for entrepreneurship development (EDPs) in India and Nepal have paid special attention to potential women entrepreneurs, including those in mountain areas. Some programmes have been specially organised exclusively for women, while, in others, a good proportion of trainees have been women. In Nepal, the Women Entrepreneurs' Association of Nepal (WEAN) and the Women's Development Division of the Ministry of Local Development organise EDPs for women only. Others also organise EDPs exclusively for women, occasionally and in other programmes also women account for a significant proportion of trainees. The percentage of women among trainees in two districts, Kaski and Tanahu, during the two years 1994-95 and 1995-96, was, for example, 63, as three of the six programmes were exclusively for women (Gurung 1999). In the training programmes studied in the three hill areas in India, women made up 37.4% of trainees; the proportion was higher in Himachal Pradesh (43%) and low (5%) in Uttar Pradesh (Awasthi et al. 1999).

In terms of the success rate, women trainees do not seem to be doing as well as men. A smaller percentage of women than men trainees in EDPs have been able to start enterprises: in Nepal, the respective percentages were 33 and 47 in New Business Creation (NBC) programmes, under the Small Business Promotion Programme (SBPP), and 31 and 33% in the training programmes by IEDI (Industrial Enterprise Development Institute) and CSIDB in Kaski and Tanahu districts during 1994-96 that were studied in detail. In India, 29% of women compared to 38% of men EDP trainees could start an enterprise: in the U.P. hills women did better (50%) than men (33%) and the same was the case in Assam (28% compared to 20%), but, in Himachal Pradesh, women's start-up rate was 30% compared to 50% for men. In the Group Enterprise Development Project in the state of Nagaland in North Eastern India, women starting projects constituted 58% of all cases, primarily because of the 19 societies trained, about half were either women's or women-dominated societies.

Thus it appears that women form a substantial proportion of EDP trainees, primarily because several programmes are run exclusively for women; in general programmes their participation is still low, and they are much less able to use their acquired skills to start businesses mainly because of lack of access to other inputs and resources, particularly credit and markets.

Efforts have been made in recent years to improve women's access to credit through various micro-credit programmes run by government and non-government agencies. In India, 40% of the beneficiaries have to be women in a nationwide credit-cum-

subsidy programme (IRDP) for self-employment based on household enterprises. In Nepal, at least two programmes, the PCRW and MPW, are meant exclusively for women. Even in other programmes, particularly the SFDP and BWTP, women are the main focus and have wide coverage. Overall, the proportion of women beneficiaries in micro-credit programmes is around 52%. The NGO - run programmes in Pakistan also have exclusive windows for women. As a result, there has been a significant improvement in access to institutional credit. Yet, overall access to credit for enterprise development in mountain areas continues to be low, and for women still lower. Further, in most cases, the loan amount, particularly in the case of women, is too small to start and sustain any enterprise on a substantial scale.

12.8 Policies and Programme

Policies-general

It appears that in most of the countries and areas, a policy regime favouring development of enterprises, focusing on products with a comparative advantage in mountain areas, is missing. Policies and programmes - industrial, sectoral, or input specific - are general for promotion of enterprises anywhere and in any product. As a result, mountain areas are not able to benefit from them due to their special disadvantages. Promotional agencies have played a role through their extension, credit, and input-supply related activities, but their reach and extent of assistance have been limited and not always sustained over time. As the programmes are common to all areas, the temptation to achieve larger targets with limited resources has led these agencies to concentrate more in easily accessible areas in the plains with greater potentials for success than in mountain areas, and this means that rather limited coverage is given to the hills and mountains. This has also been the tendency in the externally funded NGO run programmes (e.g., in credit programmes in Nepal). Sometimes, the policies and programmes are well-meaning and also effective, but limited in their scope and, therefore, in potential effect. One example is that of agri-products like ginger and pineapples in Meghalaya, India, where the efforts have been confined to marketing raw produce, without any attention being given to processing and value adding (Hazarika & Bhatia 1999).

A serious limitation of most of the programmes is that they have more or less exclusively focused on a single aspect or input (e.g., training, credit) and do not include all the important aspects of enterprise development. Enterprises in mountain areas have limited access to most inputs and services, skills, risk minimising measures, credit, technology, and marketing; and provision of just one or the other has limited chances of succeeding in their development. NGOs like the Agha Khan Rural Support Programme (AKRSP) and the recently created Sarhad Rural Support Corporation (SRSC) and Balochistan Rural Support Programme (BRSP) have tried an integrated approach with relatively better success than others (Mohmand 1999). In the case of AKRSP, credit is combined with training in business enterprise development, development and supply of technology packages for different activities, and

developing organisations for collective marketing of the produce (e.g., Gilgit Agricultural Marketing Association - GAMA and Baltistan Apricot Marketing Association - BAMA). The programme is run through village organisations (VOs) and women's organisations (WOs). Overall impact in terms of expansion of existing enterprises, emergence of new enterprises, increase in the incomes of households assisted, and loan recovery has been evaluated to be significant. The impact has been particularly favourable in the case of women in terms of participation in enterprise activity and income. Significant favourable impacts have also been seen in such indicators of household welfare as nutrition, children's education, and women's status.

SRSC and, more recently, BRSP, have also adopted a similar approach to AKRSP in their different programmes, including those on micro-enterprise development. SRSC started by making an assessment of the potential for different activities and identification of promising lines of business in different areas of their operations. The Productive Investment (PI) programme of the Corporation, under which building of small-scale infrastructure (e.g., link roads, minor irrigation, land levelling/ development, water harvesting, and water supply) can also act as a useful supplement to enterprise development. The micro-enterprise programme of BRSP, which is of more recent origin, also follows a similar model to that of AKRSP and SRSC.

Policies relating to mountain tourism

As mentioned earlier, the impact of tourism in mountain areas of the HKH region has been mixed. Economically, there are found to be more 'leakages' than 'linkages'. In view of the weak production base in most tourist areas, most products used by tourists have to be imported, while the local people have also to bear the burden of the high prices of essential goods that prevail due to tourist demand. So most income derived from tourism flows out of the tourist areas. Environmental impacts are generally extremely negative, manifest in, for example, acute water and garbage problems in cities like Simla in India; pollution in water bodies like Phewa Lake in Pokhara, Nepal; and Nainital Lake in India; the large amounts of non-degradable litter and pollution, both in land and water bodies, in heavily frequented treks in Nepal; and water and river pollution, pollution of soils and glaciers, and deforestation and congestion in the Swat, Kagan, and Kalam valleys in Pakistan (Sharma 1995).

The weak economic and negative environmental effects of tourism are primarily a result of the lack of adequate focus and orientation on local communities and mountain environment in national policies. Most countries have explicitly stated policies on tourism and also have institutions in place to promote tourism development. The primary focus of these policies and institutions is on tourist promotion for maximising revenue and foreign exchange. Specificities of mountain tourism in terms of uniqueness of its 'products', such as environment, nature, tranquillity, and adventure, are often overshadowed by emphasis on 'facilities' in promotional efforts and, therefore, fragility and environmental sensitivity of tourism resources are neglected.

Participation by local people in and, therefore, benefits to local communities from tourism do not receive priority in tourism development programmes, in general. Efforts expended in Nepal, particularly by the King Mahendra Trust for Nature Conservation (KMTNC) in the Annapurna Conservation Area offer an example of how the concerns for conservation and benefits to local people could be addressed. It is important that mountain tourism is promoted as a part of integrated area planning for environmental and economic development. Efforts in that direction are still lacking, though most governments and organisations are becoming increasingly more conscious, particularly of the need to protect and use the environment as a tourism product.

Entrepreneurship development programmes (EDPs)

Training for the development of entrepreneurship skills has been recognised as an essential input in enterprise development and many Entrepreneurship Development Programmes (EDPs) are being conducted by different government and non-government organisations to impart entrepreneurial and managerial skills to existing or potential entrepreneurs. To begin with, EDPs were conducted mainly for the large, urban-based organisations in the organised sector. Recognising that a major part of the enterprise activity in developing countries takes place in the small-scale and unorganised sector, training organisations have introduced programmes for small and micro-enterprise (SME) sectors as well. New organisations have also been created to cater to the needs of such enterprises in rural areas. The Entrepreneurship Development Institute (EDI) of India and its counterpart at the individual state level, promoted with the assistance of national financial institutions, and the newly-created Industrial Enterprise Development Institute (IEDI), developed out of the German supported Small Business Promotion Project (SBPP) in Nepal, are examples of such developments.

The need for training to impart entrepreneurial and managerial skills, particularly to people in areas and environments with very little exposure to business enterprise, such as the rural and remote mountain regions, is obvious. Producers and craftsmen in these areas have carried out production of various items utilising traditional skills inherited from generation to generation, mainly to cater to local needs and with the primary motive of survival and subsistence. But they do not possess the entrepreneurial skills required for production for the market and facing the risks involved in it. Some recognition of the fact that small rural entrepreneurs require different programmes than those running or planning relatively larger enterprises in urban areas is reflected in the new training programmes developed and run by training organisations, but similar recognition of the special needs of enterprises in remote mountain areas does not seem to have as yet been internalised in EDPs.

Yet, trainee entrepreneurs from mountain areas have been participating in EDPs, particularly in programmes that have been organised in these areas of late. Of the various EDPs to provide training to over 1,500 persons per year in Nepal, quite a few are conducted out of Kathmandu and in hilly and mountainous districts. The Cottage and Small Industries' Development Board (CSIDB), which has recently

diversified its training activities from purely crafts' training to EDPs, conducts programmes in all districts of Nepal. The same is true with the Women's Development Division of the Ministry of Local Development which runs village-based programmes in most parts of the country. The Women Entrepreneurs' Association of Nepal (WEAN) has training programmes in diversified locations. The IEDI has training programmes mostly in Kathmandu and urban areas of a limited number of districts. But the IEDP has been a lead organisation, from its SBPP days, in developing and implementing EDPs and their model, in terms of both contents and methods, has been adopted by most other organisations in Nepal.

Also, although the EDPs have not proved very effective, in general, in helping trained persons to start an enterprise, the success rate has not been lower in the mountain areas than elsewhere. The overall success rate, in terms of trainees who have started an enterprise, has been around 30% in Nepal, and it was found to be 32.5% in a survey carried out in Kaski and Tanahu districts. Those in Kaski district, with Pokhara as a major urban centre, showed a slightly higher (34%) success rate than in Tanahu district (32%). It may be also noted that the Kaski trainees underwent training by IEDI and those in Tanahu by CSIDB, and the overall performance of IEDI trainees has been found to be better than those of CSIDB. According to an evaluation of the persons trained under its New Business Creation (NBC) programme up to August 1995, 44.3% had started a business, and another 40.7% of cases were in process. In the case of CSIDB training, the success rate during 1994-95 was found to be around 28% (Gurung 1999).

In the case of India, the estimated final start-up ratio (including actually observed, reported, and in process) was found to be 32% in aggregate, 40.5% for Assam, 38% for other north-eastern States, and 39% for Himachal and Jammu and Kashmir, in an earlier study. In a more recent study conducted in Assam, Himachal Pradesh, and the UP Hills, the success rate was found to be around 35%. Rates differed in the three areas: it was highest in Himachal Pradesh (41.5%), followed by UP (34.6%), and lowest (22.5%) in Assam (Awasthi et al. 1999).

The start-up rates have been influenced by the tie-up with supply of inputs like credit and continued support and advice as a follow-up of training. Also, a group approach covering potential entrepreneurs in the same product line has been found to be the most effective. Demand-induced programmes, as in the case of AKRSP in the northern areas, are expected to result in better start-up, but efforts at creating demand may be essential in remote mountain areas with very little experience and awareness about enterprises.

12.9 Conclusions

The foregoing narration of the experiences in development of micro-enterprises in different situations and efforts made for their promotion suggests that, even though the greater part of the Hindu Kush-Himalayan economic landscape continues to be

characterised by the predominance of subsistence-centred farming and small-scale processing oriented towards local use, significant changes are visible in development of market-oriented enterprises. The product structure of these enterprises is highly varied, but an increasing number of new products, with a comparative advantage in mountain areas, is emerging, and, in fact, it is these products that are experiencing most growth, while several traditional products have languished because of competition from urban products as well as the shrinking base of local raw materials. The most important products in which an increasing number of products and enterprises are developing in different areas are mainly based on diversification of farming, livestock, and forest resources, particularly non-timber forest produce and medicinal herbs and plants. Such enterprises are found to have scope for development in most areas with improved transport infrastructure, though they have grown faster in areas where access to a ready market and/or concerted policy and programme support have existed.

Access to markets and technology and energy to use it, credit and training, and mechanisms for minimisation of market-related risks continue to be the restricting factors to enterprise development in mountain areas. But there are several cases in which a single input like improvement in access to markets and improved technology to diversify into new products has triggered off large-scale emergence of enterprises. Interventions have helped, but mostly in cases where initial conditions of availability of niche resources and producers' familiarity and acceptance of the products existed. Most often interventions, in terms of policies and programmes, have lacked the orientation required for enterprise development in special conditions that prevail in mountain areas.

These findings and observations suggest a number of implications for approaches, policies, and programmes. The more important among them are given in the following passages.

- Diversification of mountain economies into high-value products is possible, but it requires development of minimum infrastructure and food security as primary preconditions.
- Enterprise development in mountain areas requires a systematic selection of products. Products without any comparative advantage have no chance to succeed, except to the limited extent of their local use. Also, even those with a comparative advantage require sustained efforts in product development and market promotion.
- Generally, it is local resource-based products that have experienced growth. Yet, even in their case, certain conditions seem necessary to sustain their growth. They include R & D inputs, widening the market through improvement in accessibility and promotional efforts
- The most effective strategy for conservation of natural resources does not seem to lie in the ban or severe restriction on their use, but in regulation and management with incentives for their regeneration

- The process of enterprise development has been easier, even though slow, when the products have been chosen by local entrepreneurs, based on their own resources and skills and assessment of market potential rather than when the products have been thrust upon them by donor projects or governments. Extension and expansion of activities and enterprises have been sustainable when the process is 'horizontal' from one or a few entrepreneurs to additional and similarly based individuals and households. Introduction of products with external interventions and their 'vertical' extension has often failed
- Interventions in terms of integrated provision of technology support, market linkages, and transport infrastructure have helped to transform small-scale production of items based on local resources, mostly for local use, into large-scale commercial production for national and international markets. In such cases though, interventions have been large scale, sustained, and purposively directed towards certain categories of products and in selected areas. Small-scale and scattered and single input based interventions have rarely succeeded in making a significant impact.
- Interventions, in the form of credit and training programmes, have shown some promising results; but they would be more effective if they were (i) specially tailored to meet the specific needs of enterprises and entrepreneurs in mountain areas; (ii) comprehensive in terms of linkages for different inputs and support services; and (iii) based on a product-cum-area approach.

The idea that the mountain economies in the HKH region need to get out of the subsistence-survival syndrome and diversify into marketable high-value products is widely accepted now by policy-makers and the mountain people. People in several areas have also demonstrated that such a transformation is possible on a sustainable basis, with or even without strong external support. More of these experiences need to be documented and disseminated for possible replication in other areas. Along with the documentation of opportunities that different mountain areas offer for economic diversification with sustainable management of natural resources, it is also necessary to identify obstacles and constraints to their realisation and to formulate appropriate strategies and policies to overcome them.

At the same time, it must be recognised that enterprise development aimed at production for the market is a dynamic process. A product found viable and profitable today might lose out in competition or as a result of changing consumer tastes tomorrow. A continuous process of adaptation, upgrading, and change in packaging is, therefore, necessary, particularly because mountain areas do not have unlimited options in product selection. Quick response to the changes in the market is essential and so is a sensitive and well-informed policy making set-up. Over time, development of skills to read the market and the capacity to respond to market signals is the key to success, for which development of human resources at all levels is important. A move to knowledge-based products can offer a definite advantage to mountain areas in this context.

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Chapter 13
Tourism and Livelihood in the Mountains Regional Overview and the Experience of Nepal

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13.1 Introduction

In the last decades of the twentieth century, tourism has emerged as the most dynamic and most rapidly growing industry worldwide. In 1998 the receipts from international tourism amounted to 440 billion US dollars. The average annual growth rate of international tourism receipts worldwide was 7.9% between 1989 and 1998 (WTO 1999). The share of the South Asian region in international tourism receipts is less than one per cent. Yet, the South Asian region registered the highest average annual growth rate of 9.1% between 1989 and 1998. Mountain tourism is estimated to account for about 15-20% of the global tourist industry involving some US$ 70-90 billion per year (Mountain Agenda 1999). This potential of tourism has naturally attracted the attention of many mountain economies, including those of the Hindu Kush-Himalayas.

The case for the promotion of tourism in poor mountain economies is made on several grounds. At the macro-level the most obvious, and often the first cited ground, is the earning of foreign exchange to strengthen the import capacities of the economies to support the development process. Tourism almost everywhere is credited with a significant expansion in direct employment in the service sector related to hospitality

and the travel trade and indirect employment in related sectors. Thus, generation of income and employment through tourism is an important reason for the promotion of tourism. Tourism can also have multiplier effects on the economy and create backward and forward linkages in the production system. This has the potential to contribute to diversification of the production system from one based on subsistence needs to one based on specialisation and exchange. In situations where remoteness and inaccessibility as well as diversity in the natural and cultural landscape often act as constraints to development, tourism can build on these very constraints and turn them into comparative advantages. Remoteness and inaccessibility make destinations more attractive. The diverse natural and cultural landscapes are tourism resources in themselves. Tourism is an in situ export. The consumption of tourism resources may, but need not necessarily, exhaust or impair the quantity or quality of the resource. Increasing concern with sustainable development in recent years has brought the issue of environmental, economic, and social development of destination areas to the centre stage of the tourism-development debate. In poor mountain economies, tourism is increasingly seen as a development intervention; an effort to induce certain desirable changes or change processes in the environment, society, and economy—changes that are generally construed as development. Naturally questions are being asked about the impact of tourism on the environment, economy, and culture; about the beneficiaries of tourism; and about the extent to which tourism can be a sustainable vehicle of local environmental, economic, and community development.

This paper explores some of these aspects in the context of the Hindu Kush-Himalayan (HKH) mountains, in general, and in the context of Nepal in particular. First, a review of the trends and patterns of mountain tourism in some parts of the region is presented. The subsequent section looks at the mountain context and its implications for tourism. The third section presents the specific experience of mountain tourism in Nepal, in terms of both its characteristics and its implications for mountain communities. The fourth section presents two innovative cases in Nepal that attempt to link tourism with aspects of sustainable livelihoods and local development. The final section presents some tentative conclusions emerging from Nepal's experiences that are of relevance to the HKH mountain region in general.

13.2 Patterns and Trends

Among the HKH countries, China is the only country that appears in the world's top forty international tourism destinations, ranking fifth worldwide, with 24 million arrivals in 1998. In terms of revenue from international tourism, both China and India appear in the list of the top 40 with earnings of $12,500 million and $3,159 million respectively (WTO 1999). In the HKH region, consisting of the contiguous mountainous districts in Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, China, and Myanmar, international tourism is important only in a few cases. Nepal (422,000 in 1997), Bhutan (5,400 in 1997), Ladakh and Sikkim in India (16,000 in 1997 and 12,000 in 1993 respectively), and the Tibetan Autonomous region of

China (33,000 in 1997) are important destinations for foreign tourists. India received around 2.29 million international tourists in 1996. The destination of a majority of tourists was not the mountain regions. Himachal Pradesh received only about 12,000 international tourists in 1993. Similarly, Pakistan received about 380,000 international tourists in 1995, only about a quarter of this number are believed to have visited mountain areas. North-eastern India and the Chittagong Hill Tracts of Bangladesh receive only a small proportion of the total international tourists visiting these regions. Myanmar is estimated to have received about 250,000 tourists in 1996/97, but only a small proportion actually visit mountain areas.

In the bigger countries of the HKH, such as China, India, and Pakistan, domestic tourism is important in terms of both volume and revenue. Although data for mountain areas are not available, the volume of domestic tourists in China is believed to be in excess of 300 million. In Pakistan, domestic tourists were estimated at 43 million in 1995. In a small state like Himachal Pradesh in India, there were 1.5 million domestic tourists in 1993, mainly to district headquarters. The Uttar Pradesh hills receive 15 million domestic tourists. Over 95% of the tourists to Himachal and the UP hills are domestic. The situation in mountainous parts of Pakistan, such as the North-West frontier province (NWFP) and Northern Areas is not too dissimilar.

Statistics available on the growth rate of tourism in the above countries/regions show, with a few exceptions, an increasing trend. In Nepal, the UP hills, Himachal Pradesh, and the HKH region of China, the average annual growth rate in the last decade has remained at slightly less than 10%. But international tourism is a very sensitive industry. The critical importance of a conducive political and economic environment for tourism is emphasised by the decline in tourism since the 1980s in Kashmir as a result of militancy, and a dramatic drop in tourist numbers in Myanmar in 1989, Tibet in 1989, and Ladakh in 1990.

The tourism database for the HKH countries is poor and leaves much to be desired. The revenues generated from international and domestic tourism are mostly based on guess estimates. International tourism earns 3.7% of the GDP of Nepal and accounted for about 18% of the total foreign exchange earnings in 1997. In Bhutan, earnings from international tourism accounted for two per cent of the GDP in 1997. In Pakistan tourism is the ninth largest foreign exchange earner. In the UP hills and Himachal Pradesh in India, tourism and related sectors are estimated to account for nearly 20% of the state's GDP. From the perspective of revenue generation, the contribution of tourism has been important, and there seems to be enormous scope for its growth in the HKH region. It is an important consideration for economies in which pressure on the resource base is already high and diversification of traditional production systems and new income and employment opportunities are needed.

Mountain tourism refers to all tourism activities (such as trekking, mountaineering, adventure tourism, cultural tourism, resort tourism, pilgrimage, and others) for which the mountains have a comparative advantage. ICIMOD studies undertaken in some

mountain regions of India, Nepal, Pakistan, and the Tibetan region of China show the importance of different types of tourism and tourism products in different regions (Sreedhar 1995, Banskota and Sharma 1995, Al Zalaly and Nazeer 1995, Sharma 1996, Tashi, 1999). In the UP hills and Himachal Pradesh in India, pilgrimage, resort tourism, and trekking/ mountaineering are the main tourism pursuits. In terms of numbers, domestic pilgrimage is by far the most important. The UP hills alone attract over a million domestic pilgrims each year. Trekking is popular among international tourists who comprise a very small proportion of total tourists. In Nepal, city-based sight-seeing and cultural tourism in the Kathmandu Valley are the main activities for international tourists. Trekking and mountaineering are the other important activities. In the NWFP and Northern Areas in Pakistan domestic resort tourism is predominant. Trekking and mountaineering are important pursuits for international tourists, mainly in the Northern Areas. Cultural tourism is by far the most important type of tourism in Tibet. Trekking and mountaineering are other emerging activities. In Bhutan, guided trekking is emerging as an important pursuit, although culture has remained the strongest attraction for visitors to Bhutan.

The HKH situation suggests that tourism impacts can be determined to a great extent by the nature and type of tourism. Table 13.1 presents a general picture of the implications of different types of tourism on the environment, economy, and society of rural mountain areas in the HKH. Trekking and mountaineering have the potential to earn more money for rural areas than other forms of tourism. Nevertheless, the environmental implications of this form of tourism can be serious. The implications of different types of tourism are not absolute and are influenced by the policy approach to tourism pursued by the state.

The policy approach to tourism followed by the state in the HKH countries varies a great deal. The approaches of Nepal and Bhutan define the range of variations. Nepal for the most part, and almost by default, has encouraged 'mass tourism', mainly through private sector initiatives. While there have been some innovations and different approaches are being tried on an area basis, tourism has by and large remained demand driven. In contrast, Bhutan has opted for a policy of 'low volume, high yield' tourism regulated by pricing. Bhutan's concern has clearly been for the conservation of the country's pristine environmental and cultural heritage. In India and Pakistan the role of state-run organisations promoting tourism is important in both planning and development as also in operation of tourism facilities in mountain areas, although the private sector is emerging in important urban areas. In Tibet the regulatory role of the state tourism bureau is important, although increasingly, private travel agencies are playing a role in the development of tourism. In Myanmar the government's emphasis has been on promoting cultural tourism for the most part and tourism in the mountains remains limited (Philip and Mercer 1999).

The policy and approaches pursued with respect to mountain tourism in the HKH countries reveal that, with some exceptions, notably in Nepal and Bhutan, there is no policy perspective on mountain-specific tourism activities. The main types of

Table 13.1: Types of tourism and implications for environment, economy and society in rural mountain areas

Trekking/ Mountaineering	Resort Tourism	Cultural Tourism	Pilgrimage Tourism
Environmental • Forest degradation due to increased demand for fuel-wood along trails • Trail degradation along heavily used trails • Pollution in and around campsites, wanton disposal of degradable and non-degradable waste • Contamination of creeks, rivers and water sources, pollution of soils and glaciers at high altitudes *Economic* • Direct income to rural households operating lodges, or using mules/yaks for transporting provisions, or those engaged in portering during the tourist season • Some impact on production regime due to tourist demand • Inflation and dependency • Growth of central settlements *Social/cultural* • Demonstration effect • Cultural awareness	*Environmental* • Land use problems brought about by sprawling growth of resorts • Deforestation/forest degradation due to demand for fuelwood and timber • Soil instability and slope failures due to heavy construction along slopes • Discharge of untreated sewage and solid waste along slopes and rivers • Traffic congestion, noise and vehicular pollution along popular resorts *Economic* • Some income to rural households due to demand for local agricultural and livestock produce • Some local employment during the tourist season *Social/cultural* • Demonstration effect • Social aberrations/problems resulting from unscrupulous tourists and resort operators	*Environmental* • Most cultural tourists confined to, or based in major settlements or urban areas with historic, cultural monuments and relics so little direct impact on the environment except for tourist litter generated in these sites *Economic* • Some income to rural households from the sale of local handicrafts and other souvenirs • Employment and income due to the revival of traditional crafts caused by the demand from tourists *Social/cultural* • Commercialisation of art, culture and religious symbols • Theft of cultural, religious artifacts and black marketing • Breakdown of cultural inhibitions and erosion of cultural base • Awareness of social and cultural heritage • Openness to new ideas	*Environmental* • Heavy concentration of pilgrims during particular periods creating problems of waste disposal, pollution and congestion; heavy demand for fuelwood during these periods • Many pilgrim sites in biologically sensitive fragile environments • High pressure on basic infrastructure during pilgrimage season *Economic* • Traditional pilgrimage based on frugal living that exerted little pressure on local economies • easy access to many pilgrimage sites resulting in unscrupulous 'mass' tourism and high dependence on imports • Some income to local households from the sale of local handicrafts *Social/cultural* • Commercialisation of religious rituals and symbolism • Continuity and maintenance of religious traditions

tourism and tourism products in these countries and regions show that there is little innovation and diversity in the way the tourism product is fashioned, nurtured, and marketed. There is insufficient emphasis on the HKH environmental resources as tourism products that need to be conserved and marketed. While sustainable tourism is often invoked as the main objective of policies, attempts to integrate the environmental, economic, and social aspects of sustainability are few. Policies lack a clear perception regarding the role that different actors are expected to play in the promotion of tourism that does little harm to the environment and is of benefit to the community. The need to bring together all the stakeholders in planning for tourism is not felt. There seems to be a general belief that tourism development will spontaneously benefit local communities. ICIMOD studies in India, Nepal, and Pakistan show that tourism in itself does not spontaneously induce such linkages or influence the three cardinal concerns in the economic development of mountain areas, namely, poverty alleviation, environmental regeneration, and empowerment of local communities, unless there are strategic interventions to encourage such processes and linkages.

13.3 The Mountain Context and Implications for Tourism

Mountain areas, as distinct from other physiographic units, have certain objective conditions or 'specificities' (Jodha 1991): inaccessibility, fragility, diversity, 'niche' or comparative advantage, and marginality. These conditions add a critical dimension to tourism in the mountains and call for particular ways of responding to them (Table 13.2).

Inaccessibility has, in the past, restricted the external linkages of mountain economies. Subsistence activities and emphasis on high-value, low-bulk products have been the adaptive responses to it. Mountain tourism activities, which thrive on relative inaccessibility such as trekking, mountaineering, and other forms of nature-based adventure tourism, can provide new forms of adaptation to conditions of inaccessibility. These also generate employment in transportation and encourage the establishment of infrastructure. In this respect the development of local capabilities and support systems becomes important because tourism often leads to dependency on outside sources. Tourism itself is usually a seasonal activity. Inaccessibility in particular seasons and remoteness can contribute to seasonality. For isolated remote areas with a limited resource base tourism may also provide scope for improvements in living standards that would not be possible otherwise. In so doing, tourism also opens up otherwise closed and isolated communities and exposes them to the vagaries of the market and the demonstration effect of tourists.

Fragility of mountain environments is a consequence of the slope, altitude, geology, soil, and vegetation conditions. Fragility denotes poor carrying capacities and vulnerability of resources to rapid, and often irreversible, degradation in conditions of intense use. Increased rates of erosion, landslides, loss of endemic flora and fauna, and biodiversity are examples of such degradation. The adaptive response involved

Table 13.2: Objective conditions in mountain areas and their implications for tourism

Mountain Specificities	Primary Attributes	Adaptation Characteristics	Implications for Mountain Tourism
1. Inaccessibility	Remoteness Restricted external linkage Isolation from markets Insular economies, cultures	Self sufficiency and self-provisioning (subsistence) Small-scale production of high-value, low-bulk goods	Nature and culture based on high-value tourism; trekking, mountaineering, and other forms of adventure tourism Porterage/mule transportation Induce activities that take advantage of relative inaccessibility Need to develop local capability and support systems
2. Fragility	Vulnerability of resources to rapid and often irreversible degradation with intense use	Use of indigenous knowledge for resource conservation and recycling Ethno-engineering;	Wilderness as niche for tourism Promotion of employment through environmentally regenerative activities Conservation by non-use in biodiversity hotspots Determination of limits to acceptable change/carrying capacity Emphasis on local resource-centered production system technologies
3. Diversity	Diverse resources and environmental situation Large-scale micro-variations in physical/biological attributes Interdependence of production bases	Transhumance practices; diverse upland-lowland farming and production systems Multiple, micro-niche opportunities	Use of micro-environment for harnessing specific comparative advantages Linkage of tourism with agro-pastoral systems and resource management regimes Focus on multi-dimensional institutions/technology options (eg, micro-hydro, solar, and other renewable technologies) Employment and market potential of traditional activities (eg, carpet weaving, traditional handicrafts, etc)
4. Niche	Attractions for exploration Small-scale specialisations Location/area specific comparative advantages in resources/production activities	Traditional emphasis on activities that are mostly of an extractive nature such as mining, logging, hydroelectricity	Harnessing of major and minor production niches linked to tourist demands (e.g., Area-specific development of horticulture and vegetable production; environmentally friendly small-scale extractive and processing activities, sustainable collection/processing of NTFPs) Promotion of high-value production skills or ethnicity and culture-specific crafts for the tourism market Development of hub tourism based on natural and cultural niches
5. Marginality	Limited resources and production of one's own Minimal consideration of areas/people by mainstream decision-makers Unequal terms of exchange	Exploitation of resource potentials by core areas/population; use of marginal areas; dependency	Promotion of participatory decision-making and community-based tourism Safeguard and regulate resource use with mandatory resource re-investment (e.g., ploughing a proportion of tourism revenues into destination areas/regions) Development of participatory institutions at the local level for regulating, monitoring tourism impacts and promoting tourism for local economic, environmental, social, and cultural development Training and human resource development to cater to tourists' needs at the local level

Source: Adapted from Jodha (1991) and Sharma (1994)

the use/innovation of production processes based on natural resources emphasising their conservation and recycling . Fragile environments tend also to be sensitive to scale, i.e., particular activities can be undertaken up to a certain limit only. The type and scale of tourism in such environments need to be sensitive to the physical and biological characteristics and processes of the area. Fragility of mountain environments is in itself a tourism asset and it should be protected. Emphasis on conservation, on activities that contribute to environmental regeneration, and identification of important environmental factors and the limits to acceptable change are needed while promoting mountain tourism.

Diversity is manifest in a range of micro-environmental variations and the growth of interdependent production bases. Development of diverse farming and production systems at different altitudes is an adaptation to the diversity of mountain environments. Mountain tourism can be used to improve the linkages with these production systems and resource management regimes. Diversity also provides opportunities for harnessing specific comparative advantages in tourism from rafting down rivers, to cultural tourism in dense settlements, to trekking and mountaineering at higher altitudes. Diversity also calls for institutional arrangements and innovative technologies to suit diverse mountain conditions. Tourism-induced demand can be a catalyst in the development of these activities.

An outcome of diversity is the relative or absolute comparative advantage or 'niche' afforded by particular locations and areas for small-scale specialisation. Traditionally such niches have been exploited for a limited range of activities such as mining, logging, and hydroelectricity generation. Mountains provide specific niches for many tourism activities. Harnessing production niches linked to mountain tourism, and promotion of skills in ethnic and culture-specific handicrafts for the tourism market are some of the opportunities that are generated by mountain tourism. But to be sustainable, the niche can be only be exploited within the limits of the carrying capacity.

Mountains have been neglected in terms of development priorities and have always been considered 'marginal' entities both economically and politically. Increased dependency, unequal terms of exchange, and gradual loss of autonomy over resource use or decision-making are manifestations of marginality. Mountain tourism in such a context has to be commensurate with a process of decentralised decision-making, resource reinvestment, and creation of conditions through which mountain areas and people become net beneficiaries of such development. This calls for strengthening of participatory, local institutions to promote the kind of tourism that contributes to local environmental, economic, and social development. Local-level formal and informal institutions can act as defenders of community interests, as mechanisms for mobilising local resource, and as sources for promotion of the interests of the poor and disadvantaged groups that are often by-passed by the development process. The implication of 'marginality' is therefore fundamental to the promotion of mountain tourism since it entails complementary restructuring of the relationship between the mountains and the plains. The sensitivity with which tourism is practised in mountain

environments and the extent to which it is responsive to mountain conditions determine the role that tourism can play in promoting sustainable livelihoods in the mountains.

13.4 Mountain Tourism: The Case of Nepal

The case of Nepal is an illustration of the impacts of tourism on mountain environments and livelihoods and of the responses induced. Nepal is one of the countries in the HKH in which tourism has grown rapidly (Table 13.3). Between 1962 and 1997 the number of tourists visiting Nepal grew from a little over 6,000 to nearly 422,000 with an average annual growth rate of 12.9%. In 1996/97 tourism earned 115.9 million US dollars, accounted for 17.6% of all foreign exchange earnings, and made up 3.2% of the GDP (MOF 1999). In 1997 the average income per day per visitor was 38.3 US dollars and the average length of stay per visitor was 10.5 days. The average length of stay per visitor has remained more or less stable over the last decade, although there has been a steady growth in numbers. Fluctuations notwithstanding, the proportion of tourists visiting Nepal with the express purpose of trekking and mountaineering has risen from around 0.1% in 1966 to 11.8% in 1980, 15.7% in 1990 and 21.7% in 1997 (Table 13.4). In spite of marked seasonality, mountain tourism has evolved as a significant niche in the tourism sector. February through April and September through November are the two main seasons. In 1997, about 79% of the trekkers and mountaineers came in these two seasons. Europe accounts for around 50% of all trekkers and mountaineers coming to Nepal. Over one third come from the UK, Germany, France, and the Netherlands. In recent years the proportion of those coming from Japan and Australia has been increasing.

Table 13.3: Growth of tourism in Nepal (1966-1997)

Year	Number	Average Annual Growth Rate
1966	12567	-
1970	45970	38. 3
1975	92440	15.0
1980	162897	12.0
1985	180989	2.1
1990	254885	7.1
1995	363395	7.3
1997	421857	7.7

Source: Department of Tourism/HMG, Nepal Tourism Statistics, different dates.

All the three most frequented trekking regions in Nepal (Annapurna, Everest, and Langtang-Helambu) are part of a National Park or Conservation Area. Eighty-eight per cent of all trekkers in 1997 visited these regions. Among these the Annapurna trek accounts for about 59%, the Everest trek 20%, and the Langtang trek 9% of all trekkers. This pattern has more or less been maintained for almost a decade and a half (Table 13.5).

Mountain tourism and its implications for mountain communities

The growth of tourism in Nepal has had an impact on the natural and socioeconomic environment of mountain communities in several ways, both positive and negative

Table 13.4: Proportion of tourists by purpose of visit (1966-1997)

Year	Pleasure & Holiday	Trekking & Mountaineering	Business	Official	Other
1966	87.2	0.1	2.6	7.2	2.9
1970	91.1	1.2	2	3.3	2.4
1975	75.9	13.6	5.3	4.6	0.6
1980	80.2	11.8	3.4	2.9	1.7
1985	70.8	15.9	5.8	5.1	2.4
1990	63.5	15.7	4.6	10.4	5.8
1995	50.4	23.3	6	5.5	14.8
1996	53.2	22.6	6.4	5.1	12.7
1997	59.1	21.7	6.5	5.7	7.0

Source: Department of Tourism. Nepal Tourism Statistics, different dates.

Table 13.5: Number of trekking permits issued from 1980-1997 by route

Year	Everest Trek	Helambu, Langtang	Annapurna, Manang, Jomsom	Other	Controlled Area	Total
1980	5836	4113	14332	3179	---	27460
1985	8347	4610	18960	813	---	32730
1990	11314	7826	36361	6591	---	62092
1991	11862	9603	39107	5198	---	65770
1992	12325	9457	42553	7104	---	71439
1993	12475	9187	39764	6547	1646	69619
1994	13461	8167	44733	8879	1625	76865
1995	14997	8427	50012	9458	1893	84787
1996	16921	7687	52399	9849	2089	88945
1997	18179 (19.9)	8201 (9.0)	54078 (59.1)	9220 (10.1)	1847 (2.0)	91525 (100)

Source: Department of Tourism (1997)

(Bjonness 1980, Furer-Haimendorf 1984, Fisher 1990, Gurung 1991, Sharma 1992, Byers and Banskota 1993, Stevens 1993, Banskota and Sharma 1995, Nepal 1997, Rogers 1997). Noteworthy among these impacts are the environmental impacts of the demand for fuelwood and timber, pollution and generation of garbage, land-use changes, nature of tourism employment and income, and the effects on society and culture.

Fuelwood demand and deforestation

Among the environmental impacts of tourism, deforestation or degradation of forests caused by the demand for fuelwood generated by tourists has attracted the most attention. Bjonness estimated a firewood consumption of 4.5 kg per person per day for group trekkers in the Everest region in 1980 and noted significant forest clearance along trekking routes. In 1989, ERL had estimated that the percentage of trekkers' demand for fuelwood over local needs was 85.2% in the Sagarmatha (Mt. Everest) National Park area, 18% in the Langtang region, and 4.7% in the Annapurna region, although the intensity differed from location to location (ERL 1989).

Recent studies have noted that the number of trekkers alone does not portray the intensity of impact adequately. The styles of trekking — group or individual — and the ratio of porter/guide per trekker have implications for the consumption of fuelwood as a result of tourism. Surveys in the Sagarmatha and Langtang regions by Watanabe (1997) have revealed that the ratio of porter/guide per group trekker was 1: 1.85 and 1: 3.14 respectively, while the same ratio for an individual trekker was 1: 0.23 and 1: 0.32 respectively. Applying these ratios for a total of 91,525 trekkers in 1997 (44% of which were individual trekkers), the total number of visitors (i.e., trekkers as well as porters, guides) to the different trekking regions comes to 200,000 annually (Table 13.6). Assuming a fuelwood consumption of 2 kg per visitor per day (which is on the low side), and an average trek duration of 10 days, the total consumption of fuelwood by trekkers and porters/guides in 1997 was 4,000 metric tonnes.

Table 13.6: Styles of trekking and total number of visitors in trekking areas, 1997

Trekking Regions	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Individual Trekkers	Group Trekkers	Total No. of Trekkers	Porters/ Guides Accompanying Individual Trekkers[1)]	Porter/ Guides Accompanying Group Trekkers[2)]	Total No. of Porter/Guides Accompanying Trekkers (4) + (5)	Total Number of Visitors (3) + (6)
Everest	7,189 (39.6)	10,900 (60.4)	18.179 (100.0)	1,653	20,311	21.984	40,163
Langtang-Helambu	5,401 (65.9)	2,800 (34.1)	8,201 (100.0)	1,728	8,792	10.520	18,721
Annapurna	25,646 (47.4)	28,432 (52.6)	54,078 (100.0)	5,898	52.432	58,330	112,408
Other	1,752 (15.8)	9.315 (84.2)	11,067 (100.0)	402	17.232	17,634	28,701
Total	39,988 (43.7)	51,537 (56.3)	91,525 (100.00)	9,681	98,787	108,468	199,993

Source: Department of Tourism, Individual and Group Trekkers — data from Nepal Tourism Statistics 1997

1) Porter, guide per individual trekker is 0.23 for Everest and 0.32 for Langtang according to Watanabe (1997). The ratios for the Annapurna and other areas have been assumed to be similar to that of the Everest region.

2) Following Watanabe, the ratio is 1.85 for the Everest region and 3.14 for the Langtang region. The ratios for the Annapurna and other regions have been assumed to be similar to that of the Everest region.

A lodge survey in the Everest region carried out by Mattle in 1997 indicated that a total of 9.2 metric tonnes of fuelwood is consumed daily by the lodges in the Everest region with an average of 43 kg per lodge per day (Nepal 1999). Consumption of fuelwood by lodges was found to account for 24% of all fuelwood consumption in the Sagarmatha National Park area. The broad picture seems to be that, in spite of the requirement for the use of alternative fuel by group trekkers, the consumption of fuelwood is still considerable in all trekking areas. Evidence about the actual extent of deforestation, however, has remained controversial. Nepal indicates that repeat photography in some areas in the Everest region shows that forest cover along some trail locations has improved.

Lodge construction and settlement growth

The demand for timber has also been rising along all major trekking routes, mainly for the construction of hotels and lodges. In Namche Bazaar in the Everest region, for example, the first 'hotel' came up in 1971. By 1978 there were 17 hotels operating. In 1991 there were 83 hotels operating and another eight under construction (Stevens 1993). Nepal (1999) shows that in ten selected settlements in the Everest region there were 220 lodges with a total bed capacity of 3,908 in 1997. In the Langtang area the first hotel was built before 1975, by 1980 five more were built, and by 1994 the total number of hotels was around 38 (Watanabe 1997). Records from the ACAP in Jomsom show that in Lower Mustang, between Ghasa and Muktinath, there were 92 hotels operating in early 1997. In the Annapurna area as a whole, Nepal (1999) shows that there were 476 lodges with a total of 6,800 beds around 1995. For the same period, the density of lodges per kilometre of trail was estimated to be 2.0 for the Everest region and 1.6 for the Annapurna area. The amount of lodges built has also had an impact on settlements. Along the Everest trail alone 20 settlements have been identified as having either emerged or grown directly as a result of tourism, and these include settlements that emerged earlier on solely because of tourism, or temporary settlements that became permanent as a result of tourism, or settlements that have recently had lodges located in them like these. Forty-three settlements have been identified in the Annapurna region (Nepal 1999).

Generation of garbage

Although most of the data on garbage are anecdotal, garbage generated by tourists has implications for the rural environment. Sagarmatha Pollution Control Committee (SPCC), which has been operative in the region since 1993, provides reliable data on the problem of garbage in the Everest region. In 1997, SPCC data show collection of 243 tonnes of trekking-related garbage in the Everest region, of which 28% was bio-nondegradable. Certain trail sections, for example around Namche, have a greater concentration of garbage than others. In the Everest region as a whole, Nepal (1999) reports 1.9 tonnes of garbage per kilometre of trail. According to SPCC, the 840 mountain expeditions that visited the Everest region between 1979 and 1988 were responsible for 422 tonnes of disposable garbage, 141 tonnes of bio-nondegradable

garbage, and 207 tonnes of oxygen cylinders. Data from SPCC suggest that the volume of garbage has not been declining, and that the proportion of bio-nondegradable garbage has been increasing. This has serious implications for the environment, and the higher the altitude the more serious it becomes. The garbage problem seems to be less severe in the Annapurna region, but even here the problem of litter is becoming more serious with each passing year. Failure to collect garbage along trails and from camping sites also contributes to pollution of local water sources, springs, and rivers. Lodge owners dump human waste directly into rivers and streams causing water pollution.

Land-use changes

Economic opportunities created by tourism have had an impact on land use along the main trails. This impact has mainly been brought about by changes in cropping pattern and crops, encroachment on forests and public land, and changes in settlement patterns. Cultivation of fruit, potatoes, and other vegetable crops has increased. In some cases there has been a decline in traditional agricultural practices and relative neglect of livestock and pastures (Baumgartner et al. 1978, Banskota and Sharma 1995). Encroachment on forests to build lodges has been observed in areas such as Ghorepani in the Annapurna region. A significant aspect of tourism that has caused changes in land use is the growth of new and expansion of old settlements. Rogers (1997) reports that at least 11 of the 38 settlements along the Everest trail from Junbesi to Namche showed significant impacts from tourism, while 12 other settlements were moderately adapted. Rustic natural trails linking villages along the main trails have been transformed into strings of lodges. In many cases, vernacular architecture and aesthetics associated with traditional villages are gradually replaced by modern cement and concrete structures. Trail degradation and consequent soil erosion, vegetation loss, and slope instability have been noted along heavily used trails (Nepal 1997). Trails that are shared by mule caravans have been subjected to even more severe erosion than other trekking trails.

Employment and income

The direct contribution of mountain tourism to employment in Nepal has been estimated to be between 465,000 to 931,000 days of work per year in terms of trekking support staff (for 1986) (Banskota and Sharma 1995). Similar estimates for 1996 show the direct employment contribution of tourism to employment of porters to be between 1.2 to 2.5 million days (Table 13.7). Assuming an average wage of 150 NRs per day, the turnover from portering comes to between 180 and 375 million rupees per year (i.e., between 3US$.2 to 6.7 million at 1996 exchange rates). This does not include employment in the travel trade, hotels, lodges, restaurants, and transport as well as the employment multiplier in other sectors of the economy.

Banskota and Sharma (1997) have estimated the total earnings from tourism in the Annapurna region on the basis of sample data from Ghandruk and Ghorepani and ACAP revenues from trekking permits. They estimate a total of NRs 246 million or

Table 13.7: Estimates of direct days of employment generated by mountain tourism in Nepal

Year	Group Trekkers			Individual Trekkers			Total Employment Generated (Days)	
	Total Number	Employment Generated (Days)		Total Number	Employment Generated (Days)			
		High	Low		High	Low	High	Low
1986	19829	793160	396580	13780	137800	68900	930960	465480
1996	52478	2099120	1049560	36467	364670	182335	2463790	1231895

US$ 3.8 million accrued from tourism in the region, of which about 26% was lodge-related earning. Earnings from lodges constitute a major component of tourism earnings. In the Khumbu area, a popular lodge can gross as much as $10,000 a year. Households from within the region operate over 90% of the Khumbu lodges (Stevens 1993, Rogers 1997). Women play a key role in the operation of lodges and many employ between one to four non-family helpers. Earnings from lodge-related portering are also considerable as most of the items have to be brought from outside. Many lodge owners in the Annapurna and Everest areas are locals. Nepal (1999) estimates the direct employment from tourism to be around 16,000 in the Everest region and about 50,000 in the Annapurna region. Since tourism is a seasonal activity, these figures do not mean much unless expressed in the number of days' work or years or in terms of the degree of dependency on tourism income and employment. Studies indicate that there is a considerable leakage of income from tourism (as much as 68% in the Ghandruk area) (Banskota and Sharma 1997). Paudel (1998) estimates that only 23% of the income from tourism is spent in local products and services.

Mountain tourism also generates direct revenue for the government from mountaineering royalties, trekking peak fees, trekking permit fees, park entrance fees,and so on. Chitwan National Park in the Terai earns the bigest proportion of revenue from the park entrance fee. These fees yielded over three million US dollars in the mountain areas of Nepal in 1995 (Table 13.8). The Annapurna area generates around 50% of the revenue. The trekking permit fee accounted for the largest share of revenue from mountain tourism in Nepal. The trek permit for the Annapurna area (not including Upper Mustang) goes to Annapurna Conservation Area activities in the region. The government has recently waived the need for trekking permits for areas other than the Annapurna Conservation Area and restricted areas such as Upper Mustang.

Society and culture

Tourism has far-reaching implications for the society and culture of mountain areas. Remoteness and inaccessibility have shielded mountain communities for centuries. Consequently, over the years the process of adaptation and change has been a slow

Table 13.8: Tourism revenue by area, 1995

Area/ Region	Mountaineering Royalty[1]		Trekking Peak Fee[2]		Trek Permit Fee[3]		Park Entrance Fee[4]		Total	
	US$	%	US$	%	US$	%	US$	%	US$	%
Annapurna	29,500	5.2	20,100	13.4	1,088,120	78.1	618,583	34.0	1,756,303	44.6
Khumbu	383,000	67.0	96,450	64.3	149,970	10.8	239,700	13.2	869,120	22.1
Langtang	5,500	1.0	6,750	4.5	42,135	3.0	97,515	5.4	151,900	3.9
Others	153,500	26.8	26,700	17.8	113,510	8.1	863,294*	47.4	1,157,004	29.4
Total	571,500 (14.5)	100.0	150,000 (3.8)	100.0	1,393,735 (35.4)	100.0	1,819,092 (46.2)	100.0	3,934,327 (100.0)	100.0

Source: Table adapted from Gurung. Paper presented to the Japan Himalayan Club. 30th Anniversary, January, 1998.

1. Nepal Tourism Statistics, 1995. Area breakdown by mountain ranges
2. NMA Parbat, ICM '97 Special Issue. Based on trekking permits issued in 1995. Revenue breakdown is tentative based on US$ 5.00 per week for Langtang and US$10.00 (two weeks) for other areas. A total of 588,000 US dollars was realised from trekking permits to Upper Mustang in 1995. Excluded are the high fee and low-volume areas of Manaslu and Dolpo because of lack of data.
3. DNPWL, Annual Progress Report 2052/53, Tables 3 & 4; and ACAP source

* The Chitwan National Park in the Terai realises a very large proportion of this amount.

process. Tourism has the potential for accelerating this change process. Still, it is just one of the many factors making inroads into the secluded lifestyles and cultures of mountain communities. The norms of behaviour and patterns of consumption of tourists can have a seductive impact on society, particularly among the young. These impacts may result in the decline of local cultural practices and institutions, commercialisation of art, loss of symbolism from cultural events, theft of cultural and religious objects and artefacts, and a thriving black market. Openness to new ideas and opportunities, realisation of the 'worth' of their cultural and religious heritage, and pride in the upkeep and maintenance of one's own unique heritage are some of the positive effects of tourism on culture as seen from examples in Nepal (Sharma 1995). Tourism has contributed to the renewal and revival of old skills in stone, wood, and bronze work in the Kathmandu Valley. Revival of festivals such the 'Mani Rimdu' in Namche indicates a renewed interest of communities in their own cultures, whatever the motivations. The Sherpas of the Khumbu have demonstrated not only the economically invigorating effects of tourism and the 'revitalisation' of culture, but also the problems of cultural 'restructuring', of trying to search for an identity that can integrate the traditional norms, values, and ways of life with the demands and needs of the modern world.

A more serious socioeconomic impact of tourism is the increasing social tensions resulting from the distribution of benefits from tourism. Rising inflation, limited economic opportunities for poor people, and lack of mechanisms to facilitate a better distribution of tourism benefits, discrimination in employment (Sherpa vis-a-vis non Sherpa), and even in providing lodging (Nepali vis-a-vis 'foreign' tourist) are some of the reasons for increasing social tensions. In some cases, tourism has also induced

out-migration of the young. Paudel (1998) reports that in the Ghandruk area in the Annapurna region the income earned from tourism has induced/educated young boys and girls to migrate to Japan, Hongkong, Western Europe, and the Gulf countries in search of job opportunities.

One of the positive impacts of tourism has been the development of infrastructure. As tourist flow increases, infrastructure for hospitality tends to grow. There is an improvement in access or access facilities. Gradually, there is a growth of travel and tourism information, communication, finance, and some health infrastructure. All important tourist destinations and convergence points have grown along major trekking routes in Nepal.

This brief review of the implications of tourism on aspects of the environment, economy, and society reveals that economic and social benefits of tourism are limited to settlements that are strategically located and population groups that already have some resources to take advantage of tourism opportunities. The role that tourism has played in changing the face of areas such as the Khumbu, or some parts of the Annapurna, has by all accounts been spectacular. Nevertheless the processes observed are extensive leakage of tourism income, limited spread effect and beneficiaries from tourism, and poor linkages of tourism with the productive sectors of the economy. The tourism-development nexus does not always seem to be a positive one. Policy and programme interventions seem to be called for in linking tourism with aspects of sustainable rural livelihoods.

Two examples from Nepal, one almost on a regional scale and the other on a micro, village scale demonstrate how programme interventions, government induced or community-based, can make a difference in linking tourism with the overall development concerns in the mountains.

13.5 Linking Tourism and Local Development: Two Experiences From Nepal

The Annapurna Conservation Area Project (ACAP)

Although the environmental, sociocultural, and economic problems associated with mountain tourism have been conspicuous since the 1970s, the response to these problems from the government as well as non-government agencies in Nepal is of relatively recent origin. The Annapurna Conservation Area project has been one of the first among such responses.

The Annapurna region, covering about 7,600 sq.km (60 Village Development Committees in 5 districts) is a region of unique biodiversity and culture in central-western Nepal. Altitudinally it ranges from a little over 1,800m in the Kali Gandaki gorge to the lofty heights of the Annapurna (8091m) and Dhaulagiri (8151m). The economy of the region is basically a subsistence one with 90% of the energy needed coming from natural forests. There is considerable variation in land use and systems

of resource management. The population of the area is about 120,000, consisting of eleven ethnic groups. Some of the ethnic groups, such as the Gurung and the Magar peoples, have distinguished themselves as Gorkha soldiers in the British Army, while others, such as the Thakali people, are known for their business acumen.

Annapurna is one of the most geographically and culturally diverse areas and is the most popular tourist destination in Nepal. In 1997 over 54,000 trekkers visited the area. Trekking tourism here started in the late sixties, but along with some positive effects a number of problems emerged. Trekking was unregulated. There was no monitoring nor positive programme intervention. There was a great degree of seasonality (over 60% of trekkers arrived between October-November and March-April) and also traffic bottlenecks in strategic locations. As the annual flow of trekkers to the Annapurna grew steadily, forest habitats began to show signs of degradation, pollution along trekking routes began to be more visible, and local cultures became susceptible to external influences. The delicate ecological balance began to show signs of growing imbalance. The unregulated nature of tourism led to cut-throat competition among owners of hotels and lodges, resulting in undercutting of prices. Attention to quality of services was rare. There was no human resource management of the supply side and no efforts to train and develop. Infrastructural development to meet the basic necessities of the local population for drinking water, sanitation, education, basic health services, reforestation, and environmental care were lacking and these services neglected. There was a growing need to manage tourism in such a way that the concerns for environmental conservation and the economic, social, cultural, and organisational needs of local people were addressed simultaneously.

ACAP activities and programmes

The Annapurna Conservation Area Project (ACAP) was a response to this need. Under the King Mahendra Trust for Nature Conservation (KMTNC), a non-government, non-profit organisation set up in 1982, ACAP went into operation in 1986, although the Annapurna Conservation Area was officially gazetted only in 1992. The concept of a Conservation Area is based on the recognition of indigenous settlements and land use. Both traditional and, later, adapted land-use practices are seen as compatible with protected area objectives as long as they do not compromise the goals of conservation. Resource management is based on local participation. Traditional resource management systems and tenurial arrangements are respected. In addition, communities are given the right to manage forests, pastures, and the commons. The idea is to look at environmental protection, conservation, and development as interdependent and interlinked objectives (Stevens 1997). The function of ACAP is to provide advisory services and act as a liaison between local villagers and government agencies. ACAP provides resources but the programme priorities and implementation of programmes depend on representative local committees. The ACAP is therefore a conservation as well as a development agency. ACAP's perceived role is that of a facilitator and local initiatives, plans, and contributions are complemented by technical and other inputs from the project.

Tourism is seen as generator of revenue to fund conservation and development efforts. ACAP activities rest on the principle of multiple use in which farming, forestry, biodiversity, local development, and tourism are undertaken jointly and simultaneously by avoiding possible conflicts (Gurung and de Coursey 1994). ACAP programmes aim to improve the quality of life of the local people by assisting them in various ways and by providing local communities with appropriate and relevant skills, and knowledge. ACAP has therefore relied heavily on the nurturing or creation of local institutions and on providing them with a basis for sustainability.

Conservation, development, and resource management in the ACAP are based on a system of land-use and management zones. The area is divided into five zones. In the wilderness zone, the principles of nature protection are practised strictly. In the protected forest/seasonal grazing zone, regulations for sustainable forest use are enforced. In the intensive use zone, which has settlements as well as agricultural lands in the valleys and on the lower slopes, the emphasis is on agricultural extension, rural development, conservation education, and tourism development. These are also the areas through which major tourist trails pass. The anthropological/biotic study areas in the northern part of the conservation area have been identified as a separate zone. Finally, the special management zone includes areas that have been most heavily affected by tourism development and which need special attention.

Resource management at the local level is based on a grass roots' approach through which most of the development initiatives are taken by local management committees. Conservation and Development Committees (CDC) have been formed as the main local institutions responsible for policy and programme formulation related to natural resource management and community development programmes at the local level. Consisting of 15 members (9 of whom are elected, 3 are reserved for women and members of the disadvantaged groups, and the rest are ex officio), the CDC meets once a month and makes decisions about important community matters related to natural resource use, conservation, and development. In large areas, sub-CDCs are formed in line with traditional institutional patterns of property ownership, sharing of pastures, and so on (Thakali 1997). Other Committees, such as Mothers' Groups, Lodge Management Committees, Campsite Management Committees, Electricity Management Committees, Kerosene Depot Committees, and so on, are formed in consultation with CDCs. The ACAP staff support local institutions, provide technical and other expertise, and help the local bodies to conceive and implement conservation and development programmes. ACAP programme activities include forest conservation, promotion, and propagation of alternative energy, conservation education, tourist awareness programmes, eco-tourism, women's development, and a variety of community development activities.

Community development activities include setting up health posts, trail repairs, school construction and repair, tree planting, and drinking water programmes. Mothers' Groups have been formed to undertake some of these activities and to deal with undesirable trends in mountain societies by such actions as prohibition of

gambling and drinking in public. Training of local manpower on aspects of conservation, development, and tourism is an essential component of ACAP activities. A minimum impact code has also been developed by ACAP to motivate international tourists. The activities of ACAP are funded partially by the entry fee (presently NRs 1,000 per trekker, $1= NRs 68.40) to the conservation area collected from tourists. Within the overall framework of ACAP, area-specific projects have been undertaken to manage mountain tourism and to deal with some of its negative implications in a proactive manner.

Assessment of the ACAP Experience

ACAP's achievement as a conservation and development initiative anchored to tourism lies in its demonstration that tourism can also be seen as a development intervention. The features that distinguish ACAP's operations — emphasis on local participation in the planning and management of conservation and development, reliance on local- level institutions in managing local resources, promotion of conservation education, and awareness and human resource development at the local level – show that with sensitive interventions tourism can help bring about local environmental and community development. Efforts to copy some of these major features of ACAP are already underway through KMTNC in the Manaslu area in Northern Gorkha and under different auspices in the Makalu Barun area.

It would be wrong to assume that ACAP activities are operational and successful to the same extent and with the same intensity throughout the ACAP area. Factors that have influenced success include the extent to which local institutions have been proactive, qualities of leadership and cohesiveness of the local community, the location of the settlement vis-a-vis the trekking route, the extent of benefits derived from tourism by the broader community, linkages of tourism with the local production regime, the nature of support from ACAP, and the ability of ACAP officials to motivate people. The experience of ACAP suggests that, in commensurate conditions, non-government organisations can play the role of a facilitator in bringing about conservation and development effectively. ACAP, to a great extent, also shows that local people can shift from positions of hostility and distrust to participation, responsibility, and enthusiasm (Stevens 1997).

A preliminary assessment of the environmental, economic, and social dimensions of the tourism carrying capacity in the Ghandruk area in the Annapurna undertaken through ICIMOD auspices suggests that there has been an improvement in the overall carrying capacity of the area, although the sustainability of such positive changes is far from assured (Banskota and Sharma 1995b). Conservation education, adoption of technologies that are efficient to use, and introduction of renewable energy technologies such as the micro-hydro have eased the problems of fuelwood demand and consequent environmental degradation considerably. Large-scale adaptations of new energy technologies would be possible only if poorer households could afford such technologies, and this is not the case at present. Use of alternative energy

technologies is limited to lodges, while other households continue using fuelwood. The economic dimension of carrying capacity appears to be the most problematic and this is because of the weak linkages of tourism with the local production system and rather restricted sharing of benefits. However, the scope that exists in terms of increasing economic opportunities remains to be fully exploited. The linkages of tourism with the agricultural, horticultural, and livestock sectors remain weak. Opportunities for diversifying the tourism product exist, but have not been adequately addressed. The social dimension of carrying capacity appears to be the most robust in the sense that local institutions have been supported and strengthened and social capital has been enhanced. The situation in the Annapurna area clearly reveals that ACAP activities have the potential to strengthen the linkages of tourism with aspects of local community development. However, this linkage needs to be seen in areas that affect the economic life of the poorer households. It is only then that the tourism-development nexus can be sustainable.

Village tourism in Sirubari*

Unlike the Annapurna Conservation Area Project, which is a regional exercise in relating tourism to conservation and development, the 'Village Tourism in Sirubari', a hill village south of the Annapurna region, may be considered a micro-exercise in making tourism relevant to local economic and environmental development. ACAP was a reactive response to the growth of demand-driven tourism. Village tourism in Sirubari is a proactive initiative in tourism managed from the supply side. Although it is too early to assess the Sirubari experience, the concept and the process and its economic, environmental, and social implications are of interest in looking at sustainable tourism in the rural mountains.

The concept of village tourism is one of 'home stay' or 'paying guest' with an emphasis on interacting and living with the host community. It offers the visitor an opportunity to experience first hand the culture, customs, and daily life of the host household and the community. Some trekking is involved but the village experience — natural, social, and cultural — is the main tourism product. The guests stay in groups of two to five in assigned households where arrangements for accommodation, meals, snacks, and so on are made. It is a complete family atmosphere. The management of the supply component through a participatory institution, broad-based sharing of benefits, and a new approach to visitor satisfaction are other unique features of the Sirubari model of village tourism.

The initiative began in Sirubari, a predominantly Gurung village on a ridge about four hours' trek from the nearest road-head along the Pokhara-Sunauli road. The village is located at an altitude of about 1,700m. From the highest point one can see great Himalayan peaks such as Annapurna, Machhapuchhare, and Dhaulagiri. The

* The information on Sirubari Village Tourism is based on an ICIMOD study, 'Village Tourism in Sirubari. Implications for Sustainability' by Banskota and Sharma (1999).

village has a rich Gurung heritage. Most of the Gurung households rely on remittances and pensions, mostly from army service. The non-monsoon season is the best time to visit the village as monsoon rains make the trek rather difficult and also long.

The idea was that of a retired army captain who approached the government for support to develop village tourism in Sirubari. Contacts with an Australian expatriate tour operator proved fruitful. After the identification of Sirubari as the site for promoting village tourism, a Tourism Development and Management Committee (TDMC) was established in the village with the village development committee (VDC) chair as its head. At the same time, the expatriate and his associates formed a company to take over the sole responsibility of promoting and marketing village tourism in Sirubari. The company is called Nepal Village Resorts (NVR). Detailed contractual arrangements were made specifying the obligations and responsibilities—including operating procedures and fees — of the two parties. The TDMC represents the Mothers' Group, Fathers' Group, the Youth Club, and other members chosen through consensus among villagers; the tenure is two years. The TDMC has developed its own rules and procedures and decides about the upkeep of guest rooms, sanitation and hygiene, assignment of guest room accommodation on a rotational basis, type and quality of meals and snacks, as well as arrangements for welcoming the guests, sight-seeing, and cultural programmes. Even before the TDMC, the village had an active Mothers' Group and Youth Club. The Mothers' Group raised funds by organising cultural programmes to welcome or bid farewell to army men who came on home leave. The Mothers' Group has provided money for quite a few local development projects.

With the signing of the agreement with NVR, interested and willing families from the central village began establishing guest room accommodation in consultation with the TDMC. The TDMC set minimum standards for guest rooms. The conditions for participation in guest room accommodation include the construction of permanent structures for toilets and bathrooms, cleanliness, specified minimum provisions in rooms, and security guarantees for visitors. The TDMC carries out monitoring of accommodation and other facilities regularly. The NVR has the responsibility of ensuring that the guests abide by the code of conduct; and this basically seeks to respect local traditions in clothing and behaviour. NVR promotes and markets village tourism through a network of international travel agents. They also have a site on the world-wide web. All visitor groups are booked through the NVR Kathmandu office. The guests are provided with a full round-trip package from Pokhara to Pokhara with no extra liabilities. This avoids the need for payment of bills by visitors in the village. It also gives a sense of being part of the host family. The TDMC is given prior notice by telephone for arrangement of porters, guides, a welcome ceremony, and cultural programmes.

The visitors' arrival in the village is a memorable affair. A procession welcomes the guests with much fanfare and traditional music and dance. The guests are assigned to host families with whom they stay for the next two days. The guests have Nepali

meals with the host family but an afternoon snack is organised jointly in a traditional round-house in the centre of the village. The two days are spent visiting the natural and scenic sites around the village. The main natural attractions are the hill top about two hours' walk uphill to view the Himalayan peaks, the prize-winning, approximately 500 ha of community forest, and the serene higher pastures. Among other attractions is the village itself with about 146 households, the Buddhist Monastery, and the Shiva temple. In the evening a cultural programme is organised in the 'Tourist Building' (constructed with support from the government and funds raised by the Mothers' Group, the Youth Group, and from tourism fees).

International tariff rates vary according to the number of tourists per package. A rate of US$ 230 (for 3 nights, 4 days) is charged for a single person. For a group of between 10-20 guests, the charge is $145 per guest. Following the agreement between TDMC and NVR, a lump sum of NRs 1,700 per guest ($25) (for a two-night stay) is provided to TDMC. Of this amount NRs 1,000 goes to the guest-room owner. The remaining amount goes to the TDMC and part of it is used to meet the cost of the welcome ceremony, porters, and gifts for the guests. So far, 50 families in the village have opened up their homes to accommodate visitors, but only 18 have entertained guests so far.

Village tourism in Sirubari started in April 1997. By November 1999, a total of 278 international tourists had visited Sirubari, mostly from Europe. Most of the visitors are above 40 years of age. Meanwhile Sirubari has also been attracting quite a few domestic tourists. Thus far, 421 domestic visitors have visited the area mainly from surrounding districts to observe its model nursery and community forest. The TDMC is planning to introduce set tariff rates for domestic visitors also.

The impact of tourism on the environment, society, and economy of Sirubari has not been felt to any great extent as yet, mainly because of the low volume of tourists. Still it is fairly clear that the TDMC has been able to build on the community's social capital (rich heritage, homogenous community, developed social infrastructure, active local organisation, and TDMC itself). The ICIMOD study shows that the degree of participation and leadership and the decision-making process have been the key elements in initiating village tourism. The need for training in housekeeping and food preparation is already felt. There is enough scope for expanding household participation in village tourism as tourist volumes increase. Economically, tourism has to increase incomes and employment to be viable and has to develop linkages with the local production system. The baseline survey in Sirubari shows that, in the circumstances, the benefits from tourism have been broad based. About 68% of the total food expenses for tourists go to imports from outside and 28% are reported to come from their own production. As tourist numbers rise, the potential for local production linkages will rise also and needs to be nurtured. It was found that, on an average, an amount of NRs 22,400 per bed was invested in Sirubari. Over half of the investment was incurred in constructing toilets and bathrooms. Sirubari is an exceptional village by Nepalese standards of income. But the study also shows that

the present level of investment for developing guest rooms is within the reach of an average rural household if comfortable lending terms are offered. From an environmental perspective, village tourism has made the community aware of cleanliness and good sanitation, even among those who do not have guest accommodation. However, as tourist numbers rise, the demand for fuelwood will increase and so will the urgency to introduce affordable, renewable energy options and efficient technologies.

The bottom line for successful tourism is visitor satisfaction. Overall, visitors to Sirubari perceived that they had obtained satisfaction that was worth the money. Areas identified as needing improvement were the quality of transport to the road head and the quality of food.

The Sirubari experience shows that the community has been able to capitalise on the different stocks of natural, social, financial, and human capital at its disposal, evolve an indigenous institution, and link it up with a promotion and marketing agency. The challenge of increasing visitor flow, of creating viable links with local development, and of diversifying the tourism product to increase visitor stay remain, but, at the micro-level, it is an innovative beginning. Learning from the Sirubari experience, NVR, in partnership with local communities, is introducing a similar programme in Lamjung district. Exploratory work is also being undertaken in Palpa and Solukhumbu districts.

13.6 Conclusions: Lessons from Nepal's Experience

In mountain areas of the HKH, tourism appears to be one of the options for improving rural living standards. But the benefits of tourism, as is seen in Nepal and elsewhere, may not flow spontaneously in directions that are desirable. Interventions are therefore called for to make tourism relevant to the three interrelated concerns of mountain development: alleviation of poverty, conservation of the environment, and empowerment of local communities. For rural mountain communities, tourism has to be seen essentially as a development intervention. It is in this respect that the lessons from the experiences noted above may have relevance in other areas.

Increased sharing of tourism benefits

Poverty remains an endemic feature of mountain areas. Poverty can be reduced only by creating conditions for the provision of secure livelihoods. Sustainable tourism has therefore to emphasise the host population's environment, economy, society, and culture. Strengthening the tourism-development nexus by bringing about increased sharing of tourism benefits appears the only way of addressing poverty. The experience of the Annapurna project shows that the benefits of tourism that are shared most stem from three processes: building of infrastructure (better trails, drinking water, health and education facilities, communication, and so on), forward and backward linkages with the production regime, and human resource development at the local level. The benefits of tourism can be shared widely, to the extent that these

processes are strengthened. In the Annapurna area, as elsewhere in Nepal, the main income from trekking tourism is derived from lodges. Yet, lodges generate limited employment opportunities. The Sirubari experience suggests that broader benefit sharing may be possible through community–based tourism. There is, therefore, a need to explore the potential of different tourism products in improving income and employment opportunities at local levels.

Strengthening linkages with the local production base

The importance of strengthening the linkages of tourism with the local production base cannot be overemphasised. If more of the tourist needs and demands are met through local/regional production, a greater share of tourism revenue accrues to the locality or the region. Tourism development has to be conceived not as the development of one particular sector but as an integrated exercise in developing critical sectors, environment being one of the most important, on which tourism depends. Both the Annapurna and Sirubari experiences reveal that the linkage aspect has been the weakest. Broad-based sharing of tourism benefits is also facilitated and promoted if linkages with the local production base increase.

Training and manpower development

The Annapurna experience shows that training and manpower development at the local level may be the most sustainable contribution for realising the benefits of tourism. This requires discrete identification of the training and manpower needs in terms of real opportunities and requirements. Training also serves as a confidence building measure for local communities. Training in lodge management, cooking, housekeeping, and local guiding skills related to culture and nature are found to link well with local employment opportunities.

Sharing revenue for environmental conservation and community development

Environment is not only the resource par excellence for tourism, but it is also the one most threatened by tourism. Tourism can be a means of generating funds for environmental conservation and protection. Sustainable tourism entails periodic reinvestment in the tourism plant. This would require the creation of mechanisms that would allow sharing of revenue from mountain tourism with localities and regions that are tourist destinations. This is where the Annapurna experience has been innovative. The total amount realised from the entry fee to Annapurna Conservation Area goes to the ACAP endowment, and through it to the CDCs on the basis of the programmes developed at local levels and local contributions envisaged. Such a process of resource reinvestment in tourist areas makes a larger community the beneficiaries of tourism through better sanitation, health, education, and environmental awareness. This contributes to making tourism relevant to local development. Environmental conservation also calls for the introduction of alternative energy technologies. Such technologies and systems can be affordable for households only

when tourism increases incomes. The issue of linkage therefore becomes important for environmental conservation.

Institution building and participatory planning of tourism and development

The Annapurna and the Sirubari experience highlight the importance of institution building at the local level in the whole process of linking tourism with local environmental, economic, and community development. Institutions become forums through which the local communities are empowered. Broad representation, local leadership and trust, transparency in decision-making, complementarity with existing institutions, and a resource base, external or internal, appear to be the key to the sustainability of such institutions. Local institutions can also be the most viable forum for participatory planning (meaning a planning process in which all the stakeholders are able to play a role in the planning and prioritisation of activities and in their implementation and monitoring) of tourism at the local level.

Supply side planning

Nepal's mountain tourism, it has been noted above, has remained demand driven. This perceived demand has been limited to adventure tourism in general and trekking tourism in particular. Diversification of the mountain tourism product has been lacking. Moreover, demand driven initiatives, particularly in the case of tourism, tend to be extractive. This is where the case of Sirubari is instructive. Planning destinations, supply side management, building external linkages in terms of marketing, and the attempt to define potential clients and creating a demand are all novel features of the Sirubari experience. Tourism markets change with changes in income, age, and other characteristics of tourists. While the lure of Nepal's mountains, as the trekkers' paradise, will hopefully endure, the need for innovative diversification of the tourism product is important if tourism is to provide a sustainable option for livelihoods in the mountains.

Recognising the comparative advantages of stakeholders

The Annapurna and Sirubari cases also indicate the comparative advantages that different actors have in promoting tourism and local development. Globalisation and privatisation notwithstanding, the state has a strategic role to play in orienting tourism to desirable directions. The government's role lies in creating a policy environment conducive to the growth of desirable types of tourism in specific contexts, developing and enforcing regulations and standards in tune with the carrying capacity, infrastructural development, establishing a system of judicious sharing of tourism revenues, manpower development, and tourism promotion in the international market. The non-government agencies generally have the comparative advantage of organising and mobilising communities, acting as facilitating agents, and introducing participatory planning of tourism at the local level. Local community organisations can be important players in planning tourism at the local level, in monitoring tourism

impacts and initiating mitigating actions, and in taking the initiative for community-based tourism. The private sector is most effective in providing services and in running service establishments. A key feature in managing sustainable tourism is to remain proactive or to understand and develop programmes to deal with problems before they reach crisis proportions. Understanding visitor perceptions is important in this respect. This is an area that has not received sufficient attention in Nepal.

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Chapter 14
Innovative Land and Resource Policy in an Asian Context: Options and Challenges

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14.1 Introduction

The objective of the paper is to analyse favourable and unfavourable conditions for formulating and implementing innovative land and resource policies in an Asian context. After analysing the major shortcomings of land tenure systems and land policies in conditions of rapid socioeconomic change and reform in Asia at present, 'land tenure' is extended to a broader and more comprehensive concept of resource tenure. The objectives and instruments of a re-focused resource policy focused between locality and global governance are elaborated upon giving specific consideration to the role of the devolution of natural resource management in policy formulation and implementation. As a guiding principle for both in civil society, the principle of subsidiarity is introduced by this paper.

Truly, currently land is losing its importance for growth and employment as one 'classical' factor of production and for the welfare of developing and newly industrialising countries compared to the period at the beginning of the development debate in the 1950s. New factors, such as knowledge, become important. However, in Asian economies, land tenure is still an issue, bringing out new resource conflicts and requiring innovative land and resource policies as well as appropriate instruments for implementing them.

In Asia, two dimensions of change actually matter, and these fuel a re-emerging debate on the future 'social construction of land' (Bromley 1996), i.e., about the appropriate institutional design to get access to land, to use it, and to assign private and social costs and benefits arising from its use to all stakeholders involved.

First of all, evolutionary processes and gradual changes analysed in the Boserupian tradition (Boserup 1965, Binswanger and Rosenzweig 1986) and caused by population growth, changing factor proportions, technical progress, and structural transformation (Tomich et al. 1995, Hayami 1997) that helped 'break the resource constraint' (Hayami 1997,78) play an important role for Asian countries. This change is associated with a diminishing contribution of land-consuming agriculture to GDP, to overall savings, employment, and revenue from foreign trade. This actually being the case, what are the incentives that will secure long-term investment in land (terraces, irrigation, trees) at a socially acceptable rate if 'access to land' is no longer the future demand but rather 'access to income' (Kuhnen 1999, Panayotou 1993)

In many regions, land is gradually being assigned new functions. Because of increasing urbanisation and industrialisation, an ever greater expanse of arable land in peri-urban areas is being transformed into housing areas, industrial sites, and infrastructural projects or being used as an investment for portfolio diversification (GTZ 1998). Such conversion of land triggers off various conflicts. These not only arise between private owners and the state over compensation after expropriation for public purposes or between the local population and in-migrating groups, they also occur between the members of peri-urban communities over the private acquisition and titling of land; a process thus far managed according to autochthonous rules. This is regarded mostly as legalisation of land grabbing by traditional authorities. New values not attributed to land before are acknowledged as its function: recreation and leisure areas for the urban population and for countering the risks of disease and old age.

Secondly, rapidly changing political and economic frameworks have sharpened intensely the perspective of the actual shortcomings of existing land tenure systems in many Asian countries with regard to efficiency, equity, and environmental protection. Former, centrally planned economies in Southeast Asia are undergoing transformation. Structural adjustment and market liberalisation have had an enormous impact on land (and inter-linked credit) markets as well as on their role in terms of competitiveness in the globalisation process. At the international level, legally binding regimes have been established to protect the global commons, biodiversity in particular, to combat desertification or to slow down climate change. All of these changes open up new options for the future and have led to a new value for land and given an added quality to the land and resource policy debate at the turn of the millennium (Kirk 1998, Kuhnen 1999). Potentials for earning rent leading to resource conflicts mainly arise in the course of economic reforms when a new legal and regulatory framework liberalising markets, securing the rule of law, and soliciting

the participation of all stakeholders involved is still incomplete and inconsistent or not yet implemented, giving, for example, way to 'land laundry' in countries like Cambodia or Laos (Kirk 1996).

Both dimensions urgently require innovative land and resource policy concepts. Many Asian countries have started discussing how to enable institutional environments on a national level. Some of the concepts, models, and the policy advice developed so far still lack the necessary coherence and consistency, and most of them are far from being understood, accepted, and implemented at local level. This sort of institutional change is not a smooth one guided by conventional economic theory which predicts change in the direction of Pareto improvements; it is rather one that follows the distributional theory of institutional change which considers the main reason for change to be redistribution of the coercive and bargaining resources of power as a consequence of a radical change in the institutional environment following transformation (Schlüter 2000).

The purpose of the following paper is, therefore, to analyse favourable and unfavourable conditions to formulate and to implement an innovative land and resource policy in an Asian context. It is organised into seven sections: The current introductory section (1) is followed by (2) the problems of land tenure systems and land policies in Asia at present, (3) the need for extending the rather restricted focus on land tenure to a comprehensive concept of resource tenure, (4) the objectives and instruments of a re-focused resource policy concept between locality and global governance, (5) the role of devolution of natural resource management in policy formulation, (6) the contribution of the principle of subsidiarity as a guiding principle for implementation in civil society, and (7) conclusions to be drawn.

14.2 Will Land Tenure Regimes and Land Policies Cope with the Ongoing Rapid Socioeconomic Change in Asia?

As human-land relations have been changing at an increasing rate, land tenure regimes need to be adjusted, either endogenously through the efforts of collective action on the part of users, or exogenously through appropriate land policy instruments of the state. This process of adjustment often lags behind the emergence of new relative factor scarcities and changing institutional environments as a result of globalisation, liberalisation, or new international governance regimes. This causes severe problems with respect to the efficiency of land use or the use of natural resources in a broader sense, equity considerations, social balance, political stability, and the protection of the environment following the UNCED process (GTZ 1998). Ideas about the significance of such lags, their main causes and consequences at different levels, and appropriate forms of policy intervention change over time.

Asia is mostly regarded as an example of the fact that rapid industrialisation and drastic changes in economic structures can become possible mainly as a result of the

successes of agrarian reform[1] programmes in the early phases of economic development (Khanal 1995). The impact of successful agrarian reforms on rural development is even more marked, as well as the increase in purchasing capacity of low-income groups, enlargement of domestic markets, expansion of rural based agri-business activities, and increased employment opportunities.

Strictly egalitarian, redistributive land reforms in Korea or Taiwan resulted in great increases in agricultural production and incomes. Although mainly imposed by authoritarian governments, they can nevertheless be interpreted as first attempts at market-led, though government-guided, land reforms in an Asian context. The state appropriated land above stated ceilings and transferred it to small tenants already occupying the land. It conferred full private ownership on the beneficiaries but forced them to reimburse the government for the costs of land acquisition, although they were assisted with subsidies and favourable terms (Bruce 1998). Through the explicit link with land management reforms and the organisation of support services for the beneficiaries, these redistributive land reforms provided long-lasting incentives for economic growth, promoted equality, and changed old established power relations based on the control over natural resources (Binswanger et al. 1995; Bruce 1998; Kuhnen 1999). They have been an often neglected cornerstone of the success story of some 'Asian tigers'.

The arguments for land reforms lost momentum with the implementation of the first 'Green Revolution' in South and South-East Asia from the 1960s onwards. Together with the remittances of millions of migrants and the dynamics of overall economic development it has contributed to overcome the stagnation in numerous rural Asian areas in the last decades (GTZ 1998). Despite these success stories, land reforms are still a very controversial issue (Deininger and Binswanger 2000). In regions such as India or the Philippines land reform has only be successful to a limited extent and remains a ticking time bomb (Banerjee 2000, Kirk 1998): weak governments were not able to break the resistance of dominant landlords, and/or inadequate land management practices led to production losses, worsened the situation of the poor, and created severe environmental problems (Kuhnen 1999). In countries like the Philippines the need for agrarian reforms with a redistributive component remains (Polestico et al. 1998, Meliczek 1999).

Simultaneously, however, the farm size has further decreased because of population pressure and partitioning of holdings. At present, approximately three-fourths of all Asian farm households no longer have enough land at their disposal to make a living. Already in 1980 the average size of holdings was 1.3 hectares in Bangladesh, 2.0 hectares in India, 1.5 hectares in Sri Lanka, and remained at 4.6 hectares in Pakistan.

[1] Agrarian reforms are measures designed to overcome obstacles hindering economic and social development that are the result of shortcomings in the agrarian structure. Changes in land tenure (reform of land ownership or land reform) as well as changes in land use (land management reform) are elements of these measures (Kirk 1999a).

In Indonesia, 70% of the farms consist of less than one hectare; in West Java, 73% of the farms have areas of less than half a hectare (GTZ 1998). This evolution revives the old debate on the relationship of farm size to productivity (Banerjee 2000, Binswanger et al. 1995, Faruqee and Carey 1997), and this is also important for the justification of redistributive land reforms.

The rule that small farms have greater productivity while physical output and labour investment decreases with increasing farm size is not always true (GTZ 1998, Faruqee and Carey 1997, Kuhnen 1999). If smallholders are forced to use the land intensively because of lack of alternative income sources, then the rule applies. Here, egalitarian, even redistributive, land reform would support increases in productivity and contribute to food security for a growing population. But, the situation is different as soon as the interest in farming wanes as a result of sources of alternative employment leading to out-migration and creating high opportunity costs for land use. The same applies when small farmers in regions with strong technical innovations, such as in irrigated areas, cannot keep pace with the rate and amount of necessary investment and are not able to realise economies of scale adequately either. In this situation, medium-sized farms, which are already well integrated into product and factor markets, have greater productivity (Kuhnen 1996) because they are already realising the benefits from scale effects and specialisation without being faced with the diseconomies of large units mainly caused by high transaction costs in terms of supervision of labour, intensive care activities for livestock, or different tenancy models (Hayami and Otsuka 1993; Binswanger et al. 1995).

After a long theoretical debate, dating back at least to Alfred Marshall, economists have made their peace with the tenancy models that dominate in Asia, in particular with sharecropping (Hayami and Otsuka 1993). They will persist as imperfect but functional arrangements for hundreds of millions of rural people in all parts of the region, as they represent a compromise between work incentives, the costs of supervising labour, and risk-sharing for risk averse farmers (Kuhnen 1999). We still need more answers about the environmental impact and inter-generational efficiency (long-term investment for soil conservation) of factor allocation of these controversial economic transactions which are often based on long-term, relational contracts (Furubotn and Richter 1997, Panayotou 1993).

However, the creation or the re-organisation of functional land markets that allow for permanent transfers does not suffice. Moreover, it is still necessary to look for additional instruments to increase security of tenure for tenancy markets that go beyond traditional self-enforcing mechanisms or coercion in order to enable a smooth temporary transfer of property rights according to the owner's preference (Deininger and Feder 2000). Tenancy markets will rapidly gain in importance in Asia as a result of the declining importance of agriculture and the phasing out of parts of the farming population combined with a strong interest in keeping a hand on the land as an inflation-proof asset. Here, policy-makers are confronted with a knife-edged problem as these innovative instruments, on the one hand, have to follow generalised rules

and regulations and have to be enforceable in court and, on the other hand, have to be embedded in the existing social fabric in rural areas in order to be acceptable to tenants and landlords. While decision-makers in African countries might learn a lot from Asia about future challenges arising from tenancy arrangements, the Asian discussion on communal customary rights and decentralised, local cooperation for land use might also benefit from African experiences (Bruce 1998 and Kirk 1998) (see part 4).

The question of whether to establish registered private land ownership either as an outcome of market-oriented land reforms with a modernised and revised legal framework or on the same lines as the transformation process of former socialist countries remains a controversial one. It is undisputed that the institution of private land ownership gives the strongest and non-attenuated incentives for long-term investment, for resource protection, and that it allows for rural credit and fosters sectoral growth. Yet, this is only true if a number of crucial conditions are fulfilled that are not necessarily present in many Asian countries (GTZ 1998, Kuhnen 1999): at the micro-level a sufficient farm size; a certain attitude towards work, savings, and investment; and sufficient institutional support from the public and private sectors are prerequisites. At the macro-level, effective private property requires differentiated, functioning markets for goods and for land, capital, and labour in order to flourish. It needs a large number of 'outer' institutions such as a highly efficient land registry, private contract law, inheritance law, family law, tax law and so on also, and the establishment of these incurs high transaction costs for society (Kirk 1999a).

If these preconditions cannot be established on parallel terms with private land ownership, this institution cannot come up to the expectations placed on it as a country-wide panacea for optimal land-use patterns, investment, and environmental protection (e.g., Laos, Vietnam) (Kirk 1997; Kuhnen 1999; Tachibana et al. 2000). Transforming economies, like that of Vietnam, maintain the ownership of land formally in the hands of the state and give long-term leasing contracts to users with an option for renewal. These leasing contracts become inheritable and transferable as well, leaving room for different kinds of transactions while also respecting traditional models of land use. Thus, the degree of security of tenure and the planning horizon come close to private land ownership.

"The system, which resembles the historical tradition in many countries, is still rather new, but it should be observed carefully for it might prove to be a model for other countries" (Kuhnen 1999:28).

As already stated, the reduction in farm size and new job alternatives have caused land to acquire a different meaning. While - as Kuhnen (1999) states - a generation ago the cry was 'access to land' at the time of the land-to-the-tiller reforms, today the younger generation wants 'access to income' no matter from where. Remittances of migrant family members have already led to farm land of a poor soil quality being

relinquished. From an environmental point of view, this development, however, could be beneficial for the protection of endangered resources and biodiversity.

With industrialisation, the need for land for non-agricultural purposes is growing rapidly. New and old land uses compete with each other: residential areas, industrial parks, mining and recreational areas, agricultural and forest land, nature reserves, and water-protection areas. It is estimated that about 500.000 ha of land are lost annually to agriculture in developing countries because of urban expansion. New patterns of use are attributed - mostly in an unplanned, uncoordinated way (GTZ 1998). For these 'hot-spots' cost-effective, simple, flexible, and easily accessible systems of land registration and land information systems to support land conversion have to be developed in the near future.

Bringing land tenure into line with land-use planning, especially urban planning, has not taken place yet. The taxation of windfall profits from land speculation in these centres of quick change is insufficient, and the preservation of environmental goods, such as clean water and landscapes for future generations, has long been ignored, for example, in rural Thailand (Panayotou 1993). The overuse of chemicals, the absence of drainage systems to minimise salinity and water logging, the ploughing of slopes unsuitable for arable cultivation, and deforestation are just a few examples of processes that mostly originate in insecure or ill-defined property rights at local or regional levels.

Another important factor is the global environmental changes to which Asia is subject. Examples are the rapid urbanisation and heavy deforestation in South-East Asia. Although these global challenges, which are often determined by local action, are at the centre of the implementation of International Conventions in the course of the UNCED process, the link between locality and globalisation of environmental concerns is still weak. Revised or newly developed land policy can play an important role in strengthening this link and will be a key factor in the development equation of old, new, and infant Asian Tigers in the future.

14.3 From Land Tenure to Resource Tenure: Implications for Poverty Alleviation and Rural Development

Past agricultural and rural development strategies have emphasised irrigated agriculture and 'high potential' rainfed lands in their attempts to increase food production and to stimulate growth (Fan and Hazell 1999,1). While this strategy played an enabling role and has been very successful for the implementation of the 'Green Revolution', less favoured lands have been neglected and still lag behind in their economic development (see also Kuhnen 1999), leading to aggravated poverty and food insecurity as the result of a complex process. As it is estimated that, in China and India, less favoured lands account for about one-third and 40% respectively of total agricultural output and that globally about 500 million poor people live on less favoured lands, active development policy strategies and public investment seem to be justified (Fan and Hazell 1999)

During the last decade this bias was overshadowed by globalisation[2], which redefines the chances and risks of economic development, going hand in hand with fragmentation within and between societies (Jodha 2000). The benefits of globalisation and market liberalisation are not evenly distributed, as foreign investment concentrates on a few countries, depending on the quality of their technical as well as institutional infrastructure. With regard to natural resources, it is undisputed that secured private property in land, as freehold or long-term tenancy, with a clear planning horizon is a crucial precondition to make countries attractive for investment in exclusive logging rights or rights for water use for example. At the same time, other countries and regions are completely bypassed by the chances offered by globalisation and may become victims of ever-increasing socioeconomic differentiation. There is a danger that poverty will be concentrated in these regions, with especially vulnerable groups at its centre such as the landless rural poor and users of forest margins, rangelands, or other resources mainly held as common property (Kirk 2000a).

What characterises the groups that are strongly affected by the side effects of favouring areas with high potential in particular? Nowadays, and still in future years, they will be dependent on the access to and the use of a mix of key natural resources to make a living. The governance structure of these resources is characterised by a combination of different property rights' regimes, with common property historically at its centre. Many people in rural communities of the HKH region, in South East Asia, or in parts of India do not work exclusively as crop farmers in rainfed or irrigated valleys but rather use many of the natural resources simultaneously on hillsides, in the plains, at the upper and lower ends of a water catchment, and so on, with multiple uses and multiple users involved (Swallow et al. 1997). This mix may be a combination of wells or surface water reservoirs held as freehold for irrigation purposes; of different tenancy arrangements for agricultural land, linked with temporary or permanent rights to use pastures and forest resources (dead wood, fruits, herbs, and so on); and of temporary access options to other resources (such as agricultural by-products) in cases of drought or floods. In peri-urban areas as well, multiple patterns of resource use are on the rise: the combination of construction land with urban agriculture and gardening and private and public water sources for households and industry (GTZ 1998).

Therefore, the focus on tenure has to be a broader one, in particular, for less favoured Asian regions. Rangelands, that form the basis of livelihood for some hundred millions of people in the world, could serve as an example to support the argument. Livestock in the HKH are primarily sustained by vast native rangelands (and forests) managed as common property resources by millions of (agro-) pastoralists who rely on these diverse ecosystems for their subsistence (Bhatia et al. 1998). They cover more territory

[2] Globalisation can be defined as the increasing integration of national economies into expanding international markets and growing interdependence of the international economy (Todaro 1997:660, Picciotto 1997:363).

than any other ecosystem in the HKH (over 60%). Like other rangeland systems in the world (McCarthy et al. 1999) they are characterised by extensive use patterns and high natural risk and are managed through sophisticated institutional mechanisms for pasture allocation to allow for access options and rotational grazing based on collective action to maintain range productivity and to prevent overgrazing.

These rangelands have to be defined beyond the single resource approach that has guided environmental and ecological research as well as (agro-)pastoral policies in the past (Scoones 1995, Grell and Kirk 1999). Rangelands are part of a larger production system. As such, to understand the implications of rangeland management policies it is important to use a holistic understanding of rangelands as a basic concept that will help to include rangeland users' strategies not only at the local community level but also for resources used regionally. Rangelands, thereby, include all key resources and infrastructures (water, pastures, grazing corridors, and so on) that are so very critical for livestock production, institutions that manage access and use of these resources, rules governing the use of the resource by community and outsiders, and organisations to execute allocation and enforcement (Ngaido and Kirk 1999). Rangeland institutions are always 'nested' within larger structures.

As a consequence of working with 'resource tenure', the broader concept of resource policy should lead our analysis. Resource tenure has to be considered in the context of all (in effect or potentially) economically used natural resources in a particular space. On parallel terms, policies that have land as their focus must be linked more closely to water and forest policies, to policies of rural settlement, to land-use planning, to instruments for urban and peri-urban land management, and so on.

The analysis of the many different property rights that stakeholders have over natural resources permits us to understand the importance of so-called 'secondary rights' which are so important for vulnerable poverty stricken groups such as female-headed households, landless people, or pastoralists (Faruqee and Carey 1997; GTZ 1998; Göler and Jacobsen, 1999). Women, for example, are for the most part exempt from the possibility of having comparable (to the men) permanent and secure rights to land use in autochthonous land-tenure systems or in regulations based on religion (Göler and Jacobsen 1999). Typically, they can only assert secondary rights given to them by men. The same applies to landless people or mobile livestock keepers who depend on temporary access to harvested fields to collect agricultural by-products, collection rights in forests, rights of way and trespassing, and so on (Sakurai et al. 1998, Ngaido and Kirk 1999). Up to now, these complex structures of property rights that have a great impact on strategies for poverty alleviation and environmental protection have been mostly ignored.

Rapid socioeconomic transformation and changing resource use patterns in Asian mountain areas have strongly affected - not only in the HKH region, but also in Vietnam, Laos, and China - the number and composition of livestock and of plant and wildlife species as the material basis for extensive production systems (Bhatia et

al. 1998). Thus, in working with resource tenure as a broad concept that goes beyond single cause-effect analysis and governance structures, one has – to go a step further- to consider additional property rights' dimensions related to natural resources, for example, biodiversity protection.

A good from nature, like soil used for cropping or grazing, is usually considered to carry only one homogenous property title. However, it is not sufficient to classify such rights, according to the conventional division, only into the right to use, the right to alter, and the right to alienate (Hagedorn et al. 1999). In order to do justice to new functions of natural resources for sustainable development, additional categories of property rights have to be defined separately for numerous ecological properties of the physical piece of nature (like a piece of land). Each of them is related to particular private and social costs and benefits. For each of them, the institutional design can differ: private, collective or state property regimes are imaginable just like the absence of defined property rights that will lead to open access (Ostrom 1990, Bromley 1991).

Going even further, Hagedorn et al. (1999) suggest the term 'property rights on nature components' to be appropriate for a more sophisticated theoretical concept for innovative resource policy objectives and instruments that respect the guiding principles of the UNCED process and try to do justice to efficiency, equity, and environment. Bundling the property rights over the manifold components and attributes of a physical piece of nature by giving it to one land user by written law or based on custom usually means that the distribution of rights in society is rather decentralised, in particular if land concentration is low and a unimodal distribution predominates, as in many Asian countries (Hagedorn et al. 1999). In case these rights are divided between farmers as primary users and other specialised agents, like line ministries, this automatically results in a higher degree of centralisation of governance structure. As we know from the long theoretical debate on optimum incentive structures for and transaction costs of (communal) resource management (see for example Baland and Platteau 1996, Meinzen-Dick and Knox 1999) this has far-reaching economic, social, and political consequences. It may affect incentives and participation of land users, strategies for opportunistic behaviour, and lead either to identification, more or less, with the local and regional natural environment.

A well-nourished resource policy is, therefore, essential for national resource management of such a policy are discussed in section 14.4. Further initiatives to shift the responsibility and authority for natural resource management from the state to non-governmental bodies through devolution - together with decentralisation - are of great importance for innovative resource policies (see Section 14.5). The same is true for the identification of appropriate degrees of decentralised versus centralised governance structures with regard to different resources and stakeholders, guided by the principle of subsidiarity (see Section 14.6).

14.4 Objectives and Instruments of a Re-focused Resource Policy between Locality and Global Governance

Many Asian states have reacted, at least in part, to the challenges described and have re-focused or modified parts of their often very narrow and sector-oriented land policies; for example countries like Indonesia or Nepal. Others, e.g., Vietnam, Laos, and Cambodia, are forced to develop new concepts about resources in the transformation process (Khanal 1995; GTZ 1998; Kirk 1996, 2000a).

Taking into account the analysis in Sections 14.2 and 14.3, some major normative elements can be deduced: every resource policy facilitating ongoing sectoral change in Asia that allows a change from control and command to self-determined, decentralised organisation of society and which is rational and transparent to the population has to fulfill particular minimum conditions. It must be based on fundamental guiding principles and has to follow clearly defined, in part universal and in part country and culture-specific, valid objectives (GTZ 1998). These objectives (and possible conflicts between them) have to be made public and transparent; a bundle of non-contradictory policy instruments for land administration and land development should be developed from these objectives.

Some internationally accepted, binding guiding principles of resource policy can be deduced from the Charter of Human Rights, Agenda 21, and the documents from the conferences following Rio 1992 (GTZ 1998, Göler and Jacobsen 1999). Others can be derived from the existing societal structures (a culture-bound meaning of 'democracy', separation of powers), from the applied theory on the economic order (decentralised activities in a market economy, the meaning of property and ownership), and from any written constitution (protection of minorities, equality of all people before the law, social responsibility of property) (Kirk 1999b).

A land policy designed to create trust and stability must fulfill the following criteria:

- imparting visions regarding a desirable path of development,
- tied to existing socioeconomic systems and successful practices to ensure credibility,
- long-term orientation and, in its basic commitments, mostly immunised against the influence of daily politics and the strategic behaviour of politicians and pressure groups,
- focused on an evolutionary process of change, and
- including an intensive dialogue between the government, the private sector, citizens, and the organisations of civil society.

These guiding principles are, of course, controversial for various cultures, religions, or political systems: the rule of law does not necessarily mean equality of all people before the law or equal opportunities for men and women with regard to the access

to land and its use (e.g., in Islamic land law or in autochthonous rural tenure systems in hill regions). In other cases, a countrywide, binding and uniform system of resource tenure based on the monopoly of power held by the state is often incompatible with indigenous regulations governing the access and distribution of land (for Laos, see Kirk 1997).

Three main superordinate objectives of a comprehensive resource policy are (GTZ 1998): 1) efficiency and the promotion of economic development, 2) equality and social justice, and 3) environmental protection and sustainable patterns of land use.

The experiences with agrarian reforms and with the ongoing restructuring of industrial enterprises and collective farms in transforming economies (Swinnen 1997) have helped to identify strategic starting points to attain the formulated objectives. In order to reach the efficiency objective, the following aspects need to be thoroughly considered: agrarian reforms, effective natural resource management at different regional levels, and the setting of a framework of conditions for sustainable rural development can only be brought to a successful end if a uniform legal and regulatory framework has been developed by the state providing equal access to resources and equal opportunities for resource use to all private and legal persons, as well as collectives and the state. This includes a precise distinction between private contract law (civil law) and public law (e.g., restrictions on transfers of real estate) and clearly defined regulations for the liability of private and public actors.

Land markets and markets for tenancy rights do not develop by themselves, their establishment and improvement depend on a wide range of functioning instruments of land administration such as working land registers, land valuation, or land banking systems (Panayotou 1993). Land has to be completely transferable provided that there are no transitory regulations requiring temporary restrictions. The accelerating urbanisation process and tenure regimes in peri-urban areas are hot spots in which the shaping of factor markets through land policy instruments is urgently needed.

A forward-looking land policy has to cushion the effects of structural transformation and sectoral change and has to be prepared for the new functions of land already described (Tomich et al. 1995). This includes the provision of instruments for land development to allow for an active role of the state in land banking, resource use, and regional and urban planning, including the expropriation of land against clearly defined compensation mechanisms in case of justified public interest. All these newly created or re-shaped functions of the state in land/resource policy can only be fulfilled if the financial basis for active land management is secured by fiscal means.

The objective of increasing the equity of land distribution through land policies and of promoting social justice involves very controversial issues. The question of whether the ‘social responsibility of (landed) property’ should be laid down in the constitution or by legislation, as in Germany, is one case. Having to deal with the conflicting interests between urban and rural, ‘modern’ and ‘traditional’, and wealthy and poor groups is inevitable (GTZ 1998).

A comprehensive resource policy has to acknowledge the importance of land as the basis for employment and income generation for the majority of the population in rural areas. It has to analyse the current and future importance of land for social security (old age and illness) and the future role of formerly communal or collective natural resource management (Kirk et al. 2000). All the more, it should consider and recognise the importance of traditional, autochthonous rights as well as secondary rights, including those of ethnic minorities, in a national resource policy and has to formulate a consistent policy. As was common practice in (West-) Germany until the sixties, a land policy devoted to efficiency and equity could (temporarily) regulate and restrict transactions in landed property in strategic sectors of the economy through 'ceilings' for the sale and leasing of land after land reforms and in settlement programmes).

For reasons of political stability and social balance, specific promotional programmes for disadvantaged groups, such as the poor in rural areas and on the outskirts of cities, the landless or women, may be needed; and these could include reforms in land ownership and reforms in land management to increase productivity. Approaches to ensure greater legal security for informal settlements in urban areas gain in strategic importance.

Increasingly, resource policy is also becoming environmental policy (GTZ 1998). A comprehensive code of land use, including the often conflicting agricultural, pastoral, forest, and fishery resource use patterns, is already needed in many countries, but this has only rarely been realised. Land-use planning and land banking aid in the declaration of protected areas, participatory resource protection, and local land-use concepts for common pool resources have to be developed and coordinated successfully.

The conceptual and administrative requirements for implementing policies based on the objectives formulated above are quite extensive and most countries will have a long way to go to accomplish this task. As a starting point, government and stakeholders involved in the reform process could rethink the meaning of property (and property rights) that is at the centre of these concepts. Since its characteristics were considered to be the fundamental difference between market economies and centrally planned economies, historically the great theoretical and ideological debates centred around justification for the existence of property. Property, including land, is a basic element of the economic order. This property must be defined uniformly and universally in legal understanding, not according to different subjects (individual, community, state, or foundation) as in the past in most national legal and regulatory frameworks (Knieper and Kandelhard 1995). Such uniformity should be enshrined in the constitution. Property must be available to all market players, i.e., the state as one involved party in civil society must also have access to it. It can purchase property (it then becoming state property) or privatise existing state property. Therefore, codification of the term property should not be confused with the term privatisation, as repeatedly happens in the current debate on land reforms.

Land markets are the institution allowing permanent or temporary transfer of property rights. In the long term, these transfers can only be brought about and secured in conjunction with other legal bodies such as contract law, family and inheritance law, tax legislation, or legislation on land use (GTZ 1998, Kirk 1999b). Once these have been established, there is no further need for a flood of new laws and regulations as is still the case in many Asian countries (Kirk 1996). If a clear and comprehensive contract law, as part of private law, exists, this should include all kinds of sale, tenancy, and rent contracts. Only then can dynamic land and tenancy markets be encouraged - provided, of course, that a working system of land registration can be established on parallel terms.

Private property will, on the other hand, not lead to the end of state activities, as the history of industrialised countries has shown (Bromley 1996). Private property will still require a comprehensive agricultural, structural, environmental, and social policy from the state. This includes restrictions on land transfers that may be contrary to public interest, in particular in phases of transition when factor markets are 'thin' and do not work properly.

Restrictions on private land transactions are still justified in a market economy environment in order to achieve important policy objectives: to support the development of efficient agrarian structures, to facilitate sectoral change, to help land to fulfill its functions as a public good, or to allow for planned growth of urban agglomerations. Several instruments, which may be used alone or in combination, are available to achieve these objectives, e.g., land consolidation and land readjustment as the most comprehensive ones used for the elimination of structural deficiencies with regard to the existing land ownership structure. High transaction costs to establish these institutions and for professional training are inevitable to enable the establishment of a comprehensive legal, organisational, and financial framework to function. These preconditions will not be tackled easily by governments with severe budget constraints and organisational shortcomings.

The outstanding importance of unambiguous interim regulations for rapid implementation of policy reforms has been underestimated. This has already become apparent in the German unification process. Missing interim regulations can easily lead to land speculation, informal land markets, and decreases in production (Kirk 1998).

The UNCED process has allocated a lot of financial resources in order to create a global institutional environment as an international governance architecture on a supra-national level in order to solve global resource tenure problems. This governance is based on a network of international regimes like the Conventions on Climate, Biodiversity, or Desertification. Both, however, cannot be successfully implemented whilever property rights are not assigned at the local, the regional, or the national levels and unless open resource conflicts are resolved or contained and new responsibilities are given to different stakeholders.

In giving power to international organisations the nation state has given up sovereign rights. Additionally, it should have started to devolve its power and decentralise decision-making to the lower levels inside the country. In this context, tenure problems and failed resource policies, in particular, have demonstrated that no kind of minimalist state can be a final option in this process. It has to keep the central function of providing an overall legal and regulatory framework; in assigning, protecting, and enforcing rights to resources; in applying the principle of hierarchy; in cooperating closely with market forces in the private sector; and in facilitating participation from organisations of civil society such as user associations, cooperatives, interest groups, and others (Picciotto 1997).

14.5 Devolution of Natural Resource Management

The bottlenecks in conceptualisation and implementation of resource policies at an overburdened central level lead to the question of whether more decentralisation and devolution of natural resource management could help to set priorities, to reduce failures and delays in implementation, to increase the responsiveness of target groups in rural areas, and to identify the links missing from the process.

In our context, decentralisation is understood as bringing both decision-making authority and responsibility for payment down from the central state level to the lower levels of government (Meinzen-Dick and Knox 1999). Within the government, local bodies are provided with a greater role than was previously the case, because they are presumed to have greater accountability to the local population than the central government; and in this respect local population includes direct land users and other groups living in rural areas. This kind of process goes much further than deconcentration in which decision-making authority is transferred to lower levels of a bureaucracy or government line agency. Deconcentration represents the least fundamental change because authority remains with the same type of institution for which the central government is ultimately still accountable.

Although decentralisation and regionalisation of institutions have been a big task in centralist West European countries in the last decades (e.g., France) and are at the top of the agenda for North-South cooperation, there are strong arguments for being cautious about naïve notions of decentralisation or devolution. Devolution in our case involves the transfer of responsibilities and authority for resource allocation and management from the state to non-governmentl bodies, including 'traditional' or newly created 'modern' institutions, the private sector, and other organisations of civil society. Devolution, therefore, denotes a process of correcting the concentration of decision-making, authority, and power over land and complementary resources in the hands of the (central) state (Meinzen-Dick and Knox 1999, Ngaido and Kirk 1999). Hence, devolution will gain in importance not only in parts of South-East Asia but in the HKH region as well.

To entrust the management of those key resources that , in particular in less favoured areas, are of crucial importance for poor groups and which in the past have mostly been governed on a cooperative basis as common or communal property to government administration has proven to be ineffective and expensive (Meinzen-Dick and Knox 1999,29f). As a consequence of financial crises as well as environmental degradation, many governments have started to hand over natural resource management to user groups. Evidence from the devolution and self-governance movement in irrigation (Vermillion 1999), in communal forest and protected area management (Agrawal and Ostrom 1999), and in rangelands (Ngaido and Kirk 1999) has resulted in considerable optimism about turning responsibility over to organised user groups to improve efficiency, equity, and sustainability of the resource base while reducing the financial burden of the state.

However, devolution is a very complex process and not all the objectives can be achieved easily and at once. There are basic requirements for makig it successful (Meinzen-Dick and Knox 1999:30).

- Because of the great variability in the resource base, the socioeconomic conditions of users and the performance of historical cooperation, no single blueprint with regard to the appropriate types of organisations, the spatial extension of cooperative management, and so on is available for all situations.
- If the state were to hand over to the management of common pool resources, some form of experienced coordination among users would be necessary to carry out the management tasks efficiently.
- It is by no means assured that such an organisation already exists when devolution comes into action, as many organisations have already disintegrated as a result of long-term, top-down government management practices in a control-and-command system.
- In cases of weak or absent traditions of autochthonous cooperation, a breakdown of collective action institutions, or poor organisational capacities among users and other stakeholders involved, additional institutional development will be necessary from outside on a temporary basis.
- Experience shows this to be the case, in particular when there is already an open access situation or in circumstances of highly inegalitarian land distribution which excludes many of those who strongly depend on natural resources for their livelihood.
- Norms and rules for new institutions can only emerge from those who will have to live by these rules and cannot be imposed from outside.
- Meinzen-Dick and Knox (1999) state that outsiders can assume specific roles, ranging from facilitating analysis of the problem to crafting solutions, providing information, and supplying technical support during the institution building process; in short, they can provide help for self-help from outside. Just as building up technical infrastructure to bring remote areas closer to the centre uses a lot of

resources, building up an institutional infrastructure takes time and is costly.

- The state will go on to play a critical role in enforcing regulations, punishing violations, and settling disputes (see also GTZ 1998). In the concerted action of broader decentralisation and privatisation policies, regional and local governments will have to work together with NGOs and private companies that offer complementary services to users.
- Such a co-management as a first step requires financial autonomy at lower levels as well as understanding of revenue flows and mechanisms of accountability.

Transferring responsibility for governance will only work if, at the same time, property rights are allocated to local groups. This is not only an end in itself; it also offers incentives for collective action and sets "... the stage for more collaborative (as opposed to hierarchical) interaction between user groups and government agencies" (Meinzen-Dick and Knox 1999:31).

As recent research has already been undertaken in the field of communal management of agro-forestry resources accompanied by devolution processes in Nepal (Bhatia et al. 1998, Sakurai et al. 1998, Tachibana et al. 1998, Upadhyaya and Otsuka 1998) or in Vietnam (Tachibana et al. 2000), the chances and problems of devolution will be discussed again taking rangelands as an example (for the following arguments, see Ngaido and Kirk 1999).

Here, the devolution debate (mainly in African and Central Asian countries) has centred on how to (1) to correct environmental and institutional inefficiencies over resource use, (2) promote sustainable management of common rangeland resources, and (3) transform local communities and institutions into stewards of their natural resource base. To achieve these objectives, many states in developing countries have adopted different strategies and instruments to support the devolution process such as land reforms, institutional innovations, and new forms of pastoral organisations. Four approaches have to be analysed critically: 1) legal reforms, 2) building up and strengthening local institutions, 3) providing tenure security, and 4) forging collective action.

Reforms of the legal framework, which, in the past, were used as instruments by the central state to expropriate local communities of their rights over resources, are perceived as a panacea for empowering local communities again and correcting resource misuses. The results have not been conclusive as changing existing laws does not necessarily induce local institutions to take over their re-assigned roles and responsibilities. In some cases, these reforms remained an empty shell, creating an institutional vacuum at lower levels (Kirk 1999a) or cementing a situation of open access as in some of the pastoral areas of Central Asia (Mearns 1996a, b), others are in a deadlock as in Niger (Ngaido 1999), whereas others decided to bring in more participatory elements, e.g., in South Africa or Tanzania (Cousins 1996, Shivji 1996, Rhode et al. 1999).

Approaches to building up and strengthening local institutions have been guided by the assumption that traditional local organisations with their rules and regulations can, in fact, directly take over the role of the state and its management functions. The challenge is whether these institutions would continue to be functional and have the strength to assume these roles. For example, one important component is the improvement of rangeland productivity, which also preserves biodiversity and which may require both labour and financial resources for re-seeding, planting, and protection. Traditionally, local institutions did not conduct such activities in the past and are not yet prepared to do so at present.

It is not argued here that local institutions, in general, are not capable of assuming new responsibilities, but that these additional features of management need to be taken into consideration in the devolution process from the beginning. This is critical because most of the local authorities have been affected negatively in their capacity to mobilise traditional social capital because of the breakdown of most of their social security systems. This social capital has to be reconstructed at high cost from outside. Therefore, for a devolving state and donor agencies the question of the capacity of traditional institutions to forge collective action is not a trivial one. Although many types of pastoral organisation, ranging from cooperatives to associations of user federations, have been created, they are not necessarily successful on their own and in the long run.

The principal fear when creating new institutions is concerned with the opposing logic and operational mechanisms and overlapping claims between traditional institutions and new ones (Kirk 1999a). Conflicts over boundary demarcation, a group's internal regulations to restrict pasture use,and others are known. Therefore, the effectiveness of rangeland institutions does not depend solely on the creation of new organisations and recognition of existing ones, but also on the degree to which customary rights are effective and can be integrated.

Secured property rights are thus complementary to the establishment of new institutions. So far, efforts to grant security of tenure have focused on the community's local resources. One of the challenges is to clearly define these local resources, in particular in the case of rangelands where outside community resources are at least as important because pastoral people use different environmental 'niches' or 'patches' to optimise their production systems. Such niches, however, are not always located in their community territories. The differing dimensions of locality and space are important parameters to be taken into consideration.

The choice of the type of security of tenure to be granted to them depends very much on how the central state perceives the evolution of local institutions. If local organisations have the capacity to manage their land as a group, then providing private property to the group may be an option; in cases where these institutions have already been eroded, individualisation has to be considered as one possible alternative or, on the other hand, the establishment of new agencies to secure tenure for a loose group.

All devolution programmes require some form of collective action, which is defined as action taken by a group in pursuit of the members' perceived shared interests (Meinzen-Dick and Knox 1999). What are the means and mechanisms that the state must provide to promote collective action? Within the scope of this paper it is not possible to go into details of the complex material on collective action (see Ostrom 1990, Meinzen-Dick and Knox 1999, Agrawal and Ostrom 1999), but with regard to rangelands three aspects occupy a central position: 1) the capacity of groups and their institutions to set their own rules for the management of rangeland resources, 2) creating the mechanisms to enforce them, and 3) mobilising labour and financial resources to manage and improve resources.

As a preliminary result, the ongoing devolution process clearly shows that resource policy not only needs vertical coherence to assign rights and responsibilities to different levels but also horizontal coherence as well to assign to different actors at the same level. Here, the principle of subsidiarity, which has originally been a concept of catholic social policy, may serve as a guiding principle when deciding which tasks have to be performed at which level and by which actor in civil society.

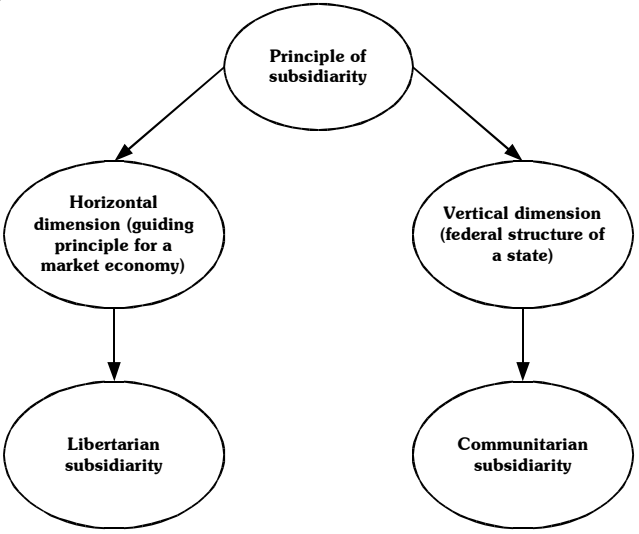
14.6 Subsidiarity as a Guiding Principle in Civil Society

Much has been written about subsidiarity since it has been enshrined in the 'Maastricht Treaty' of the European Union[3], and it has become a buzzword for the development policy debate as well. This is mainly because of state failure, on the part of over-centralised governments, to administer natural resources (Panayotou 1993). To put it simply, subsidiarity requires the distribution of power and responsibilities in a multi-level polity to be in favour of lower-level government institutions and, hence, smaller jurisdictions (Vanberg 1997). It require the allocation of political authority to the lowest institutional level possible, that is, close to the citizens, as the ultimate sovereign (Swift 1995).

In its economic interpretation, the principle of subsidiarity has two dimensions, both of them being equally important for resource tenure development, for land reform, and for land market development: Firstly, the well-known vertical, federal dimension and, secondly, the horizontal one on which market economies are based (Figure 14.1). To acknowledge the horizontal dimension means to give priority to the private performance of economic tasks (either in the private sector or as voluntary cooperation) rather than to government performance, whenever appropriate. This is not only for the sake of efficiency, but also to secure individual freedom. Based on

[3] The Treaty for European Unity, commonly referred to as the Maastricht Treaty, states in Article 3b: "In areas which do not fall within its exclusive competence, the Community shall take action, in accordance with the principle of subsidiarity, only if and in so far as the objectives of the proposed action cannot sufficiently be achieved by the Member states and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Community." (Quoted from Vanberg 1997,253, footnote 2.)

Figure 14.1: Subsidiarity: the libertarian and communitarian outlook



Source: Döring 1997, Vanberg 1997

this liberal thinking, subsidiarity serves as an instrument to repulse state encroachment on the private sphere. It interprets devolution policies in a different way as "rolling back of the boundaries of the state" (Velded 1996) and giving way to shared responsibility in civil society. Therefore, Vanberg (1997) refers to the horizontal dimension as libertarian subsidiarity that secures individual freedom (and in our case of communal resources the freedom of user groups) and to the vertical one as communitarian subsidiarity, concentrating on the protection of decentralised jurisdictions.

Structural adjustment and market liberalisation in many Asian countries, as well as the transformation process in Vietnam, Laos, and Cambodia or, more specifically, any privatisation of property rights and a change from control-and-command systems to decision-making based on market forces, fulfils the horizontal criterion at macro-level. The same applies to the devolution of selected tasks in land reform processes from the state to the private sector, to organisations of civil society, and to public-private partnerships such as those for cadastral services or even the (re-) establishment of land registers.

One can identify two components in the vertical dimension of subsidiarity: a) a principle for institutional structuring (like institutions of the federal state, the division of administrative competencies between state and society to allocate private and public tasks, or the way in which once allocated tasks are performed at different

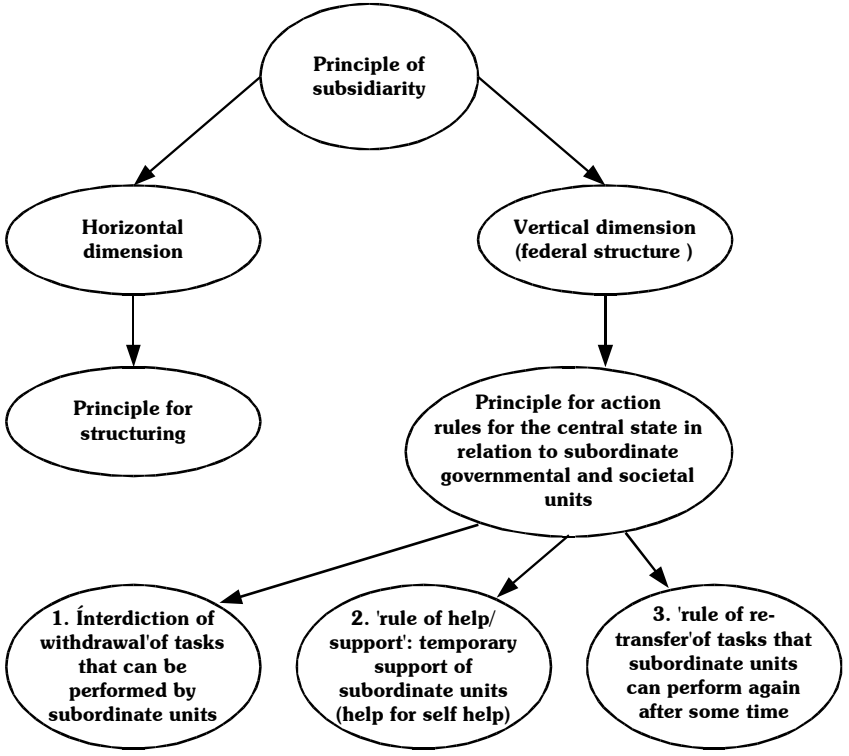
decision-making levels). (This is of less importance for improving tenure systems and resource management, but it is important to improve the performance of the land administration, for example in b) a principle for action that defines rules for the central state in relation to subordinate units in a dynamic sense (Döring 1997).

These dynamic aspects of subsidiarity may help to shape the institutional design in implementation of land policies or land reforms. It helps to clarify a) the necessary steps and sequencing of decentralisation of responsibilities and authorities for different land uses and users, b) the specific range of these responsibilities for differing tasks, c) the temporal characteristics of their allocation, including the important role of learning processes, and d) the role of a central unit, i.e., the state, in establishing the basic rules of the game.

1. The 'interdiction of withdrawal' (by a central state) requires a decision about which land policy instruments have to be administered at national or international levels and which ones at lower levels in case of decentralisation (e.g., the protection of resource rights through informal rules and regulations or codes of civil law, the enforcement through courts at different levels, the question of where to open a land office?) In the case of more far-reaching devolution, it comprehends a decision about the tasks that can be performed by subordinate units of the private sector or by civil society organisations, for example, land consolidation or conflict resolution. Then, a minimum level of state participation has to be well defined.
2. The 'rule of help/support' proposes that the state should provide temporary support to lower jurisdictions but to a different extent for differing activities. Here, the emphasis is laid on 'temporary'. Neither decentralisation nor devolution mean that a state rids itself of responsibility once and for all, but rather that it is expected to support local institutions during a learning process to enable them to perform tasks assigned more efficiently. This means sequencing decentralisation or devolution to determine the rights that can be given to groups of land users and for how long with regard to efficiency, equity issues, and environmental protection. It also implies that the state reserves the right to withdraw the decision-making power and authority from them in case they cannot perform the assigned tasks any longer.
3. The 'rule of re-transfer' which ensures that a central state is ready to hand over power and competence after a period of transition and support to lower levels. At the same time, lower jurisdictions or private sector organisations or user associations are given key responsibilities for those tasks they are then better able to perform. Therefore, a central state is expected to always assess its own performance critically and to be willing to hand over the power that was once assigned to it.

In the context of resource policy, the subsidiarity principle works as a guiding principle to change existing transaction cost structures with regard to different partners and claimants in an emerging civil society (Figure 14.2). These are legal and de facto owners, actual and potential users, third interested parties, or the administration at

Figure 14.2: Subsidiarity as a principle for action



Source: Döring 1997

different levels. It leaves the central state with an active role so that it can deal with resource shortages and introduce a learning process to build up human as well as social capital at lower levels. It could help to concentrate on restructuring the actual institutional environment, including informal regulations at the community level: whether they exist as a relict of collectivism, whether they have survived from feudal times, as with Russian agriculture, or whether they are strong customary rules applied by local users but ignored by central authorities, as in many Asian countries.

14.7 Conclusions

Even in societies in which agriculture is increasingly losing its dominant role, in which economic activities are becoming further diversified, and in which structural transformation dominates, the development of land and resource tenure systems and of resource policy will play an important role in the future. It will be based on redefined objectives and instruments.

Where land and complementary resources lose their importance as a critical factor of production, other functions, such as those of environmental protection, the preservation of biodiversity, or recreation and leisure, gain in importance and have to be tackled by policy- makers.

As long as poverty persists in many Asian countries and poverty groups remain dependent on the access to a mix of natural resources for income generation, much broader, interdisciplinary models and concepts of resource tenure are needed ;and the role of such models in coping adequately with risks or in a better understanding of the importance of social capital in cooperative resource management strategies needs to be understood.

Country experiences have revealed that these broader concepts (even when they exist) cannot easily be put into practice, as this not only applies to rangeland devolution but to devolution of other sectors as well. The still practised 'single resource approach' automatically multiplies conflicts within local groups as well as between them and other stakeholders. Land policies that continue to ignore complementary, secondary rights, and temporary access options will not be able to contribute to poverty alleviation in less favoured areas nor to improve their welfare.

Because of the different degrees of complexity with regard to property rights' systems, the actors involved and governance structures in place for water, pasture, or forest management require different paces and intensities of reform implementation. Community-based resource management is different for rangelands than for irrigation schemes or village forests.

Sensitive resource policies can at best reduce the incidence of conflicts, but will never bring them to an end. This is in particular true as sectoral change goes on, accompanied by out-migration, the emergence of absentee ownership, or an increasing demand for food crops from fragile lands. Innovative resource policies, thus, have to go hand in hand with new and improved mechanisms for conflict resolution (GTZ 1998, 1999). Here again, the state has to play an important role in facilitating the establishment of a multi-tier institutional setting for conflict resolution, starting from local traditional or newly created organisations up to courts at the central level that are legitimised by civil society and work efficiently (Ngaido and Kirk 1999).

Country experiences have shown that, in formulating devolution policies, most governments followed the naïve comparison of overburdened, impotent state-dictated range management with an idealised concept of well-functioning local institutions, based on satisfactory collective action and well-defined property rights. Therefore, more effort is needed from all actors involved to start reform processes right at the beginning by clearly and critically assessing the strengths and weaknesses of the institutional setting in place. Following the idea of subsidiarity, a fine-tuned sequencing of policy implementation and instrument mix can be achieved.

Research, on the other hand, in perceiving these reforms as a process of institutional change, has been concentrating mainly on the hypothesis of institutional change increasing efficiency in the Douglas North tradition. The continuing processes in developing and transforming economies clearly have shown that the complementary 'power view' about the distributional effects is important as well.

Reforms are a costly process, and they include redistributed running costs to manage the resources, but transaction costs a lot as well to make devolution of management work from the beginning. There is a strong suspicion that governments are only in favour of devolution and decentralisation of resource management because they can get rid of costly responsibilities and administration. When these cost aspects continue to be left out of the debate between government, interest groups and donors, new conflicts and deadlocks arise.

Asian countries in particular have taken up the challenge of globalisation and have to think further about opening up to international markets. States will no longer be monopolists to their citizens, in particular to investors, in offering public goods (Kerber 1998) such as tenure security, well functioning interlinked land and credit markets as an investment incentive for entrepreneurs, a flexible land administration, or clear concepts on land-use planning, taxation, and fees for transfer. On the contrary, competition will increase and states or regions, as kinds of clubs, will compete with each other offering different parcels of public goods. Competition will serve as a yardstick not only for markets for private goods and services but also for institutional innovation with regard to resource tenure and resource policy. These are only some of the challenges that lie ahead for most Asian countries in the new century.

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Chapter 15
Land Tenure and Poverty: Status and Trends Land Systems in the Hills and Mountains of Nepal

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15.1 Introduction

Land and land-based resources are inextricably linked with the livelihood of the Nepalese people. Nearly 90% of them still pursue agriculture and related land-based activities and reside in rural areas. Thus, ownership and access to these resources have an overwhelming influence on the well-being of the vast majority of the population. Historically, they also determine the economic and social status of the people.

The present paper attempts to:

- describe the prevalent land systems, their distribution, and tenure-related issues;
- discuss the extent of linkage between access to land and the people's livelihood in the present context of Nepal; and
- draw implications from the existing land system and entitlement structure about poverty, sustainable economic growth, and natural resource management.

The paper begins with a description of land systems and land-use patterns. In Section 2 it discusses land tenure related issues. Section 3 attempts to relate the land system

and land use with the issues of poverty and environment and reviews past policies in this respect. The last Section outlines a strategy for reforms in the land system with the purpose of improvement in land use for poverty alleviation and environmental conservation.

Land systems

The land system of Nepal is probably unique because of its extreme variability with respect to topography, soils, and climate. The altitudinal and agro-ecological diversities across narrow stretches of geographical territory pose a challenge to attempts to identify and adopt an adequate system of classifying land units. Yet, attempts have been made in the past to develop a scientific system of land classification based on altitude, landscape, soils, and climate (e.g., Nelson 1980; Chapagain 1984; LRMP 1986; Carson 1991; and Carson and Sharma 1992; Chapagain et al. 1998). By and large these classifications are either in terms of physiography, in terms of land capability, or in terms of current uses.

Physiographically, the land area of Nepal is divided into five major regions: the 'Terai', Siwaliks, Middle Mountains, High Mountains, and High Himal. They represent well-defined geographic areas with distinct bedrock geology, geomorphology, and climatic and hydrological characteristics. Soils and land units within these regions are significantly different from each other. Table 15.1 lists the areas occupied by the different physiographic regions within each Development Region[1]. The major characteristics of these physiographic regions are provided in Annex Table 15.1.

The most common land classification is the division of the country into the Terai, hill, and mountain regions. Because of its simplicity, this system is widely adopted to classify districts with similar characteristics. But, in many instances, the demarcations are not very clear, and regional units are not homogeneous, particularly in the hills and mountains. Within a given hill or mountain district, one can observe the occurrence of deep, incised, and low altitude valleys together with steep side slopes and high altitude pastures. For instance, districts like Gorkha and Dhading are commonly grouped as hill districts, whereas considerable proportions of these districts actually lie in the High Himal physiographic region. Similarly, Chitwan and Dang districts are classified as Terai although they belong to the Siwalik physiographic region.

These physiographic regions are further divided into relatively homogeneous land systems on the basis of landforms, geology, slope, and arable areas. Each land system may have several land units. Altogether 17 land systems have been identified that are broken down further into 46 different land units. They are summarised in Annex Table 15.2.

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[1] For the purpose of development planning and administration the country is divided into five development regions from east to west.

Table 15.1: Distribution of the total land area of Nepal by physiographic region ('000 ha)

Physiographic Regions	Development Regions					
	Eastern	Central	Western	Mid-Western	Far-Western	Nepal
High Himal	470.5 (16.5)	224.3 (8.2)	882.9 (30.0)	1502.5 (35.1)	269.0 (13.8)	3349.2 (22.7)
High Mountain	531.1 (18.6)	366.9 (13.4)	489.8 (16.7)	1147.5 (26.8)	424.0 (21.8)	2959.3 (20.1)
Middle Mountain	980.9 (34.4)	931.2 (34.1)	1011.8 (34.5)	803.3 (18.8)	716.4 (36.8)	4443.6 (30.1)
Siwalik	251.2 (8.8)	629.6 (23.0)	237.2 (8.1)	570.2 (13.3)	197.5 (10.2)	1885.7 (12.8)
Terai	620.4 (21.7)	582.1 (21.3)	313.8 (10.7)	256.7 (6.0)	337.4 (17.4)	2110.4 (14.3)
Total	2854.1 (100.0)	2734.1 (100.0)	2935.5 (100.0)	4280.2 (100.0)	1944.3 (100.0)	14748.2 (100.0)

Note: Figures in parentheses represent percentages.
Source: LRMP 1986

Table 15.2: Major land uses of Nepal

Area in '000 ha

Physiographic Regions	Land Uses						
	Agriculture			Grazing	Forest	Others	Total
	Cultivated	Non-Cultivated*	Total				
High Himal	8 (0.2)	2 (0.06)	10 (0.3)	884 (26.0)	221 (6.6)	2234 (67.0)	3349
High Mountains	245 (8.1)	147 (5.0)	392 (13.2)	510 (17.2)	1813 (61.2)	245 (8.3)	2960
Middle Mountains	1222 (27.5)	665 (15.0)	1887 (42.5)	293 (6.6)	2202 (49.6)	61 (1.4)	4443
Siwaliks	259 (13.7)	55 (2.9)	314 (16.6)	21 (1.1)	1477 (78.3)	74 (3.9)	1886
Terai	1234 (58.5)	117 (5.5)	1351 (64.0)	50 (2.4)	593 (28.1)	116 (5.5)	2110
Total	2968 (20.1)	986 (6.7)	3854 (26.8)	1758 (11.9)	6306 (42.8)	2730 (18.5)	14748

Note: * These are non-cultivated inclusions within the mapped agricultural land.
Figures in parentheses represent percentages.
Source: LRMP 1986

In terms of capability, six different land classes (I through VI) are defined. The landscape and climate under Classes I, II and III are suited to agricultural cropping and are separated from each other on the basis of slope. Due to the limitations imposed by slope, Class III land can be cultivated only by means of terracing. The upper limit of cultivation with terracing is considered to be 30 degrees. Class IV land is too steep or too cold to support agricultural cropping, but supports productive forest suited for exploitation. Class V land is either too cold for natural forest or is geomorphologically unstable, but it supports vegetation suited for grazing. Class VI land is too steep and too unstable to support normal forest use and is very sensitive and liable to degrade rapidly even with very slight disturbances (Sharma 1995).

According to the third criterion of land classification based on current use, the common land use types are agriculture, forest, grazing, and others (Neild 1986). The extent of these land uses juxtaposed with the physiographic regions is summarised in Table 15.2. It shows that nearly 27% of the total land area of the country is under agriculture, of which about 7% is non-cultivated; about 12% under grazing; 43% under forest; and about 19% under other land uses such as snow, ice, and rock outcrops.

Agriculture

It is evident from Table 15.2 that, of the total agricultural land in the country, the Terai possesses the largest proportion (64%). It is closely followed by the Middle Mountains with nearly 43% of its land under agriculture. The Siwalik is geomorphologically the most fragile physiographic region with 17% of its land under agriculture.

About 13% of the land area of the High Mountains is under agriculture. Cropping patterns, cropping intensity, and productivity in this physiographic region is limited by temperature, particularly at higher altitudes. A very insignificant part (0.2%) of the High Himal physiographic region is under agriculture.

The existing production systems, as summarised in Annex I, consist of irrigated rice cultivation on lowlands (‘khet’), rainfed cultivation on uplands (‘pakho’ or ‘bari’), livestock raising, and forestry. All these production systems are found all across the country with varying degrees of intensity. In the hills and mountains, rainfed agriculture and livestock raising predominate.

Agriculture is by far the largest sector of the Nepalese economy and contributes 40.5% to the total GDP (1995/96) (MOF 1998) and 81.2% to the employment of the ‘economically active’ population (CBS 1994). About twenty years ago, these proportions were 71.6% to the GDP (1974/75), 94.4% to employment (1971), and 82.5% to export earnings (1974/75).

In the early 1960s, the per hectare yields of Nepal’s major crops, such as paddy, wheat and sugar cane, were significantly higher than those of other South Asian countries. Presently, Nepal’s yield rates from these crops fall far short of those realised by other countries (APROSC and JMA 1995). In other words, with the successful

introduction of the green revolution technologies beginning in the late 1960s, Nepal's neighbouring countries have made long strides in raising their agricultural productivity while Nepal has largely been bypassed by these changes. Consequently, with the initial impetus provided by rapid agricultural growth, those countries have been able to sustain respectable overall economic growth.

In recent years (1984/85-1996/97), Nepal's GDP in real terms has grown at an annual rate of slightly above five per cent (Chapagain 1999). In contrast, agricultural GDP during the same period grew only by three per cent. These growth rates were still lower during the period from 1974/75-1983/84. These trends, when compared to the annual population growth of about 2.5%, present quite a disturbing picture.

The production of the two principal food crops (paddy and maize) over the period from 1974/75-1996/97 grew nationally by less than 0.5% per year, with negative to near zero growth in the mountains and hills. These alarming trends for paddy and maize were to some extent compensated for by the rather encouraging growths in wheat and potatoes (Chapagain 1999).

The rather insignificant three per cent growth in the country's predominant economic sector employing more than 80% of the economically active population and contributing more than two-fifths (42%) to the gross domestic product is quite inadequate to meet the country's growing food demands and to trigger a process of overall economic transformation.

It is also noteworthy that the proportion of the economically active population depending on agriculture has fallen by about 13% in the past two decades, from 94% in 1971 to 81% in 1991. On the other hand, the share of this sector in the GDP has dropped more sharply, from around 72% in 1974/75 to 41% in 1995/96. These disproportionate drops in the sector's share in the total employment and income indicate declining productivity within the sector.

Forests

Historically, the policy adopted by the rulers with respect to forestry, particularly in the Terai, was to export more timber to British India and to supply wood and wealth to the ruling families and their supporters. The Rana regime (1846-1951) distributed almost one third of the forests to various Rana families and others in the form of 'birta' and 'jagir' tenure[2].

[2] According to Regmi (1978), 'birta' was a grant of land given to a noble as a reward for service rendered to the state. This led to the emergence of birta land tenure. It was usually both tax free and inheritable, and had no set time limit. It was valid until it was recalled or confiscated. Jagir was also a grant of land given to government employees (civil or military) in lieu of salary. This led to the emergence of jagir land tenure. The jagir land grant was also tax free but remained valid only as long as the person concerned served the government. Rakam was a compulsory labour obligation which a farmer rendered to the government and later also to the birta owners on a regular and inheritable basis.

No specific policies were followed. In the case of the hills and mountains, forests did not offer similar economic attractions to those in the Terai. Throughout most of the hills and mountains, indigenous forest management systems prevailed.

In 1957, all privately owned forests under the 'birta'[3] and 'jagir' systems were nationalised through the Private Forest Nationalisation Act. This act was intended to revert much of the Terai forests to state control and in the process weaken the power of the landed gentry established before 1951: it is also blamed for the massive deforestation in the hills and mountains, as the owners swiftly converted the privately-owned forest patches into agricultural land.

The Sixth Plan (1981-85) introduced the principle of people's participation in the management, conservation, and use of forest resources (NPC 1985,1992). The Decentralisation Act of 1987 introduced the concept of 'user groups' for local control and administration of policies. The preparation of the Master Plan for the Forestry Sector Nepal (MPFS), which started in 1986 and finished in 1988 and was later revised in 1990, provided the policy context for community forestry, declaring that all accessible forests in the hills should be handed over to community control (HMG/N 1988). Unlike the past policies, which concentrated forestry activities in the Terai and urban areas, the new policy document emphasised the basic needs of forest users and production of forest products in the hills. In 1989, a proposal for forestry legislation reform in Nepal was prepared and this was enacted in 1993. The Forest Act 1993 recognises the Forest User Group as an independent and autonomous non-government institution. The subsequent Forest Regulations 1995 give clear guidelines about how to create and recognise user groups' rights and responsibilities to manage the forest and use forest products (HMG/N 1995).

The MPFS attracted considerable donor assistance in the sector. Despite this, over a 10-year period only 450,523 ha of national forest, which is only 8.1% of the total forest area, have been handed over to 6,730 Forest User Groups (Table 15.3). Similarly, 1,936 ha of national forest are placed under active management representing 0.3% of the potential state-managed forest. A negligible area (299 ha) has been handed over as leasehold forest (CPFD 1998). With this pace of progress, it will take about 20-30 years to hand over all the potential community forests in the country (Pokharel 1998).

Grazing

Grazing is the dominant land-use type (next to the 'other' category which includes rock and ice) of the High Himal physiographic region. A significant proportion (17%) of the High Mountains and some seven per cent of the Middle Mountains is occupied by grazing land. At the country level, 1,758,000 ha, or about 12% of the land area of Nepal, are used as grazing land. Purely grazing lands occur in quite insignificant proportions in the Terai and Siwalik regions.

[3] Birta is a land grant made by the state to individuals, usually on a tax free and inheritable basis.

Table 15.3: Forests handed over to CFUGs up to May 1996

Year	Number of Forests	Area (Ha)	Number of CF User Households
1987/88	3	79.80	398
1988/89	34	518.84	2,732
1989/90	29	1,916.48	5,356
1990/91	54	1,949.99	5,189
1991/92	354	1991.89	37,506
1992/93	634	3,592.14	73,303
1993/94	950	63,308.43	99,249
1994/95	1,390	98,530.91	141,159
1995/1996	325	26,983.28	39,255
Not mentioned	1,583	116,446.99	181,531
Total	**5,356**	**362,551.50**	**585,658**

Total Forest Area of Nepal: 5.5 million ha
Potential CF area: 3.355 million ha (61% of the total forest area)
Per cent of potential CF already handed over: 11 (362,551.5 ha)
Source: DOF 1997

Most of the grazing lands, particularly those in the Middle Mountains, are suffering from different degrees of degradation. Many studies report that, as a result of poor management and high livestock population pressure, the grazing lands are susceptible to degradation. Productivity of open grasslands and forests in the mid-hills is observed to be quite low, whereas the stocking rate is several times higher than the carrying capacity (Wyatt-Smith 1982). Livestock population per unit area in the hills and mountains of Nepal is reported to be the highest in the world, with 10 livestock per family in the mid-hills and 15 in the high hills (Chitrakar 1990).

15.2 Land Tenure

Historical background

Land and land-based resources have been the principal source of the economic surplus generated by the ruling classes. Concentration of land in the hands of a few elite and severe exploitation of the peasantry through the excessive expropriation of labour and land revenue have been the principal policies of the rulers through much of the nation's history (See Regmi 1971, 1978 for further details).

Following the overthrow of the Rana Regime in 1951, a number of interventions were initiated by the state to reform land tenure. Significant among them were:

- formation of the Land Reform Commission in 1953,
- promulgation of the thirteen-point programme in 1956,
- preparation of a Land and Cultivators' Records' Act 1954,
- the Lands' Act 1955,

- abolition of Birta Land Act 1957, and
- the Agriculture (New Provisions) Act 1960.

All of these measures were ineffective for the most part since the government was not serious about genuine reform. The overwhelming concern was to perpetuate the status quo that safeguarded the interests of the privileged classes.

The Lands' Act of 1964 was the most comprehensive of all the past measures.

- It fixed ceilings on landholdings of 25 'bigha' (16.93 ha) in the Terai and inner Terai, 80 'ropani' (4.07 ha) in the hills and mountains, and 50 'ropani' (2.54 ha) in the Kathmandu Valley.
- It protected the rights of the tenant.
- It fixed rents at 50% of the principal crop grown in a year.
- It abolished the 'birta' system.
- It introduced a compulsory savings' scheme to generate capital for investment in the rural areas.

The Act, initially implemented in 16 districts, covered the entire country by 1966. Landowners were informed well ahead of time when the Act would be effective. The prior information and phase-wise implementation of the Act allowed ample time for big landowners to redistribute surplus land above the ceiling among their near and distant relatives, or otherwise conceal their actual possessions. In retrospect, it could be said that the state allowed this in order to protect the interests of the landed gentry, while at the same time trying to project a populist image of a regime concerned about the welfare of the majority of poor landless households, small holders, and tenants who depended on big landowners.

The objective of redistributing land among the landless and smallholder peasant farmers appeared noble on the surface. Yet, because of the the above-mentioned reasons, the state was able to identify and redistribute only 1.5% (29,124 hectares) of the total agricultural land. This appears to be an insignificant achievement in view of the fact that about one-fourth of the farmers at that time were pure or mixed tenants.

Safeguarding the rights of the tenant was ensured through provisions for protection against eviction , entitlement to one-fourth of the rented land area or the equivalent value in money to the legally registered tenant and redressal of grievances in a court of law. Fixation of rent at 50% of the principal crop was also established for this very purpose. On the other hand, the Act created a situation of 'dual ownership' of land, in that both the land owner and the tenant could now lay claim to the same piece of land, albeit in different proportions.

One of the distinguishing characteristics of the Lands' Act 1964 was the compulsory savings' scheme. The scheme required all farmers to deposit a portion of their produce

in kind[4] as savings with the local ward committee. Later, they were allowed to deposit cash equivalents instead of in-kind payment. The resources thus generated were to be used for loans to the members participating to undertake various income-generating activities. The scheme was to mature in five years, after which the farmers were promised full return for their deposits along with an annual five per cent interest. However, massive irregularities and misappropriations soon began to emerge in the scheme. Thus, a scheme that could have gone a long way towards transforming the traditional rural economy of Nepal through internal resource mobilisation was abused, and it collapsed prematurely.

Current status of land tenure in Nepal

The currently prevailing tenure types are 'raikar' and 'guthi', and the government has begun to convert 'guthi' lands into 'raikar', except for certain types of 'guthi' such as 'raj guthi'.

Ownership and distribution

In Nepal, more than two-thirds of the total holdings have less than one hectare of land, and they account for only 30% of the total farm area. On the other hand, 1.5% of the holdings in the more than five -hectare holding class cover 14% of the total farm area (Table 15.4).

Table 15.4: Land distribution by farm size in Nepal, 1991

Size of Holdings	Holdings		Total Area	
	Number	%	Hectares	%
No Land	32,109	1.2	1,571	0.1
Holdings with Land	2,703,941	98.8	2,597,400	99.9
Below 1 Ha	1,877,702	68.6	791,883	30.5
1-2 Ha	529,467	19.4	716,533	27.6
2-3 Ha	168,449	6.2	400,227	15.4
3-5 Ha	88,165	3.2	328,089	12.6
5 Ha and Above	40,158	1.5	360,669	13.9

Source: CBS 1994.

A regional analysis of land distribution indicates that the proportion of landless holdings is higher in the Terai than in the hills and mountains. Three-fifths of the holdings in the hills and mountains own less than half of the total land, whereas 41% of the holdings in the Terai own a little more than half of the total land (Table 15.5).

[4] The amounts are 1.5 maunds (55.99 kg) per owner cultivator, 1 maund (37.32 kg) per land owner renting out land, and 0.5 of a maund (18.66 kg) per tenant in the case of the Terai; and 6 mana (1.83 kg of paddy and 2.55 kg of maize), 4 mana (1.22 kg of paddy and 1.70 kg of maize), and 2 mana (0.61 kg of paddy and 0.85 kg of maize), respectively, in the hills.

Table 15.5: Per cent distribution of farm holdings and area by ecological region, 1991

Size of Holdings	Ecological Regions					
	Mountains		Hills		Terai	
	Holdings	Area	Holdings	Area	Holdings	Area
Landless	0.30	-	0.2	0.04	0.9	-
Below 1 ha	7.80	3.5	37.8	17.00	23.0	10.0
1-2 ha	1.30	1.8	8.6	12.20	9.4	13.5
2-3 ha	0.20	0.6	1.9	4.80	4.0	10.0
3-5 ha	0.10	0.4	0.8	3.10	2.3	9.1
5 ha and above	0.05	0.5	0.3	3.10	1.2	10.3
TOTAL	9.75	6.8	49.6	40.24	40.8	52.9

Number of total holdings: 2,736,056
Total area of holdings (hectares): 2,598,971
Source: CBS 1994

Interventions to facilitate access to land are among the options available for addressing the equity issue. Indeed, land redistribution and regulation of tenancy contracts are favoured on both equity and efficiency grounds. Analysis of the 1991 Sample Census of Agriculture data reveals that cropping intensity, a proxy for agricultural productivity, decreases with increase in the size of holding per household (Chapagain 1999). Thus redistribution of land has the potential to increase output and equity, hence the case for more equal distribution of land.

Tenancy

Table 15.6 presents information about the land tenancy situation in Nepal. Details are provided for three holding categories: (a) holdings of cultivated, rented land only; (b) holdings engaged in more than one tenure arrangement (mixed tenure); and (c) rented area as a percentage of the total area of holding. About two per cent of the total farm holdings are those of pure tenants who do not have their own land. The proportion of such holdings varies across the ecological belts. It is 1.1 and 1.2%, respectively, in the mountains and hills, while 2.7% of the holdings in the Terai are of this type.

The bulk of the holdings operate under mixed tenurial arrangements supplementing their own holdings with land obtained through tenancy arrangements (Table 15.6). About 15% of the total holdings are of the mixed tenancy type. Again, the incidence is much higher in the Terai where almost one-fifth of the total landholders are mixed tenants. In terms of area, land under tenancy (both pure and mixed) constitutes about 10% of the total farmland in Nepal. Across the ecological belts, 13% of the land in the Terai and about 5% of land in the hills and mountains is under tenancy.

However, the actual incidence of tenancy is widely believed to be much higher when the presence of informal and non-registered tenants is considered. Because of the

Table 15.6: Structure of tenancy, 1991

Regions	Pure Tenants as % of Total Holdings	Mixed Tenants as % of Total Holdings	Area Rented as % of Total Land
Nepal	1.9	14.9	9.3
Mountains	1.1	12.0	5.8
Hills	1.2	11.8	4.6
Terai	2.7	18.8	12.9

Source: CBS 1994

slackness in implementation of existing legal provisions, landowners have managed to continue engaging tenants on an informal basis in order to maintain their full claim on the land owned by them. The situation is made more complex with the easy access to cultivators from across the country's southern border. Since land can not be legally owned nor rented by non-citizens, landowners, particularly in the Terai , find it more convenient to engage the easily available, Indian wage labourers and cultivators.

Fragmentation

Land fragmentation is considered to be one of the structural problems inhibiting agricultural modernisation. Because of the scattered nature of farm parcels and, in many instances, as a result of their economically non-viable size, farmers are hindered from adopting productivity enhancing technologies that are otherwise readily available for them. The case of shallow tubewells is one example. If a farmer has a piece of land just enough to irrigate with a shallow tubewell, he/she will consider installing such a tubewell. However, if that land is fragmented into four parcels and situated in four different places, the prospect will not be so attractive. This is exactly the situation at present. Land fragmentation has its roots in the traditional Hindu law of succession whereby all male offspring are entitled to parental property, including land.

Information on the extent of fragmentation by ecological region is presented in Table 15.7. It is interesting to note that the average number of parcels into which a hectare of land is divided is the highest in the mountains, followed by the hills. In the mountains, it is more than twice (6.8) and significantly higher (5.1) in the hills than in the Terai (3.1).

The combination of the existing legal provisions for inheritance and the present land ceilings imply increasing fragmentation and sub-division of landholdings as the society moves from one generation to the other.

Table 15.7: Land fragmentation, 1991

Regions	Average Parcels per Farm	Number of Parcels per Hectare
Nepal	3.96	4.2
Mountains	4.63	6.8
Hills	3.92	5.1
Terai	3.85	3.1

Sourcea: CBS 1994

In 1995, the government formed a 'High Level Land Reform Commission' in order to study thoroughly the land issues and suggest corrective measures to the government. However, no follow-up action was taken by successive governments.

Landlessness and forest encroachment

There is an ongoing argument between the Departments of Agriculture and Forestry regarding what constitutes forest and agricultural areas. Encroachment of forests for crop production was in fact encouraged in the past in order to raise land revenue. This encouraged hill dwellers for whom land is scarce to migrate to the Terai and settle there by clearing patches of forest land. Thus, the Terai forest acted as a new frontier for the hill people. However, this frontier closed some time around the 1970s, but the problem of the landless encroaching on the forest continues to this day, albeit on a reduced scale. The policy on illegal encroachment is not strong. Quite often, the squatters are moved and driven away by the government authorities. But at other times they are encouraged by the politicians in that particular area to break the law and stay in the forest area. They are also promised land-ownership rights. This has long lasting socioeconomic and political implications. Such illegal settlements encourage other local residents to occupy such land illegally and register it later. If these families are provided with some assistance from the government on humanitarian grounds, the neighbours become dissatisfied with the government, as they would also claim for all their unmet demands. There may be inter-ethnic/community conflict and clashes. Politicians were found to be motivated to lure such settlers and increase deforestation. This has been found to be the case, particularly during election periods. Needless to say, such practices have serious environmental consequences.

15.3 Poverty

Available estimates put poverty incidence anywhere between 42 and 70% (World Bank 1991). The incidence of poverty is most severe in the mountains, with 56% of this region's population categorised as poor and ultra poor (Table 15.8). The ultra poor comprise more than a quarter (26.7%) of this region's population, and this proportion is nearly twice as high as in the Terai. It is also noteworthy that the incidence of poverty is nearly twice as high in the rural areas as in the urban areas. In view of the fact that nearly 90% of the population is rural, the poverty scenario in the country is grim.

The deteriorating environmental situation in the country is often associated with the massive poverty. The poor are regarded as the main users of the country's

Table 15.8: Poverty incidence in Nepal

Geographic Regions	Poverty Incidence in Per Cent		
	Total	Poor	Ultra Poor
Himal	56.0	29.3	26.7
Hills	41.0	21.3	19.7
Terai	42.0	28.7	13.3
Urban areas	23.0	13.2	9.8
Rural areas	44.0	26.4	17.6
National average	42.0	24.9	17.1

Source: NPC 1998

depleting natural resources, mainly land and forests, beyond the regenerating capacity of these resources, thus contributing to their rapid depletion and deterioration. As more than 90% of the energy consumption is met by fuelwood, this is regarded as the principal cause of deforestation.

Current policies

The current Ninth (five-year) Plan (NPC 1998) focuses on poverty alleviation as its principal goal. The plan proposes the following strategy for poverty alleviation: (i) realisation of a high growth rate in the economy and orientation of all sectoral programmes towards achieving the poverty alleviation objective, with agriculture playing the lead role; (ii) provision of essential social services such as primary health care, education, and drinking water for the deprived, remotely located, and weaker sections of the population; (iii) special focus on equitable distribution of the fruits of development; (iv) of the two categories of the poor, the 'poor' will be benefited through their integration in the open market system by raising their employment opportunities and incomes, while the 'ultra poor' will be assisted by local-level banking services, emphasising the deprived sections and poor women; (v) programmes to directly benefit the rural poor will be comprised of agriculture, agro-industries, agricultural marketing, rural tourism, and development of rural infrastructure; and (vi) expansion of employment and income opportunities through extended provision of skill training and micro-credit.

The Plan proposes to launch targeted programmes for the following target groups: inaccessible remote areas that have no road access; neglected ethnic communities and deprived people; other sections of the population that are socially and otherwise vulnerable; landless rural families; small landholders; special target groups such as the 'kamaiyas'; and the poor and unemployed people in urban areas.

Poverty and the environment

Nepal's environmental problems basically originate from stagnant agriculture over a protracted period of about three decades, accompanied by a high population growth rate. The recently prepared Agricultural Perspective Plan (APP) (APROSC and JMA 1995) shows that, in recent years, the country's agriculture has been growing at around 3%, while the population has grown by 2.5%. This rather insignificant growth in the country's predominant economic sector is quite inadequate to absorb the nearly 250,000 new entrants to the labour force each year and to meet the country's growing food demands.

The failure to achieve a reasonable and sustained growth rate in the agricultural sector has meant that farmers and landless labourers in the rural areas have to continuously expand cultivation on to the economically less productive and environmentally fragile lands that otherwise would remain under some kind of permanent vegetation. It has also meant that farm sizes have continuously been fragmented, and there is less food available per household and this has adversely affected their food security.

Expansion of cultivation on to ecologically sensitive uplands has led to accelerated erosion of productive soils, undermining the productivity of farm land, and increased sedimentation in downstream areas.

In view of the fact that around 90% of the population reside in the rural areas where the primary occupation is agriculture and related activites and ,since practically no growth is occurring in those areas, it is not surprising that the problem of growing poverty and worsening environmental health have become mutually reinforcing.

In the absence of broad-based rural economic transformation, a few urban enclaves provide the only alternative economic opportunities outside the rural areas. Such opportunities are extremely limited to some industrial establishments and the service sector. Such a one-way pull of the urban centres grossly exacerbates the already overstretched capacity of the cities to provide the basic physical facilities (space, dwellings, drinking water, sewarage, power, communication, and other basic utilities). What is more, increased scarcity of such facilities and amenities raises their prices, and this hurts the poor and low income groups the most.

Food production and the environment

As stated earlier, the major environmental concerns in the context of Nepal arise from the increasing pressure exerted on the country's natural resource base as a consequence of the largely subsistence-based agriculture and the growing need for cereals. Food production is the largest user of renewable natural resources in South Asia today (Gill 1995), and it is definitely so in the case of Nepal. Land, forests, pasture, fresh water, and genetic materials prevalent among these resources constitute the principal means of producing ,in the traditional mode, food and other basic minimum requirements to ensure human survival. It is these resources that constitute the most prominent components of the environment.

Past policies and their impacts

Nepal's agricultural development strategy has historically emphasised the promotion of the so-called improved farming practices, dominated by the promotion of high-yielding varieties of crops, cross-bred livestock, chemical fertiliser, and irrigation. The seed-fertiliser technology suitable for irrigated flat lands has also been pushed to the hills and mountains where the fragile ecological conditions and resource endowments are quite different. Crop-dominated farming systems have not proven effective in these areas in terms of both increased food production and soil fertility maintenance. Crop yields have declined consistently over time, threatening the food security of small landholders and marginalised farmers particularly. These trends have a direct relationship to the deteriorating fertility of soil (Shrestha and Katwal 1992, EPC 1993). Intensive cultivation and insufficient application of nutrients to the soil have led to situations in which farmers are forced to completely abandon their land because of the extremely low yields.

On the other hand, work carried out at the British-supported Lumle Agricultural Centre (LAC) in the western hills demonstrates that significant progress was possible with respect to vegetable seed production, rice production, and cattle and buffalo rearing on a sustainable basis when the research and extension system properly integrated five key elements, namely, a strong institutional foundation, a comprehensive understanding of farmers' conditions, the participation of farmers in all stages of research and dissemination, the interdisciplinary interaction of all sections of LAC, and the synergistic effect of having research, extension, and training in one organisation (Pound et al. 1992). Similar experiences are reported from the Pakhribas Agricultural Centre in the Eastern Hills (Chand and Thapa 1992).

All periodic plans, strategic documents, and action plans invariably emphasised the need for giving high priority to soil fertility maintenance, particularly in the hills and mountains. However, the continuously declining crop yields and ever-worsening process of land degradation indicate that these policies have failed.

Major indicators of unsustainability and declining trends in Nepal's hill and mountain agriculture are summarised in Table 15.9.

Partap and Watson (1994) elaborate upon the important contributing factors and issues among the range of causes and symptoms of decline. The two critical problems commonly faced by the mountain farmers, in general, and Nepalese farmers in particular are degradation of land and the extent of land degradation. The area of degraded lands in Nepal is estimated to be 1.8 million hectares. Similarly, estimates of the magnitude of soil erosion from the hill and mountain areas of Nepal are compiled from various sources and presented in Table 15.10.

A study conducted by Banskota (in Jodha et al. 1992), cited in Partap and Watson (1994) indicates that the total amount of nitrogen lost from level terraces (365,000ha) and sloping farmlands (816,00ha) is about 27,000 metric tonnes, whereas the total amount of nitrogen fertiliser used in 1987/88 was only 24,320 metric tonnes. The total loss of combined nutrients exceeded the level of inputs used in 1987/88.

The value of nutrient loss has been estimated at over six million rupees for paddy and over 54 million rupees for maize at 1987/88 market prices. The implications in terms of equivalent cereal losses are even more significant. Overall the losses were equivalent to about 75,000 tonnes of paddy and 747,000 tonnes of maize. These big losses indicate the difficulties experienced in sustaining food production when soil fertility is deteriorating rapidly.

Declining crop yields

Farmland productivity in upland areas measured in crop yields has either remained steady or declined (Partap and Watson 1994). For instance, average crop yields declined in the range of from 5 to 30% during the past few decades in a number of mountain watersheds in Nepal, along with the Indian Himalayas, and the Tibetan Autonomous Region of China.

Table 15.9: Indicators of unsustainbility/decline in hill and mountain agriculture (Time frame: approximately four decades spanning the period from 1954-91)

Indicators		Rates of Change		Indicators	Rates of Change
S.N.	I. RESOURCE BASE		S.N.	II. PRODUCTIVE FLOW	
1.	Landslides	100-300%	18.	Fall in average crop yields on sloping lands: (a) maize and wheat, (b) millet	(a) 9-15% (b) 10-72%
2.	Gully formation on sloping lands	High-Medium	19.	New land under cultivation	5-15%
3.	Soil erosion rates on sloping lands	20-30%	20.	Human population	60-65%
4.	Abandonment of agricultural land due to decline in fertility	3-11%	21.	Decline in the application of compost (organic manure)	25-35%
5.	Appearance of stones/rocks on cultivated land	130-200%	22.	Additional labour demands due to falling land productivity	35-40%
6.	Decline in the size of livestock holding per family (LSU)	20-55%	23.	Forestry-farming linkages	Weak
7,	Decline in the area of farmland per household	30-10%	24.	Purchase of cereals from shops	3-50%
8.	Decline in forest area	15-85%	25.	Need for external inputs for crop production	High-Medium
9.	Decline in pasture/grazing area	25-90%	26.	Fuelwood and fodder scarcity in terms of time spent in collection	45-200%
10.	Decline in good vegetative cover on common property lands	25-30%	27.	Fodder supply: (a)decline from common land, (b) increase from private land	(a) 60-85% (b) 130-150%
11.	Fragmentation of household farmland (in number of parcels)	20-30%		III. RESOURCE MANAGEMENT	
12.	Decline in the size of land parcels of families	20-30%	28.	Emphasis on monocropping	High
13.	Distance between farmland parcel and home	25-60%	29.	Cultivation expansion on steep slopes (above 30%)	10-15%
14.	Decline in cereal production and self-sufficiency	30-60%	30.	Use of weeds and herbaceous crop products as fuelwood	200-230%
15.	Permanent out-migration of families	None-5%	31.	Conversion of marginal lands into cultivation	15-40%
16.	Seasonal migration	High	32.	Decline in fallow periods	From 6 to 3 months
17.	Conversion of irrigated land into dry farming because of water scarcity	7-15%			

Source: Shrestha 1992, cited in Partap and Watson 1994

Table 15.10: Soil erosion from different land use types

Types of Land Use	Soil Erosion (MT/ha/Yr)
Grazing lands (support lands)	100
Rainfed terraces (sloping terraces)	5
Irrigated terraces (level terraces)	0
Sloping farmlands under farmers' practice	38

Source: Partap and Watson 1994

Increasing food insecurity

An ICIMOD study in the mid-hills of Nepal (Panday 1992) highlights the increasing food insecurity among mountain farmers in resource poor areas. The study revealed that 86% of the households in Bhardeo village were experiencing food deficits to varying degrees. Among them, over 50% suffered food deficits for at least six months each year. It concluded that the production of adequate amounts of food from small landholdings, with ever–declining farm productivity, is almost impossible. Bhardeo depicts the worsening trend of food insecurity in poor, heavily populated mountain areas where resources are scarce (Partap and Watson 1994).

In addition, worsening trends of soil acidification, siltation, flooding, and landslides have been reported (NPC 1992).

15.4 Conclusions and Main Issues

Ownership and access to land and land-based resources are still principal determinants of the survival and economic status of the vast majority of the people of Nepal. Their livelihood is inextricably linked to whether they own land, how much of it, and of what quality. Given the mostly subsistence-based production system and skewed land distribution, the imperative is that access to this basic resource be made more equitable.

Mere access to land would not, of course, ensure that land productivity would increase and poverty be reduced. As stipulated in the Agricultural Perspective Plan, dynamic, commercially-oriented agriculture has the potential to increase farm incomes significantly and reduce poverty, while at the same time contributing positively to sustainable natural resource management. This is possible in three ways. First, a productive and competitive agriculture implies intensification of cropping systems and input use in order to make best and most economical use of the existing resource endowments at the household and community levels. Such attempts would make it less attractive economically for the farmers to continue cultivating unproductive marginal lands. In fact, experience from successful areas in Punjab, Haryana, and Himachal Pradesh in India have shown that, in the process of modernising their agriculture, farmers have not only intensified their farming practices, they have confined their farming operations to the most productive lands also; invariably such

lands are the relatively more fertile fields in the lowlands, plains, alluvial fans, and valley bottoms that are less vulnerable to nutrient loss through erosion and loss of topsoil. Farmer have actually withdrawn from cultivation of lands more prone to environmental hazards such as marginal hill slopes. Once farmers start applying expensive purchased inputs to their fields, the returns expected from poor quality lands become unattractive.

Agriculture that is commercially viable and has a high growth rate would be able to generate enough employment and income opportunities within the sector itself to absorb the growing number of hitherto unemployed or underemployed in the rural labour force. More intensive; in terms of both cropping intensity and application of purchased inputs, farming operations will require not only increased supplies of better quality inputs and ancillary services, such as extension and equipment repair, it will also need more labour.

A vibrant and growing agriculture would means rising rural household incomes which could be spent on goods and services provided from outside the agricultural sector. There would be more demand for manufactured products and processed agricultural goods, triggering and augmenting a multiplier effect in the rest of the economy. The APP states that, when agriculture grows at a respectable rate, the value of such a multiplier has been empirically established to be 1.5. This means that, with every percentage of growth in agriculture, the non-agricultural sector should grow at a rate of 1.5%. Hence, the strong case for agriculture to play the lead role in the overall transformation of the economy.

Government policy with regard to land reform has been lukewarm, if not outright inimical. For instance, the Eighth Plan (1992-97) argued that a land reform programme could not be self-contained in itself, and that experience across the globe made it doubtful whether imposition of a land ceiling through land reform and the automatic guarantee of tenancy rights to the tillers would support the deprived sections (NPC 1992, p. 255). The current Ninth Plan (1997-2002) essentially reiterates this view (NPC 1998, Chapter 9, Section 9.2.2), while emphasising the elimination of dual ownership of land. All periodic plans since the Seventh Plan (1985-90) have emphasised increased production and productivity through discouraging the tendency towards absentee landholding and diverting investment to the non-agricultural sectors.

It has been demonstrated by the experiences of other countries that land reform, with the objective of providing access to land, the most important productive resource, for the majority of poor households (landless, near landless, and smallholders), and improvement in tenure relationships can act as engines of growth in the initial stages of economic transformation. Because of the predominant feudal influence on governance, Nepal has been unable to introduce genuine steps in this direction for a long time, even after it did away with the autocratic regime of the Ranas in 1951, and until now, after nearly a decade of multi-party democracy. True, measures started by the Lands' Act of 1964 bore promise of genuine reform, but those promises were

thwarted almost immediately by the ruling elite. It is ironical that democratic governments that came to power after the people's movement of 1990 have also tended to embrace the status quo and avoid any serious action on this front.

The Constitution of the Kingdom of Nepal 1990 clearly enshrines the philosophy of a welfare state and seeks to "transform the national economy into an independent and self-reliant system by preventing the available resources and means of the country from being concentrated within a limited section of society"; and it advocates equitable distribution of economic gains on the basis of social justice (Part 4, Clause 25). It specifically prescribes land reform. All major political parties have also supported land reform measures in their respective manifestos. Yet, ironically, these considerations have not been reflected in the two periodic development plans since the political change of 1990, nor have the successive governments taken this issue seriously. On the other hand, it can be concluded that favourable conditions exist to carry out carefully designed land reforms in the country with the objective of realising widespread and equitable economic growth.

Indications are that redistribution of land could help increase agricultural productivity, although this issue needs to be investigated more thoroughly (Zaman 1972 and 1973, Blaikie and Sadeque 1999). We know that smaller farms are more productive in terms of cropping intensity, but they are not necessarily so in terms of yields. The latter situation could be because of the lack of access of smaller farms to inputs and technology that help raise productivity. This is an empirical issue that needs to be evaluated. We know that smaller farms are endowed with poorer quality land than biggest ones, and lack of capital and credit that because of they cannot purchase inputs to increase their yields.

Issues of tenure are very important, and these need to be analysed and implications of various options clearly understood. The tendency thus far has been to avoid these issues altogether. This has only contributed to perpetuating the uncertainty, discouraging investment in land, and hampering adoption of wide-scale measures to raise productivity. Donors can play a role here by promoting analytical work and healthy debate. The main issues related to land ownership and tenancy are ceilings on landholdings, dual ownership of land, fragmentation of holdings, and landlessness among rural households.

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Annex Table 15.1: Main characteristics of the physiographic regions of Nepal

	Physiographic Regions				
Features	Terai	Siwaliks	Middle Mountain	High Mountain	High Himal
Geology	Quaternary	Tertiary sandstone, siltstone, shale and conglomerates	Phyllite, quartzite limestone and islands of granites	Gneiss, quartzite and mica schists	Gneiss, schist, limestone and Tethys sediments
Elevation	60-330 m	200 - 1,000 m	800-2,400 m. Relief 1,500 m with isolated peaks to 2,700 m	1,000-4,000 m. High relief 3,000 m from valley floor to ridges	2,000 to 5,000 m
Climate	Tropical	Tropical, subtropical	Subtropical, warm temperate (but tropical in lower river valleys; cool temperate on high ridges)	Warm to cool temperate, alpine	Alpine to Arctic (snow 6-12 months)
Moisture regime	Sub-humid in FW+MWDR: humid in W+C and EDR	Sub-humid in most of the area: humid in N-aspect of W+C+EDR and Dun Valleys	Humid: per humid above 2000 m	Sub-humid to per humid	Semi arid behind Himal
Rainfall intensity	High	High	Medium	Low	Low
Vegetation	Sal + mixed hardwoods	Sal + mixed hard woods + pine forest	Pine forest + mixed hardwood and oak forest	Fir, pine, birch and rhododendron	Open meadows + tundra vegetation
Soils	Ustochrepts, Haplustolls, Hapiaquepts, Haplustalfs, Ustifluvents and Ustorthents	Ustochrepts, Haplustolls, Rbodustalfs, Ustothents, Dystrochrepts, Haplaquepts and Ustifluvents	Ustochrepts, Haplustalf, Rbodustalfs, Haplumbrepts, Ustorthents and Ustifluvents	Eutrochrepts, Dystrochrepts, Cryumbrepts, Cryorthents and Ustorthents	Cryumbrepts, Cryorthents and Rock
Crops	Rice, maize, wheat, mustard, sugar cane	Rice, maize, wheat, millet, radish, potato, ginger	Rice, maize, wheat, millet barley, pulses, sugar cane, radish, potato, ginger, cardamom	Oat, barley, wheat, potato, buckwheat, yams, amaranths, medicinal herbs	Grazing (June-September)

Annex Table 15.1 Cont.....

Horticul-ture	Mango, litchi, pineapple, jackfruit, potato, tomato	Mango, papaya, banana, potato	Mango, papaya, banana, orange, lime, lemon, peach, plum, potato, cauliflower	Chestnut, walnut, apple, peach, plum, apricot, potato	Apple, walnut, vegetable seed, potato
People	Tharu, Brahmin	Tharu (Dun Valley), presently all hill tribes displaced/ immigrated from the Middle Mountains	Gurung, Magar, Tamang, Newar, Brahmin, Chhetri, Damai, Sarki, Sunar, Kumal, Rai, Limbu	Khas Chhetri, Tibetan related groups Thakali, Bhotiya, Sherpa, Tamang, Ghale	Temporary herders, Sherpa and Bhotiya
Industry	Match factory, jute factory, cigarettes factory, sugar factory, *katha(?Author givemeaning)* factory, saw-mills, rice and flour mills, soaps, condiment and food processing furniture, industrial estates	Sawmills, rice, flour and oil mills. Industrial estates, cotton factory, cement factory, wildlife camps	Rice, flour and oil mills, cement factory, industrial estates. Cottage industry handicraft, curios, hosiery, metallurgy, furniture, plastics, hotels and lodges.	Cottage industry, carpets, blankets, hand woven cloth, trekking	Mountaineer-ing and trekking
Transport	Good road linkages	Good road linkages within dun valleys	Road linkages around major centres	Very few road linkages	No road Linkages

Source: Sharma 1995

Annex Table 15.2: Main characteristics of land systems and land units

Physiographic Regions	Land Systems	Land Form		Land Unit
Terai	1	Active alluvial plain (depositional)	1a. 1b. 1c. 1d.	Present river channel Sand and gravel bars Low terrace Higher terrace
	2	Recent alluvial plain 'lower piedmont' (depositional and erosional)	2a. 2b. 2c. 2d.	Depressional Intermediate position, level Intermediate position, undulating High position
	3	Alluvial fan, apron complex 'upper piedmont' (erosional)	3a. 3b. 3c. 3d.	Very gentle slopes Gentle slopes Undulating Highly dissected
Siwaliks	4	Active and recent alluvial plains	4a. 4b. 4c.	Sand and gravel bars Low terrace Higher terrace, undulating
	5	Fans, aprons, and ancient river terraces	5a. 5b. 5c. 5d.	Very gentle slopes Gentle slopes Undulating topography Rolling topography
	6	Depositional basins (Duns)	6a. 6b. 6c. 6d.	Depressional Non-dissected high position Gently rolling topography Highly dissected
	7	Moderately to steeply sloping hilly and mountainous terrain	7	-
	8	Steeply to very steeply sloping hilly and mountainous terrain	8	-
Middle Mountains	9	Alluvial plains and fans (depositional)	9a. 9b. 9c.	River channel Alluvial plains Alluvial fans
	10	Ancient lakes and river terraces (*tars*) (erosional)	10a. 10b.	Non-dissected Dissected
	11	Moderately to steeply sloping mountainous terrain	11.	-
	12	Steeply to very steeply sloping mountainous terrain	12.	-
High Mountains	13	Alluvial plains and fans	13a. 13b. 13c. 13d.	Active alluvial plain Recent alluvial plain Fans Ancient alluvial terraces

Annex Table 15.2 Cont.....

	14	Past glaciated mountainous terrain below upper altitudinal limit of arable agriculture	14a. 14b.	Moderate to steep slopes Steep to very steep slopes
	15	Past glaciated mountainous terrain above upper altitudinal limit of arable agriculture	15a. 15b.	Moderate to steep slopes-steep to very steep slopes
High Himal	16	Alluvial, colluvial and morainal depositional surfaces	16a. 16b. 16c. 16d.	Glacio-alluvial plains Morainal deposits Alluvial colluvial fans Colluvial slopes (talus)
	17	Steeply to very steeply sloping mountainous terrain	17a. 1 7b.	Shallow till or colluvium over bedrock Rock headwalls

Source: Sharma 1995

Chapter 16
Changing Land Relations and Poverty in the Eastern Himalayas

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16.1 Introduction

North-East India consists of seven states: Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura with an area of about 255 thousand sq.km and a population of 31.4 million (1991) accounting for eight per cent of the area and four per cent of the population of the country. It has a long international border, bound by Tibet (China) to the north, Myanmar to the east, Bangladesh to the South, and Bhutan to the west. It is connected to the rest of the country by a narrow corridor about 30 km in width in north Bengal.

About 78% of the land area is hilly and mountainous and forms part of the South Asian rim, the land with the most dense precipitation and dense forests. Forests cover about 81% and the net cultivated area only 6.7% of the geographical area (Maithani 1998). The mountain region of north-east India (Eastern Himalayas) is characterised by special features that distinguish it from the rest of the Himalayas. The traditional land management system has provided sustenance and stability to the indigenous people for over the millennia.

The region is a rich source of biodiversity, ethnic variety, indigenous knowledge, and traditional institutions. It is home to over 200 tribal communities which, until recently, lived in isolated villages subsisting on shifting cultivation supplemented by

hunting, fishing, and food gathering. These villages existed as autonomous republics enjoying more or less sovereign powers over their territory.Within the village, the resources were owned collectively for the most part. All members of the group exercised their right to practise shifting cultivation (jhum) on the village land and engage in fishing, hunting, and other activities to earn their livelihoods within the boundaries of the village. These rights were socially sanctioned and behind them lay the force of custom (Mishra 1986). There were naturally no landlords and no landless labourers. The area needed for shifting cultivation was extensive and the shifting cultivation cycle lasted for 15-20 years and longer. Heterogeneity of ethnic stock, social organisation, languages, religions, and economic pursuits gave rise to a mosaic of lifestyles as a striking feature of this region.

Land system

A natural corollary of the shifting cultivation regime has been community or clan ownership of land and forests. A variety of land management traditions exists, but the common feature that permeates all the groups in the whole region is that the land is tenure free. The unique feature of the land system is the absence of any legal instrument defining the ownership or rights to land. The land rights are guided by norms based on the customary laws which obviously vary from tribe to tribe according to their traditions and customs. In the absence of the codification of customary rights and laws, the prevailing land-tenure arrangements are very complex and at times unclear.

There are broadly two types of arrangement . In some tribes the land is collectively owned by the village community and plots are distributed among the households for cultivation by the Chiefs or the Village Councils. In this system, usually a new block of forest land is cleared by people collectively and then plots are distributed among different families and clan groups for private cultivation. In some tribes, particularly among the Mizo, the Village Councils allocate the plots by drawing lots to avoid subjectivity in distribution (Mahajan 1991). After some time, when the same block is selected for cultivation again, it is not guranteed that a family will get back the same piece of land it had cultivated in the previous cycle. This system of land management does not permit private rights or permanent ownership and possession of individual pieces of agricultural land by the members.

The other category consists of groups and the village territory is permanently divided among clans or further among lineages, leaving aside some land as common village property. In such cases, clans or families confine their shifting cultivation to within their own portions of the village territory. In both cases, if a member leaves the village he/she will lose the right to the piece of land cultivated in that village.

There is no written land law, apart from the Shifting Cultivation Regulations enacted by different tribal councils after India became independent in 1947. These regulations recognised the village as the administrative entity and the village community as the owner of village land. Prior to independence, access to land and land-based resources

in these hills was guided by the Chin Hill Regulations of 1896. These Regulations also recognised the rights of the village community as well as those of individuals over their respective territories (Roy Burman 1989). This system guaranteed access to land to all residents for the purpose of earning a living and protected the tribal hill communities against any kind of land alienation. In appreciation of this healthy tradition, the tribal communities of the eastern Himalayas have been provided with statutory safeguards under the Sixth Schedule of the Indian Constitution to protect their rights to land and to preserve their cultural and customary practices of self management. The main characteristic features of the prevailing land system in the eastern Himalayas are as follow.

1. The rights to ownership of land rest with the people and villages. The state does not exercise sovereign rights over the land. Accordingly, land revenue is not collected.
2. Survey and settlement operations have not been carried out except in small areas in and around some towns. The British, in keeping with their policy of least interference, did not survey the land. After Independence also, because of a variety of reasons but mainly because of the reluctance of the people and indifference of the governments of the north-eastern hill states, survey and settlement could not be carried out.
3. The operation of the Bengal Eastern Frontier Regulations 1874, popularly known as the Inner Line Regulations, and Sixth Schedule to the Constitution of India restrict the acquisition of any interests in land and its produce by any person not native to the areas.

16.2 Evolution of the System

Nearly every village was originally settled by the members of one clan who cleared the forests and endured all the hardships of pioneers. Customarily, such pioneers are treated as ultimate owners of the village land, the title of which is passed to their descendents. All subsequent settlers, especially those belonging to other clans are tenants of some type, although in practice they are treated and act as full and equal members of the village community. When a member of another clan is granted permission by the chief or the village council to settle in a village, that piece of land continues to be the property of the village and the family enjoys only the usufruct rights (Elwin 1964). In the case of members of the founder clans(s), a sort of ownership right on the piece of land so allotted is claimed by the settlers who enjoy heritable and transferable rights to the land, although transfer of land is subject to strict community control.

This way, each family acquires users' rights over the plot(s) of land it clears for cultivation. In course of time, each family may possess a number of such plots in different parts of the village within which they rotate while practising shifting cultivation. The custom allows individual families to develop their plots into permanent holdings by making terraces and raising fences or plantations. Nothing is

to be paid by the families for converting their jhum plots into permanent holdings. The investment made by the family, mainly in the form of labour, is treated as the rent or price paid by the family for using the land as one's private property. Therefore, in actual practice, the ownership of land can be placed into three categories, viz., (i) common village land, (ii) land owned by the clans, and (iii) land owned by individual families (Elwin 1964).

It is interesting to note that, although the land is communally owned, the individual households are not prevented from taking up permanent cultivation of the land allotted for shifting cultivation. Very often clan and lineage holdings are confused with private ownership of land. The clan and lineage lands are held almost permanently by individual families who enjoy heritable and transferable rights subject to the usual restrictions common to all tribal communities that land cannot be transferred to a person who does not belong to the tribe and to the village (Das 1989).

In determining the obligations of persons, it is pertinent to examine the issue of property. Property rights are defined in the dictionary as the right to possess, enjoy, and dispose of a thing. It is the act of 'appropriating' or 'making proper to oneself' some part of the resources of the universe. In the context of the eastern Himalayan region, the landed property of the members of a clan or tribe had a dual meaning. While devolution of property was from the community to the individual, the devolution was subject to the control of the community. It could then be said that it belonged simultaneously to the community and the individual, either alone or in a family group (Hidayatullah 1983). In fact the land is often regarded as being owned by the clan, but a family could, by clearing a portion of land, create a kind of secondary or subordinate ownership. When such families became extinct, the land reverted to the clan (Hidyatullah 1983).

16.3 Individualisation of Common Property

As stated in the previous section, custom allows individual families to convert their shifting cultivation jhum plots to permanently held property by developing the land into terraced fields or orchards and/or by raising crops on the land continuously for more than three years. This was not necessary when the population was low and land was abundant. But with the increase in population, an awareness of the ownership of land developed because of the scarcity of well-situated lands for cultivation. The last one hundred years have been marked by rapid changes in the otherwise stable community resource management system that had lasted over the centuries. With the decline of traditional institutions caused by the impact of outside exposure and extension of modern state machinery to the hill areas, the tendency to acquire and accumulate private property increased, taking advantage of the loopholes in the custom.

The extension of regular administration in the late nineteenth century, followed by extension of roads, communication, and education facilities,especially after

Independence, led to the opening up of mountain areas to outside influences, bringing about certain changes in the techno-institutional milieu associated with shifting cultivation (Maithani 1998). Improvements in living conditions, decline in the death rate, and increase in life expectancy together contributed to the a population explosion; a process that continues in the eastern Himalayas. The population of the region increased from less than a million during British occupation in 1926 to over 31 million in 1991.

The beginning of private land acquisition actually started with the annexation of the hills by the British in the 19th century. Although the British overtly adopted the policy of least interference in the traditional practices of the hill tribes, several measures they introduced in relation to the land were actually aimed at decreasing communal control and consolidating colonial authority over the hill tribes. The system of chieftainship, for example, was tampered with by conferring upon the chiefs private ownership rights over land under their jurisdiction. Traditionally, a chief functioned as a guardian and custodian of tribal land and forests and not as the landlord. The chiefs did enjoy certain privileges such as free labour and grain dues, but they were never recognised as the owners of village land (Roy Burman 1989). Land remained the common property of the village or the clans. The real motive of the colonial government was political (Mishra 1986). The result was the imposition of land rent and privatisation of the village commons by the chiefs whenever and wherever the opportunity arose. This process transformed the democratic chiefs into hereditary ones in some communities, resulting in concentration of land in a few hands at the cost of the means of survival of a large number of shifting cultivators.

Initially, limited participation of the hill tribals in commercial activities like plantation restricted their fusion with the main current of capitalist development. Growth of trade and increasing differentiation among peasant farmers, which were the crucial factors in such a transition, did not emerge to a significant degree because the strong ties of kinship and communal ownership of land did not permit their property instincts to gain the upper hand over their collective instincts (Karna 1989). But, in course of time, several factors combined to break the traditions and foster a growing disregard for time-tested customary laws, giving way to the introduction of commodity relations in the village community.

Increasing exposure to the outside world, together with the implementation of several policies and programmes for tribal development, led to destabilisation of the traditional resource management system. The main development effort in the post-independence period was focused on control of shifting cultivation in the region. The thrust of the policy of control over shifting cultivation was to induce hill tribals to change over to settled agriculture, horticulture, and plantations, with far-reaching consequences for property-land relationships. Wide-ranging incentives, including a 100% subsidy, were granted to convert jhum (shifting cultivation) fields into terraces. The response to this programme from the elite was quite impressive, resulting in the transfer of jhum fields into the private property of individual families (Mishra 1986).

Consequently, the land available for shifting cultivation, real common village land, decreased substantially, while the number of families engaged in shifting cultivation increased considerably. This naturally led to shortening of the jhum cycle, decline in productivity, and degradation of land.

16.4 Increasing Inequality and Poverty

Studies on changing property relationships in land ownership on account of a change in land use and cultivation technology have proved conclusively that emergence of mechanisms for the de facto privatisation of land have tended to create inequality in the context of landholdings (Datta 1988; Saikia 1989; Talukdhar 1995). The new institution of property has given rise to a thriving land market in many parts of the region where the secondary and tertiary sectors have expanded rapidly during the last decade. The high incomes of well-connected and highly placed persons enabled them to amass savings and invest them in purchase of land, thus accentuating inequality (Mahajan 1987; Datta 1989; Roy and Kuri 1997).

In the state of Arunachal Pradesh, for example, the area available for shifting cultivation declined from 461,000 ha in 1970-71 to 241,100 ha in 1990-91, halving in just 20 years. At the same time, holdings under permanent agriculture, which constituted only 25.2% of the net area sown or 34108 ha in 1980-81, rose to 92,616 ha or 55.9% of the net sown area by 1990-91. On the other hand, the net sown area under shifting cultivation declined from 101,330 ha in 1980-81 to 73,000 ha or 44.1% in 1990-91 (Das 1989; Govt. of Arunachal Pradesh 1991). Similar changes have been observed in other states, especially in Meghalaya, Mizoram, and Nagaland. Most tribes have developed arrangements to provide permanent and heritable entitlements in the use of specific areas of land for terraced cultivation and perennial cropping. In some cases, this is formalised through the issue of a 'patta' (title) by the chief or village council. As a result, the attainment of considerable private rights over the common land has become an established practice. However, these transfers are mainly without any legal basis and depend on community recognition in a customary framework. Tenancy arrangements are also becoming more common, although at present they are confined to certain areas in Assam, Meghalaya, Nagaland, Manipur, and Mizoram. In the case of Meghalaya, a study of the South Khasi hills observed that, in instances in which the people of the area earlier had land of their own, during the last decade or so nearly 90% of the farmers had lost their land. In Kokorgorah village, out of 48 families only eight were left with land while others had become share croppers and/or agricultural labourers. In Bordhup village all 35 farmers lost their land and became share croppers. It was the same story in six other villages (Dutta 1976). Another study of a hill district in Assam found that, in several villages, non-tribal immigrants had acquired complete control over the tribal land. Although technically land belongs to the tribals, the system locally known as 'Paikas' through which tribals give their land on hire, usually to non-tribals for payment in cash or kind, is key to this process. Once tribal people enter this trap, they hardly ever come out of it (Bordoloi 1986).

The emergence of private rights over land is creating a situation in which the better educated and articulate members of the community are able to manipulate customary arrangements to their benefit to take land into private ownership, and this has contributed to the concentration of land in the hands of an affluent few, disturbing the former egalitarian character of tribal society. Consequently, there is a real possibility of certain members of the communities obtaining rights to unduly large amounts of land. Tenancy, in particular, represents a pernicious trend that has allowed non-tribal cultivators access to tribal hill lands; an access otherwise forbidden by law (Das 1989).

It is now clear that the agrarian economy of the mountain tribes of north-east India has to a great extent come under the influence of the market mechanism. The group of tribal landlords and businessmen emerging in the wake of market linkages is either investing in ostentatious consumption or in the real estate and construction industry. Given this market exigency, it is no surprise that the voluntary shift from shifting to settled cultivation has acquired momentum of late, despite the difficulties encountered by government agencies in motivating the people to give up shifting cultivation until a few years' back (Maithani 1998). Besides the rush to use valley bottoms for wet rice cultivation, the cultivation of hill slopes with cash crops is becoming popular among the hill tribes. Because of its commercial value, this transformation has also brought tribal land into the market place (Karna 1989).

In the Khasi hills, the transition from community land ('re-raid') to private land ('re-kynti') has exhibited numerous distortions in customary practices. The chiefs and headmen, who were formerly the patrons and custodians of community land, have started issuing 'patta' (leases) to Khasis and non-Khasis alike by charging a fixed rent, 'salami' (Rymbai 1975). Even the clan leaders themselves are issuing 'patta' to fellow tribals on the resale or transfer of 're-kynti' (clan land) or 're-raid' (village land) which is a clear distortion of the custom. In Nagaland, an individual may acquire land either by inheritance or by purchase or by developing terraces on a plot of land, in which case the plot becomes the private property of the individual in recognition of the hard work expended. In Mizoram, the State Government distributed garden passes (land leases for raising orchards) through its shifting cultivation control programme and later under its new land-use policy. The gullible farmers, who could not adjust to and manage the new technology of settled cultivation, sold leases to return to the easy way of shifting cultivation. Land transfer is allowed only among the tribal community under both statutory and customary laws. Once this process started, a class of dominant clan leaders was able to exert substantial control not only over agricultural and forest land but also over urban land.

The purpose of this discussion is to explain how the process of privatisation, not a popular trend until recently, has now taken firm root in every domain of economic life. The penetration of the commodity market and increasing monetisation and commercialisation together with changes in tillage practices have transformed the nature of property relations in land in the whole region to a substantial degree. The

uniqueness of these changes is that, whereas the general trend in the country has been alienation of tribal land by non-tribal outsiders, in the case of mountain tribes in north-east India, land appropriation was started by people from within the group in the wake of linkages that were established with the world outside. Increasing control of communal property by individuals, the growing importance of individual ownership of land, and the widening network of economic relationships began to erode the traditional egalitarian system of distribution and exchange (Karna 1989). This has led to the emergence of class-like groupings that are questioning the virtues of reciprocity and obligatory relationships. The stronger groups and individuals among them are now completely engrossed in appropriating maximum benefits from both the traditional customary systems and the new government programmes. Thus, the forces generated by the ongoing process of uncontrolled linkage and the opportunities provided by government-sponsored development programmes for the region tend to create new avenues of inequality and exploitation. It is the nature and extent of control exercised by the different categories of people that reflect the real situation in changing agrarian relations. The village heads and clan leaders may not own land in the exact sense of the term, but their effective control may extend to a very wide area.

It is now an established fact that socioeconomic changes among hill tribal groups have occurred as a result of changes in the mode of agricultural production and the spread of individual land ownership. Clan leaders have been gradually converting flat valley lands into fields for wet rice cultivation and the change over from shifting cultivation has resulted in a series of changes in the rights of individuals over land and in the social relationships within the tribes and communities. Obviously, private ownership of land has helped to alter the distribution of wealth (NEC 1976-77).

The instances of transfer and alienation of land in which the tribal people themselves were in control are certainly developments of a more serious nature. The communities that were able to maintain their original egalitarian ethos in their socioeconomic structure, one in which inequality and exploitation were unknown and village solidarity provided strong ties of social harmony, are now differentiated not only in terms of power and privilege but also in terms of wealth and income. It is no longer surprising to come across a Naga or a Khasi owning a thousand acres of land. Nowhere in these areas would customary practices have permitted such a concentration of land. It is integration with the outside world that has introduced hitherto unknown phenomena like absentee landlordism, realisation of rent from land, share cropping, land mortgage, landlessness, and so on. Absence of a land law regulating rights to use, transfer, and leasing has further compounded the problem.

16.5 Imperatives of the Land Policy

As is well known, technological change at a certain stage invariably leads to institutional change. A technological change, for example, from shifting cultivation to permanent cultivation of land, necessarily leads to change in traditional property

rights over land. This is what is happening in the eastern Himalayan region. The areas thus converted to permanent agriculture, horticulture, and plantations have passed out of the common ownership of the village community to and into the private ownership of individuals and families. Not that shifting cultivation has disappeared. It is still quite common among all the groups. Nevertheless it is now more concentrated in relatively remote and backward areas and on marginal lands. Even within the villages, the poor and the landless depend most on shifting cultivation. In a general process of marginalisation, entailed by greater and greater individualisation of land, inequality is accentuated because of the pecularities of customary laws guiding land ownership in the region. Shifting cultivation, which is still widespread in the region, is now clearly associated with poverty, and this leads to further marginalisation of the already marginalised farmers, pushing them into wage labour and irreversible degradation of land which becomes detrimental to the interests of society in general (Mahapatra 1989). In fact, some of the growing unrest that is now prevalent in north-east India is attributable to these changes.

In addition, the emerging threat of alarming deforestation and resultant large-scale land degradation also call for immediate rethinking about the continuation of an autochthonous system of land management in the region. Unregulated commercial felling of forests caused by uncertain tenure and shortening of the shifting cultivation cycle are stripping the land of its protective vegetative cover. An expanding network of roads and, in particular, the burning of charcoal for black topping, as well as the ever growing demand for timber for rapid construction in the new capital towns and market centres have further exacerbated the forces of land degradation. Denudation of hill slopes in an area where rainfall is very high (mean annual rainfall varying from 1,200 to 12,000 mm) is bound to cause heavy loss of topsoil during the monsoon. According to one estimate, 19 million tonnes of soil are lost annually due to soil erosion in north-east India, and floods occur more often now than before (NEC 1990); and this has become so serious that the Supreme Court of India intervened drastically during the hearing of a public interest writ petition by ruling to impose a complete ban on forest felling for outside export of timber in December 1996. This particular development is a living testimony to the extent of deterioration that has taken place in land resource management in the eastern Himalayas. All this is mostly caused by uncertain land tenure, a situation arising out of the inadequacy of customary laws to control misuse and abuse of land, forests, and mineral resources in the rapidly changing internal and external environment of the region. The imperative of adjusting land tenure regimes to the changing and emerging scenario cannot be denied, as persisting with the autochthonous rules will cause severe problems with respect to efficiency of land use, equity considerations, social harmony, and political balance. As people-land relationships have been changing at a rapid pace in the last two decades, some land tenure rules need to be put in place, either endogenously through collective action or exogenously through an appropriate land policy instrument that meets the needs and aspirations of all stakeholders.

What is surprising is that, although state governments are well aware of the emerging situation, no serious attempt has been made to formulate a land policy aimed at preventing concentration of land among a few families and strengthening the livelihood security of resource poor, shifting cultivators. Perhaps the real reason for this inaction lies in the economic interests of the tribal elite who, being drawn mostly from the erstwhile chiefs, clan leaders, village heads, and high status families have a vested interest in not codifying the custom and legalising land ownership (Mishra 1993). Once it is notified and becomes public, it may give rise to internal dynamics creating pressure for the imposition of a land ceiling and redistribution of the surplus land among the deprived sections.

The importance of elaborate land legislation has not been appreciated by the ruling elite of the region. Their complacency seems to be induced by the seemingly abundant land resources and low land to person ratio. However, continuing with the laissez faire policy for land is bound to create problems in the near future, particularly when the cultivable land has already become scarce and the population is increasing rapidly. While there is still widespread reluctance to have land surveyed and recorded, real resentment is also growing at the community level against the few members abrogating rights to undue amounts of land. In any consideration of the land policy for the eastern Himalayas, the issues of land degradation, efficiency of land use, and marginalisation of the poor will have to be factored and harmonised. Considering the favourable land person ratio, the egalitarian ethos of the communities, and availability of a wide range of technologies for agro-foresty, it should not be difficult to integrate the objectives of ecology, equity, and efficiency into a common policy framework.

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Chapter 17
Participatory Forest Management (PFM): Rediscovery of a Promising Mechanism for Poverty Alleviation in the Mountain Areas of South Asia

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17.1 Introduction

This paper provides a brief background to the political and socioeconomic context of the Hindu Kush-Himalayas, an area that includes the mountain regions of South Asia. An overview of the common property resources of the mountain regions of South Asia is provided to illustrate the importance of these resources to the quality of life of the people in this region. The overview includes rangelands, water, and forest resources. These three common property resources also have the potential to fuel growth and poverty alleviation in the mountain areas of South Asia.

The second part of the paper focuses mostly on the re-emergence of participatory forest management in the Hindu Kush-Himalayas and argues that community-based natural resource management remains the key to growth and poverty alleviation in the region. The policy framework is analysed to emphasise the importance of enabling policies and accompanying rules to support participatory forest management in the region. Potential barriers to the implementation of participatory forest management are discussed and appropriate solutions are recommended.

Overview of PFM in the Hindu Kush-Himalayas

The last decade of the past millennium is testimony to the changing times for the people and forests of the Hindu Kush-Himalayas, and it has seen the emergence of people-centred forest policies in almost all the countries in the region (Bhatia & Karki 1999). These policies aim to support and strengthen participatory forest management and, through this process, ensure that the needs of mountain women and men are accorded proper priority.

The evidence of the will of policy-makers in the countries of the Hindu Kush-Himalayas to introduce people-oriented management policies for forests can be traced back to the beginning of the 1990s. In 1990, the Government of India approved an order to encourage joint forest management between government and forest-dependent communities in degraded forest areas. Currently twenty-two states spread over the country have approved enabling government orders. These include all three states of the Western Himalayas — Jammu and Kashmir in 1993, Himachal Pradesh in 1993, and Uttar Pradesh in 1997—and three states in the North Eastern Himalayas — Tripura in 1991 and Arunachal Pradesh and Nagaland in 1997. Nepal approved a new Forest Act in 1993 that provides legal support to community forestry and remains one of the most progressive pieces of legislation in this area. Bangladesh approved a new forest policy incorporating the concept of participatory forest management in 1994. Myanmar passed a new Forest Act in 1992 and issued its first community forestry instructions' notification in 1995. Bhutan enacted a new Forest and Nature Conservation Act in 1995 and approved revised 'Social Forestry Rules' in 1996. Pakistan's national draft 'Forestry Sector Policy' is being discussed as this workshop is being held held, people's participation is a strong element in the proposed policy. The North West Frontier Province of Pakistan developed a draft forest policy for the first time in 1997. The draft is people-centred, it is still being discussed and awaits approval. In 1993, Yunnan Province in the People's Republic of China made provisions for the auction of tenure of barren mountain areas, and this has stimulated people's involvement in forest management. Forest policies were revised in 1994 in the Tibetan Autonomous Region to encourage and support the involvement of the local population.

Over a decade the emergence of people-oriented policies in all these countries points to a dramatic change in forest management. This is the result of an increasing understanding of the fact that forests play a pivotal role in mountain areas and can no longer be managed without the active cooperation of mountain communities.

More forest areas are being placed under community management through different benefit-sharing systems and tenure arrangements. These arrangements often build on or add to traditional forest management practices in mountain areas, and this augurs well for the sustainable development of these areas.

The role of forestry professionals is changing from custodial to supportive and participatory. Reorientation of all levels of staff in forest departments is currently

underway, and the curricula of educational institutions are being revised to ensure that the new generation of people-centred forestry professionals has the appropriate skills to support community-based forest management. An overview of the current status of participatory forest management in the Hindu Kush-Himalayas puts it into context (Table 17.1).

The broad goals and objectives of forest policies and laws in the Hindu Kush-Himalayas

The principal objectives of the forest policies of Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan are to meet people's needs for forest products, to conserve biodiversity, to maintain good watershed conditions, and to promote economic development through forestry.

Bangladesh

Twelve per cent of Bangladesh's land area is hilly, and this land is a part of the Himalayan mountain region. One million tribal people, or about one per cent of the population of the country, live in these areas. Only 14% of the total land area of Bangladesh is forested. The forest cover in Bangladesh has declined by two per cent annually over the 20-year period between 1960 and 1980.

The Bangladesh National Forest Policy of 1994 stressed afforestation activities with the aim of increasing forest cover in the country. These activities are focused on village areas and the denuded unclassified state forest areas of the Chittagong Hill Tracts. The policy aims to increase the forest cover of Bangladesh to 20% of the land area by the year 2015. Government forest lands that are denuded and subject to encroachment are to be identified and brought into afforestation programmes with the participation of the local people.

In order to preserve soil, water, and biodiversity, natural forests in the hill and river catchments will be declared protected areas, game sanctuaries, or national parks. By 2015, the government is planning to manage 10% of the national forests as protected areas. Fragile areas such as steep hill slopes, vulnerable watersheds, and wetlands will also be managed as protected areas. The policy also states that 'state owned hill and sal (*Shorea robusta*) forests, except those declared protected areas, will be managed as production forests, paying due consideration to the environment'.

The forest policy in Bangladesh emphasises afforestation and protection of forests, although the commercial use of forests is promoted, the Bangladesh forest policy remains largely oriented towards rehabilitation and conservation (Chaudhury 1999).

Bhutan

Almost all of Bhutan's land area is hilly. Forests occupy approximately 72% of the total area. The forestry sector makes a direct contribution of about 11% to the Gross Domestic Product of the country and generates about 3% of the government revenue.

Bhutan's revised Forest Policy of 1991, produced as part of the preparation for the Master Plan for Forestry Development, emphasises the need to balance the nation's conservation and economic development goals. It stipulates that forest resources should be managed in a scientific and systematic manner and that this resource base must be expanded through viable investment programmes. It also acknowledges the need to allocate forest resources to several management regimes such as protection forests, production forests, and community forests (Play and Policy Division Bhutan 1999). The policy stresses the importance of people's participation in the management, use, and expansion of resources and calls for multiple use and management in recognition of the realities of the country. A Forest and Nature Conservation Act was promulgated in Bhutan in 1995.

Bhutan's policy stresses conservation of the environment, and only thereafter derivation of economic benefits. The policy decrees that up to 60% of the country's geographical area is to be kept under forest cover at all times. To secure this, Bhutan has embarked on a programme of establishing parks, sanctuaries, and reserves, the area of which now totals 970,000 ha or 26% of the country. This is the highest proportion of land area managed as a protected area in any South Asian country. The current policy also emphasises the use of forests on a sustainable basis, plans for multiple-use, improving and strengthening the efficiency of forestry sub-sector institutions, and involving and training local people in the management of forest resource use.

China

Mountainous and hilly areas constitute 69% of the total area of China. About 56% of the country's total population live in hilly or mountainous areas. These areas are relatively deprived compared to the plains. Four hundred and ninety-six of the 592 counties identified as poverty-stricken are in mountainous or hilly regions.

Recognising that forestry can play a key role in the economic development of mountain areas, the Forestry Ministry of China evolved a plan in 1996 that focuses on sustained development of upland areas through development of forestry and appropriate interventions from science and technology.

There are two significant themes in the forestry policies of China. Firstly, all forestry policies are 'oriented to motivate the enthusiasm of the whole society for afforestation and greening activities', and, secondly, 'all forestry policies are oriented to achieve the maximum economic, ecological, and social benefits for the integrated development of the society' (Haizhong 1999) . The Detailed Operational Regulations of the Forest Law of the People's Republic of China (1986) is a comprehensive national legislation on forestry in China. This legislation is supplemented by many other laws that have been formulated in different provinces.

Since China adopted the policy of reform and of opening up to the outside world in the 1970s, income-sharing mechanisms based on different levels of production,

Table 17.1: Comparative Overview of Status of Participatory Forest Management in the HKH

Issues	Bangladesh	Bhutan	China		India			Myanmar	Nepal	Pakistan
			Yunnan	Tibet	Himachal	J&K	Uttarakhand			
Forest Policy/ Legislation	National Forest Policy of 1994	1991, Revised Policy and Forest and Nature Conservation Act of 1995	Detailed Operational Regulations of the Forest Law of the People's Republic of China, 1986 the Major National Laws		The India National Forest Policy of 1988			Forest Law of 1992 and Forestry Policy of 1995	The Master Plan for the Forestry Sector 1988, and five year plans, Forest Act of 1993	Draft Forestry Sector Policy of 1998 and five year plans
					State Forest Policy in 1980	Forest Policy of 1990	Utter Pradesh State Forestry Action Programme (SFAP) developed in 1995 with greater emphasis on participatory forest management			
Policy on Participatory Forest Management	Forest Policy of 1994	Draft Social Forestry Rules of 1996	Provisions for the Auction of the Tenure of Barren Mountain Areas in 1993	Forest Policies of 1994	The Government of India memorandum on 'Involvement of village communities and VAs in the regeneration of degraded forest lands, 1990 to the Forest Secretaries of all States and Union Territories			Forestry Policy of 1995 and Community Forestry Instructions' Notification in 1995	The Forest Act of 1993 and Forest Regulations of 1995.	Pakistan's national draft forestry sector policy 1998 is currently under discussion. NWFP's forest policy draft incorporating PFM, in 1997.
					JFM Order in 1993	Notification No. SRO 61, or Jammu and Kashmir Order on JFM in 1992	JFM order in 1997			
PFM Policy Highlight	Mentions the role of NGOs in promoting social forestry activities		Supports local population to utilise barren lands, particularly for income generation		Involvement of NGOs, communities paid by the Forest Department for raising nurseries, preparing land for planting and protecting the trees after planting.				FUG can be handed over any national forest (not just degraded forests). FUGs keep all income and products from the forest.	
					Focus on gender	Part of the income can be distributed directly to individual members/ households. Gender focus	Part of the income can be distributed directly to individual members/ households. Provision for range and divisional committees			
Policy Level Support	Policy	Policy	Policy		Government Orders			Policy	Policy	
Area under Community Management	Government owned degraded areas, unclassed state forests	Degraded areas	Four categories of degraded sites (Sihuang)	Degraded areas	Degraded areas : any protected forests, or lands vested with the Government under Himachal Pradesh Land Ceiling on Land Act of 1972 and village common lands (vesting and utilisation) under Act of 1974 can be managed under JFM Degraded forest areas in demarcated forests	JK degraded forest areas in demarcated forests Degraded forest areas Civil Forest or in Class-I and Class-II Reserve Forest lands can be managed as Panchayat (village) Forests.	on Civil Forest or in Class-I and Class-II Reserve Forest lands can be managed as Panchayat (village) Forests	Degraded reserved forests, mangrove	Any government owned forest lands	Degraded forests
Level of Institutionalisation	Projects	Pilot Sites	Institutionalised		Projects	Project	Project	In selected watersheds, the dry zone, and mangrove areas as projects	National programme supported by various donor projects.	Projects
Number of community Institutions		4			125 village committees	1240	5000 Van Panchayats 47 JFM		6020 Forest User Groups	
Forest Area under PFM		1152 ha			6005 ha	600 sq.km	469362 ha under VP 16225 ha under JFM		403688 ha	
Land Tenure Status under PFM			State owned degraded forest land is leased for 30 to 50 years. Collectively owned sihuang land leased through auction for 50 to 100 years.		State Forest Policies are silent on the issue of granting tenurial rights to the communities	No provision for handing over any forest area to community or any other groups		Land allotted for 30 years	Normally, FUGs have five-year operational plans for forest management. Land ownership still with government	

Table 17.1 Cont'd

Issues	Bangladesh	Bhutan	China		India			Myanmar	Nepal	Pakistan
			Yunnan	Tibet	Himachal	J&K	Uttarakhand			
Management Unit/ Institutional Arrangement		Five or more households	Individual households, communes or any other legal entity (organisation)		One Village Forest Development Committee in one *tikka* or a village, registered with the territorial Divisional Officer	Village (Rehabilitation aof Degraded Forests) Committee in each forest range, comprised of people residing at the edge of degraded forests. Village Plantation (Protection and Management) Committee	Village Forest Committee	Village/ Cooperatives	All traditional users, irrespective of political boundaries form a Forest User Group	
Executive Committee					Out of 9-12 members, minimum 5 members are to be from the village/tikka, half of which have to be women, 1 from panchayat antodaya family, 1 from women member. Forest Guard of FD as a rep.	11 (2 women/ 2 SC/ST). Block forester or forest guard as representative of Forest Department in Village (rehabilitation of degraded forests) committee but for the Village Plantation (protection and management) committee, only two represent the village of four member committee	Will be constituted as per sub-section of Section 29 of the United Provinces Panchayat Raj Act of 1947		Decided by the Users	
Tenure of Executive Committee						One year	Micro-plans are made for five years		Decided by FUG	
Gender Representation					At least 50% of committee members have to be women and a female and a male of each household enrolled as a member of the general house.	One adult male and one female of each household as members of village (rehabilitation of degraded forests) committee.Executive committee to have at least two women members				
Benefit Sharing	15- 40% of final yield to participants, rest to government and others				Forest products like grass, firewood, leaf litter free to users. 25% of net sale proceeds of the final harvest to be put in village development fund	Communities are entitled to collect grass, fodder, dry and fallen wood free of royalty with the permission of the Block Forester. The committee, through consultation with all the members can share a minimum of 25% of the proceeds from the first major harvest of the plantation in kind or the sale proceeds of the produce among members after deducting the costs incurred by the Forest department	50% of the proceeds of the sale of forest products to a maximum of Rs 50,000 per year (after deducting cost of investment). Of the remaining 50% produce, 50% is distributed to the village community and 50% to community work	Participants keep the products and can also market them.	No sharing benefits with the government, FUG entitled to keep all the products and income.	

NOTE: The information for this comparative overview has been derived from the national and sub-national studies on participatory forest management from Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan.

capacity, multiple economic composition, and multiple marketing mechanisms and management models have been endorsed for economic activities. The main focus of income sharing in forestry activities is that income will be shared on the basis of labour contributions, even when production factors like land, capital input, and technical investment are also taken into consideration.

The issue of rights over land use/ownership is very important when involving local communities in forestry activities. The policies of forestry land use (mountain land use) in China mainly focus on the issues of ownership and tenure of land. In 1981, the Government of China promulgated a forestry policy with a focus on a mountain forest tenure system, mountain land managed by households, and a system of household responsibility for forestry production. Implementation of the policy triggered the break up of the single ownership system (government ownership) and brought about great changes in forestry management. As a result of this policy, forest managers were given more flexibility and power in choosing management strategies, and the units engaged in forestry production became independent commercial entities. The law protects their interests, rights, and liabilities. In particular, the farmers managing the forests own the resources. This policy has provided a strong incentive for people's participation in forest management. The management model has been transformed from one of collective management to one of individual management. The different management models practised include stakeholder, cooperative management, leasing, contracting, cooperative afforestation, and shareholding cooperatives.

In the current Chinese policies on forestry the ownership of forest land belongs to the state and collectives, but the tenure of this land can be transferred in accordance with the relevant laws and regulations. Forest land can be contracted to individuals, groups of individuals, legal agents, or other economic entities for afforestation. The lessee of the land is responsible for the management of the area and enjoys the income generated. The tenure can be transferred, contributed as shares, rented, or mortgaged.

In 1990, the State Council of China began to implement the Afforestation Plan for the years from 1989 to 2000. The plan lays down guidelines for afforestation and forestry management. According to the plan, the total afforested area should reach 57.165 million ha by the year 2000.

In 1995, the national Ministry of Forestry(MoF) proposed that forest management should be carried out according to the forest function. This policy has been one of the key measures in changing from traditional to modern forestry practices. The policy divides forest areas according to their economic and ecological benefits and other multiple functions, for example, welfare forests and commercial forests. In an effort to implement this policy, the MoF is experimenting with the following reform strategies.

- Protected forests and forests for special use are categorised as welfare forests and are managed by the government. Timber forests, economic forests (plantations of fruit, nuts, oil, and other tree crops excluding timber), and fuelwood forests are classified as commercial forests and are managed by enterprises for market production.
- As a result of the different nature and purpose of managing welfare and commercial forests, different management mechanisms have been adopted. Welfare forests are managed to maximise ecological benefits and afforestation measures can be different to those for commercial forests. The management objective in the context of commercial forests is to meet market demands; the felling volume is determined on the basis of management plans and priority is given to allocating felling quotas.
- Whoever manages the forest must provide the necessary input. Input may be provided through government financing. Social compensation and fees for compensating ecological imbalances will be collected. Management units engaged in forest work are encouraged to create alternative income; compensation will be drawn from a part of the income generated.

The basic forestry policy in China aims to combine the efforts of the central government, collective entities, and individuals in forest development for greening, co-existence of multiple management systems, and developing multiple economic elements on the basis of public ownership.

Yunnan Province and the Tibetan Autonomous Region are the two important regions of China that fall within the Hindu Kush-Himalayan region. Brief accounts of their forestry policies and programmes are provided below.

Yunnan Province has a total area of 394,000 sq.km, 94% of which is hilly and mountainous. Ninety-eight per cent of the counties, cities, and townships are located in the mountainous region. About 25% of the area, or 9.41 million ha, is forested, and of this 29% is state forest, owned by the state and managed by state entities, and 71% is collective forest, owned and managed by communities and villages.

Yunnan's basic forest policies are in accordance with the Forestry Law ratified by the Standing Committee of the National People's Congress. The focus of the Forestry Law is to address equally the two issues of forest conservation and sustainable forest resource management and use. In 1983, the Provincial Government of Yunnan and the Standing Committee of the National People's Congress of Yunnan Province enacted a policy on 'liangshan' management responsibility for forests. Under this policy, collective forest areas in different parts of Yunnan were contracted out and allocated to individual households for management. When the 'liangshan' policy was implemented, local people had no confidence in the sustainability of the policy and were unwilling to invest their capital and labour in reforestation and greening. Furthermore, there was no technical support or cash investment. The result was that the resources were idle for long periods.

In 1993, Yunnan promulgated legislation entitled 'Provisions for the Auction of Tenure of Barren Mountain Areas' to promote the leasing of the users' rights to barren mountains ('sihuang') suitable for afforestation. The tenure lease for 'sihuang' separates land-use rights from land property rights. The property rights remain state-owned, but the land tenure can be transferred, contracted, or leased under agreed terms or prices to potential developers.

The 'sihuang' policy builds on the *liangshan* policy and aims to motivate local communities to participate in the rehabilitation and management of degraded, barren mountain lands. The ultimate goal of this policy is to achieve overall economic, ecological, and social benefits. The price for the tenure lease of the 'sihuang' is determined on the basis of the locality, accessibility, land quality, management premise, and economic capacity of the local community. The land-use rights can be auctioned and sold to legal units, entities, or individuals. In general, development activities have to start within three to five years of procurement of the lease. This policy aims to create entities with multiple land-use management systems and to encourage local communities to participate in the development and use of barren land.

Thirty of the 74 counties in the Tibetan Autonomous Region are forested, and these counties contain 30% of the total population. Protected areas cover 27% of the total land area, or 325,330 sq.km. Forest-based industries, such as those producing logs and fuelwood , processing wood , producing resin , and exploiting medicinal herbs, contribute about 10% of the gross output volume of agriculture and industry and about 8% of the GNP of the region.

The 'Tentative Regulations for the Forest Policy of Tibet', formulated by the Autonomous Regional People's Government in 1985, removed restrictions on the protection and management of forests by communities and individual households. The policy encouraged the involvement of local communities and individual households in resource management. Measures were introduced so that parts of state-owned forests could be allocated to a community or a village for management, although ownership still belonged to the state. Local populations living in areas where they were responsible for protection of the forest were given permission to market fuelwood, charcoal, thinning wood, raw wood materials, and bamboo products. They were also allowed to collect other products, produce timber, and hunt non-protected animals.

In order to meet demands, wood allocation and fixed prices were removed in 1993 and management rights were given to enterprises. Enterprises were allowed to produce according to market needs and the prices of products to fluctuate in line with market conditions. In order to avoid illegal cutting and forest damage, production of wood was managed according to an indicative plan. Two certificates, a Cutting Certificate and a Transportation Certificate, had to be verified.

Later, forest policies were again changed to motivate voluntary cooperation by local communities in planting trees and grasses on bare lands and wetlands. Trees planted thus were owned by the persons who planted them, and their children had the right to inherit the use of the land. State-owned forest land could be contracted to individual households or managed by an association of households. All income generated could be retained by the contractor.

In 1994, the formulation of a new forest policy in Tibet further encouraged and supported local communities to use barren lands. Whoever managed such lands was allowed to retain the produce and benefits from the land. The land-use right could be inherited or transferred. This policy also included provisions for use of forest products, such as wild edible mushrooms and herbs for herbal medicine, by local communities. At the same time it promoted foreign investment to achieve rational use of forest resources and comprehensive use of wood, to undertake scientific surveys, and to develop private nurseries and fruit orchards.

Since 1997, afforestation activities have been implemented by communities and individuals on the principle that the person or group that plants trees owns them. Policies and regulations, such as the Forest Laws, Forest Fire Control Provisions, Forest Protection Provisions, and Wildlife Protection Laws, have been put in place to augment public awareness about the significance of forest protection and forest fire control.

In China generally, and in Yunnan and Tibet in particular, the focus of forestry policies is on the protection of forest resources from overuse and on maximising economic returns from forestry. In this respect, China probably has the most 'market-oriented' policies, whereby degraded lands are auctioned for plantation of economic products.

India

Ninety-five districts in twelve Indian states fall within the Himalayan region. lndia's National Forest Policy of 1988 stipulates that, in such fragile mountainous regions, two-thirds of the area should be under forest cover in order to prevent erosion and land degradation and to ensure the stability of fragile ecosystems. Thirty of the Himalayan districts have more than 66% forest cover, but the average value is only 37%, far below the intended goal.

The current forest policy of India places more emphasis on forest conservation, a shift in focus from earlier policies in which the major objective of forest management was revenue generation for the government. Preservation, maintenance, sustainable use, restoration, and enhancement of the natural environment are the main concepts adopted in the current forest policy.

In 1990, the Government of India issued a Government Order to all the Indian States to involve village communities and voluntary agencies in the regeneration and management of degraded forests. This Government Order for Joint Forest Management was an important milestone for participatory forest management in India.

In line with the National Forest Policy of India, the Jammu and Kashmir Forest Policy of 1990 stresses conservation of forests. The policy clearly articulates that environmental stability and maintenance of ecological balance must be given more emphasis than generating direct economic benefits (Patnaik and Singh 1999). The policy focuses on rehabilitation of degraded forests, expansion of forest areas by converting available wasteland to forest, and sustainable provision of fuelwood and fodder to the local people.

Uttaranchal lies in the State of Uttar Pradesh in the western Himalayas. The Uttar Pradesh State Forestry Action Programme of 1995 places great emphasis on participatory forest management (Ghildiyal & Banerjee 2000). In Uttaranchal, local communities have been involved in forest management since 1931 through the formation of 'Van Panchayat'(s). The 'Van Panchayat' Rules of 1931 were introduced under the District Scheduled Act of 1874. A 'Van Panchayat' can be formed on any government land, including Civil Forest and Class-I and Class-II Reserve Forest land. A more powerful Act was introduced in 1972 invoking Section 28 (Village Forest Formation) of the Indian Forest Act of 1927. This was modified in 1976 and is the Act under which 'Van Panchayat'(s) are currently managed. The Uttar Pradesh Joint Forest Management Rules of 1997 were promulgated under Section 28 of the Indian Forest Act of 1927. This Act allows those who manage the forest to obtain direct economic benefit, in contrast to the 'Van Panchayat' rules that state that any economic benefit must go to the 'Van Panchayat' body which can then use the funds for the growth and upkeep of the jointly managed forests. A draft 'Van Panchayat' Rule of 1997, which was prepared to replace the 1976 Rules, is being considered by the State Government (Bhatt & Pahadi 1998).

The key issues for forestry development in Himachal Pradesh have been identified as the sustainable management of forestry resources, (Bhatia, Karki, & Amtzis 1995) strengthened community participation at all levels, the active involvement of women, and the re-orientation of the attitude and role of forestry department personnel, in particular the role of the Forest Guard from one of protection to one of enabler and agent of change. The State formulated a State Forest Policy in 1980 in accordance with the National Forest Policy of 1952. Himachal Pradesh is one of the few Indian States with its own forest policy. The policy promoted the transfer to the Forest Department of all areas of forest or potential forest acquired by the government under the Land Ceiling Act of 1972 and the Village Common Land (Vesting and Use) Act of 1974. It also supported an afforestation programme to increase the fully stocked forest area to 60% of the land area and directed that forestry programmes be oriented to encourage people's participation.

In pursuance of the Government of lndia's 1990 order, Himachal Pradesh decided to constitute Village Forest Development Committees for joint forest management for the planning, protection, afforestation, and judicious use of forests. It also aimed to bring 50% of the feasible areas under forest cover by 2000 AD.

Himachal Pradesh has various forestry-related pieces of legislation, commencing with the first forest policy in 1894. In 1970, Himachal Pradesh promulgated a grazing policy. The policy had several recommendations, including restrictions on any increase in the number of cattle, control of migratory and nomadic herds and flocks, registration and enumeration of flocks, fixing of routes to be followed by nomadic herds, levy of a uniform grazing fee, closure of not less than a third of the grazing area allotted to a particular grazer at a given time, levy of a tax on goats and buffaloes, and phasing down the numbers of goats and buffaloes.

In order to allot land to landless people and people owning less than one acre, the Himachal Pradesh government took control over all the 'shamilats', or common lands, by introducing the Village Common Land Vesting and Use Act of 1974. The government prepared rules and a use scheme in 1975 for the lands acquired under this Act. Under the Act, part of the land was set aside for common purposes like grazing — to be managed under the Punjab Village Common Lands' (Regulation) Act of 1961 — and the remainder was to be distributed to the landless and poorer households in the community. The acquired 'shamilat' lands were divided into two categories: allottable and non-allotable. The allotable lands were to be distributed amongst the landless and the non-allottable were to be transferred to the Department of Forests. In 1995 Himachal Pradesh began to formulate the Himachal Pradesh Forest Bill. This is intended to be the new Forest Act for the State; it is still in the draft stages.

In India, during the time of British colonial rule, forest policies were geared for the most part towards generating revenue for the government. This policy continued long after India gained independence in 1947. More recently, the government has become concerned about the state of forests and has promulgated policies and programmes for the rehabilitation of degraded forests. The joint forestry management programme (JFM) in India is largely derived from such concerns.

Myanmar

Over 78% of Myanmar's population is rural and relies a great deal on forests for subsistence needs. The country recognises the fact that long-term use and stability of forest resources with minimal environmental degradation is of paramount importance for the nation's economy and its people's livelihood. However, the resources have been dwindling at a rapid pace as a result of ecologically unstable farming practices, increasing population, and an ever-rising demand for forest land and products. It has been accepted that the participatory and integrated forest resource management approach has significant potential for addressing the problems and issues related to natural resource depletion, and strategies have been evolved for people-centred, participatory management of resources.

Myanmar's Forest Law of 1992 laid down the basic principles for forest management. The law promotes public cooperation in implementing forest policy and environmental policy. One of the principles is:

"to develop the economy of the State, to contribute towards the food, clothing and shelter needs of the public, and to ensure perpetual enjoyment of benefits by conservation and protection of forest."

Further, the principles stress conservation of forests and biodiversity and promotion of plantations and the contribution of forests to meeting fuelwood needs.

The Forestry Policy of 1995 has identified six imperatives, with the highest priority for forestry. These are: protection of soil, water, biodiversity and the environment; sustainability of forest resources; meeting the basic needs of the people; efficiency in harnessing the economic potential of forests; participation of the people in conservation and use of forest resources; and increasing public awareness of the vital role of forests. The Community Forestry Instructions of 1995 emphasise improvement of the nation's economy through forestry, achieving environmental stability, and meeting the needs of rural people for forestry products.

Nepal

According to the Master Plan for the country, the objectives for the forestry sector in Nepal are: to meet people's basic needs for fuelwood, timber, fodder, and other forest products on a sustainable basis; to protect land against degradation by soil erosion, floods, landslides, desertification, and other effects of ecological disturbances; to conserve the ecosystem and genetic resources; to contribute to the growth of the local and the national economy by managing forest resources; and to develop forest-based industries to create opportunities for income generation and employment. While the Plan covered all aspects of forestry, it strongly emphasised community forestry and allocated 47% of the total investment in the forestry sector to community forestry programmes. The Forestry Policy Document, which is a part of the Master Plan, contains a series of statements re-emphasising the implementation of community forestry activities in the country (Mathema et al.1999).

The Forest Act of 1993 endorsed the objectives set out in the Master Plan for the Forestry Sector. The Forest Act classifies forests into community forests, leasehold forests, religious forests, private forests, and national forests (ICIMOD 1995). It is now possible to hand over a particular forest to a forest user group for management and use. The District Forest Officer can form and register forest user groups and can hand over management and use rights for a particular forest to the user group. The process of handing over forests to user groups is going on all over the country, especially in the mountains.

Pakistan

In Pakistan, 19% of the people live in hill areas. The Forestry Sector Master Plan of 1992 for Pakistan reports that only five per cent of the total area of the country is forested (Ahmad 2000). The natural distribution of the forests, which are mostly made up of conifers, is influenced for the most part by monsoon rainfall. Eighty per

cent of the forests are located in the Himalayan, Karakoram, and Hindu-Kush mountain ranges.

Pakistan's National Forests, Rangelands and Wildlife Policy of 1991 has set the objectives for forestry to meet the country's requirements for timber, fuelwood, fodder, and other products and to fulfil environmental needs. It is planned to increase the forest area from 5 to 10% of the total area of the country in a fifteen-year period. The existing forests, watersheds, rangeland, and wildlife resources are to be conserved by sustainable use and developed to meet the ever-increasing demands. The Forest Policy of 1991 identified hill forests as a management category. It mentions that the conifer forests in the public sector will be managed intensively. Multiple and integrated uses are envisaged, with reliance placed on artificial restocking by seedlings of known provenance. The policy recommended changes in jurisdiction to render the different units more manageable. The draft Forestry Sector Policy of 1998 also emphasised forest conservation, sustainable use, meeting basic needs, maximising domestic production to minimise imports, participation, education, research, and institutional strengthening. While most of Pakistan's legal instruments continue to remain regulatory in character, steps are currently underway to change the laws and regulations (Gohar & Iqbal 1998).

Policy framework for PFM

The Bangladesh Forest Policy of 1994 was the first policy guideline in the country to clearly incorporate the concept of participatory forestry management. It also opened up the avenue for cooperation between non-government organisations and government agencies in promoting social forestry programmes.

In 1991, the Royal Government of Bhutan formulated a revised Forest Policy Statement that emphasised balancing the nation's conservation and economic development goals. It acknowledged the need to allocate forests to one of several management regimes such as protection forests, production forests, and community forests. Bhutan's Social Forestry Rules were approved in 1996 under the Forest and Nature Conservation Act of 1995 and gave an impetus to participatory forest management.

Various provinces in China have policies that allow for the participation of individual households in forestry promotion. In 1993,Yunnan promulgated the 'Provisions for the Auction of the Tenure of Barren Mountain Areas' to promote the leasing of users' rights to barren mountain land ('sihuang') suitable for afforestation. The tenure lease for 'sihuang' separates land-use rights from land property rights. The property rights are still owned by the state, but the land tenure may be transferred, contracted, or leased under agreed terms or prices to potential developers. In 1994, the formulation of forest policies in Tibet encouraged and supported the use of barren lands by the local population (Gou & Zhao 2000). Whoever managed such land was allowed to retain the products or whatever was obtained from the land. The land-use right can be inherited or transferred.

In India, the National Forest Policy of 1988 emphasised creating a massive people's movement to achieve its objectives and to minimise human pressure on existing forests. In 1990, the Government of India issued a government order to all the States about the involvement of village communities and voluntary agencies in the regeneration and management of degraded forests.

Different states in India have issued their own orders to facilitate participatory forest management. The State of Jammu and Kashmir issued a Government Order on Joint Forest Management in 1992. Participatory forest management in Uttaranchal exists in two forms: the Village Panchayat Forests and Joint Forest Management. To allow the formation of village forests, an Act invoking Section 28 (Village Forest Formation) of the Indian Forest Act of 1927 was made in 1972 and re-modified in 1976. A Joint Forest Management (JFM) Order was introduced in Uttar Pradesh in 1997, and this also applies to Uttarakhand. In Himachal Pradesh, a similar JFM Order was promulgated in 1993 (Gulati 2000).

Myanmar introduced a new Forest Law in 1992 and a Forestry Policy in 1995 and issued its first Community Forestry Instructions' Notification in 1995. These encourage active participation of people in the conservation and rational use of forests. The Forest Policy of 1995 suggested policy measures for forest regeneration and afforestation, establishment of plantation cooperatives, and provision of institutional finance for the establishment of forests by the people on degraded and denuded land.

In Nepal the Forest Act of 1993 and the Forest Regulations of 1995, building on the recommendations of the Forest Sector Master Plan of 1988, established the guiding principles for participatory forest management in the country.

In Pakistan, various projects have promoted participatory forest management on private and degraded communal lands and in degraded, protected, and reserved forests, but there is no specific legislation for PFM.

Communities and PFM

Participation of communities and the organisational form

In Bangladesh, landless people have been involved in reforestation under benefit-sharing arrangements in many Forest Department programmes. The Forest Department forms 'beneficiary groups', and men are generally predominant. The Department undertakes all activities, and the group members are given the responsibility for guarding plantations against grazing and theft. Thus, the participation of such groups is generally passive.

In Bhutan, five or more households can obtain user-rights to an area of partially degraded government forests as long as re-vegetation is carried out and the management plans for the area are followed.

Where participatory forest management is practised, communities living near forest areas are generally eligible. China has exceptions in some cases in which people from outside the community may also bid for tenure of barren mountain lands in auctions. In China, degraded forest lands can be leased by individual households, communes, or even enterprises. These households, communes, and enterprises are involved in reforestation activities. In Tibet, afforestation activities involving various members of society, such as 'Cadre Plantation,' 'Youth Plantation,' 'Women Plantation', and ' Plantation by Joint Effort of the Army and the People,' have become very popular and large areas have been planted in this way.

In India, people from villages adjoining degraded forest areas are involved in joint forest management. In Jammu and Kashmir there are two types of village committee: the Village (Rehabilitation of Degraded Forests) Committee and the Village Plantation (Protection and Management) Committee. The Village (Rehabilitation of Degraded Forests) Committee is mostly composed of members of the village, but the Village Plantation (Protection and Management) Committee has only two members representing the village community, the other members include the 'Tehsildar'[1] and the Range Officer. The activities of the latter committee are supported financially for the first five years by a government project for plantation, maintenance, and protection.

In Himachal Pradesh, village forest development committees (VFDCs) are formed for joint forest management. These are non-political bodies representing all families in a 'Tikka' or hamlet. The body is registered with the District Forest Officer. The executive committee has 9-12 members, 5 of them from the 'Tikka'. The executive committee has representatives from institutions such as women's groups or youth groups, if they exist, and at least one representative from a disadvantaged group. All households should be represented in the general committee (all users with a 50% quorum for decision-making). The role of women is emphasised, with at least one woman from each household in the general committee and 50% women in the Executive Body.

In Uttaranchal, the participation of people in Village Panchayat Forests has not been very good and the situation has been characterised by apathy on the part of the people as well as on the part of the authorities. Village Forest Committees are formed for joint forest management.

In Myanmar, plantation cooperatives can be established in villages for reforestation according to the Forest Policy of 1995. The Forest Law of 1992 allows people's participation in the establishment of village firewood plantations.

In Nepal, all households that depend on a particular forest are eligible for membership of a Forest User Group(FUG) for that forest. Member households in such a group

[1] A *Tehsildar* is the officer in charge of a *Tehsil* - an administrative unit, smaller than a district.

can be from a hamlet, a village, or a number of villages or sub-villages, irrespective of administrative boundaries. Normally, one member from each user household is included in the group. The Forest User Groups can develop their own rules for organisational management and, with the support of staff from the Department of Forests, draw up forest management plans. The FUG and its constitution are registered with the District Forest Office. Normally, an FUG executive committee is formed to oversee the FUG's activities.

In Pakistan, different groups of people are involved in participatory forest management depending on the tenure of the land. For example, the Malakand/Dir Social Forestry project is working for the most part on the management of private forest, whereas others are involved with protected, reserved, or communal lands.

Status of implementation of PFM

Participatory forest management work has started as a cautious learning phase in Bangladesh. The 'Afforestation and Settlement in the Unclassed State Forest of Chittagong Hill Tracts' project, July 1995 to June 2000, has adopted a participatory approach. This project has two main components, namely, 'juhamia' (shifting cultivators) and rehabilitation and afforestation of degraded lands. The 'Thana' 'Bonayan' and Nursery Development Project (1987-88) also provided opportunities for local people to participate in forestry programmes under benefit-sharing arrangements. In 1997, a new project was launched called the Forestry Sector Project, and this is basically a social forestry project. This project will be implemented all over the country, including in the hill districts of Rangamati, Khagrachari, and Banderban. The project places great emphasis on involving NGOs in work with local communities.

As in Bangladesh, Bhutan is implementing participatory forest management cautiously. Currently management plans have been formed for four pilot sites and about 1,152 ha are being managed by the four communities and a further 22 ha are being managed in small-scale community forest trial plantations.

In Jammu and Kashmir, the Forestry Department is implementing participatory forest management activities in degraded demarcated forests, and the Social Forestry Project is working in demarcated forests, wastelands, community lands, and non-demarcated forests. Over 600 sq.km, including plantations, are being managed by joint forest management through1,240 committees.

Van Panchayat(s) have been formed all over Uttaranchal by the government. Nearly 5,000 Van Panchayat(s) have been formed, managing about 469,326 hectares of land, about 14% of the total forest area. Joint forest management has largely been implemented at project level. At present, a total of 47 villages are managing 16,225 ha under joint forest management and a further 100 ha are being managed to assist natural regeneration of oak. A project financed by the World Bank is promoting participatory forest management in the Central Himalayan region of Uttaranchal, in

the Terai, and in parts of the Vindhyan region. It is estimated that about 1,160 communities will be involved during the four years of the Project, managing and protecting about 210,000 ha of land. It is planned to form 69 teams to promote joint forest management, 50 in the hills. Two-thirds (744) of the micro-plans will also be developed in the hills.

Joint forest management in Himachal Pradesh has been assisted since 1994 by a pilot project in Kullu and Mandi districts with UK overseas' development assistance(ODA) funding and a project in Kangra district by the GTZ-funded Indo-German Changer Eco-Development Project. There has been no promotion of participatory forest management elsewhere in the state. Even in the two project areas, the approach differs as does the role and quality of development of local institutions. In the Kullu and Mandi districts, the approach is very cautious and slow. Formation of only 20 Village Forest Development Committees (VFDCS) in three years has been envisaged, and the project emphasises learning and monitoring. In contrast, by January 1998, the lndo-German Changer Eco-Development Project had formed 216 VFDCs through village action plans, and 1,611 ha of community and degraded undemarcated forest land had been planted. A further 6,005 ha of forest land are managed under joint forest management by 125 village committees.

In Nepal the community forestry programme has been implemented all over the country. However, the handing over of forests in the lowlands (Terai) has been rather slow, and most activities have concentrated on the mid-hills. There are currently 6,020 Forest User Groups managing 403,688 ha of forest land.

In Pakistan, eight projects are implementing various models of participatory forest management in upland areas: the Malakand/Dir Social Forestry Project, the Kalam Integrated Development Project, the Siran Forest Development Project, the Aga Khan Rural Support Programme Northern Areas, the Suketar Watershed Management Project, the Himalayan Wildlife Project, the Himalayan Jungle Project, and the Khunjerab Village Organisation. Formation of new village institutions to manage forests and rural development under different projects have led to the formation of Village Development Committees, Village Organisations, and Women's Organisations in the Malakand and Aga Khan Rural Support Programme areas. In Kalam, Forest Protection Committees have been formed from among the holders of rights to protected forests. Village organisations have also been formed in Siran.

Benefit-sharing arrangements

There is as yet no uniform benefit-sharing mechanism under participatory forest management for the whole of Bangladesh. Various projects have implemented different sharing arrangements. For example, in the Thana Bonayan and Nursery Development Project the local participant receives 40% of the final yield and all intermediate yields of products. The Railway Authority is entitled to 10% of the final benefit, 3% goes to the Local Union Council, 3% to the Local Council, 25% to

the Thana Council, and 20% is government revenue. The final income from agro-forestry plantations is shared equally between the Forest Department (as government revenue) and the participants. The sharing mechanism under the Afforestation and Rehabilitation of Jhumia Families in the Unclassed State Forest (USF) and Reserved Forest Lands of the Chittagong Hill Tracts (third phase) is as follows. Local participants receive 15% of the final yield, all agricultural and horticultural yields, 100% of the first thinning, and 50% of other thinnings. The headman receives 5%; the tribal king 5%, the local council 5%, and the Forest Department 70% of the final share.

The draft Social Forestry Rules of Bhutan, promulgated under the Forest and Nature Conservation Act of 1995, allow trees planted on private land to remain free of royalty. Royalty rates are reduced or rescinded and individuals may apply for leases under the rules within certain terms and conditions. In Bhutan, most rural communities depend on the forest for grazing their cattle and for collection of fodder and litter for livestock. The enactment and adoption of the Bhutan Forest Act 1969 closed the 'commons' and introduced a system of permits to authorise limited rights to the use of government forest. All individuals have the right to use government forest land to graze their cattle. The Land Act of 1979 incorporated the use of forests for collection of firewood and wood for home construction, and this has been traditionally sanctioned as part of customary rights.

In China, benefit-sharing arrangements vary according to the province. Income sharing from forestry is mainly based on the labour contribution, other inputs such as land, capital input, and technical investment are taken into account. In Huahua Prefecture in Hunnan Province, for example, 25% of the total income from marketing timber is collected as tax, the Forestry Development Funds receive 15%, the Township and Village Accumulation Funds 10%, and production costs account for 10% – leaving 40% as income for the forest farmers. Similarly, in Jinping County in Guizhou Province, of the income from marketing timber, 26% of the money is taken as tax, 18% goes to the Forestry Development Fund, 10% to the Township and Village Accumulation Fund, and production costs account for 10%, leaving 25% as income for forest farmers. The benefits from forestry have also been shared among the local population in Tibet. For example, in 1993, the total income of the local population from forestry was increased to 43 million 'yuan'[2] or 100 yuan per capita. In Yunnan, of the revenue generated, 5% is paid as tax, 10% has to be given to the Silviculture Fund, 20% is income tax, and 65% is paid to the producer as interest.

In Jammu and Kashmir, communities are entitled to collect grass, fodder, and dry and fallen wood free of royalty with the permission of the Department of Forests. The Joint Forest Management Committee, after consultation with all members, can

[2] There are 8.3 yuan to the US dollar (August 2000)

share a maximum of 25% of the proceeds from the sale of produce from the first major harvest from the plantation among members in cash or kind after deducting the costs incurred by the Forest Department. The remaining 75% of income is retained by the Department of Forests, although the Government Notification does not mention this explicitly. If a Village Plantation (Protection and Management) Committee is formed in a village, it can use all the funds for replanting an area, for establishing additional woodlots to those already managed, or for financing development work in the area such as construction of water supply systems and village roads.

In Uttaranchal, joint forest management committees may distribute 50% of the proceeds from the sale of products (after deducting the cost of investment) up to a maximum of Rs 50,000 per year among their members. Of the remaining 50%, half goes to the village community and half to community work. The income from Panchayat Forests is distributed as follows. Forty-six per cent goes to the Forest Department, 10% for services such as valuation of trees and marking trees for felling, and 36% for the preparation and execution of development programmes for the Van Panchayat forest and for stationery, stamps, 'Sarpanch' expenditure, and other expenses. Eighteen per cent is given to the 'Zila Parishad' (District Council) for development of the area. The final 36% is retained by the District Magistrate in the Van Panchayat account. The Van Panchayat Committee can spend this money, with the prior approval of the District Magistrate, to provide community services and amenities like village roads and schools.

In Himachal Pradesh, all the forest products – apart from timber (leaf litter, fuelwood, fodder, and other non-timber forest products) can be distributed to the villagers free of charge under the supervision of the Forest Guard. At least 25% of the proceeds of net sales from timber harvests from the plantations or coppices is given to the (Village Forest Development Committee (VFDC) for the Village Development Fund. This fund can be used for village development work with the approval of the General House of members and in consultation with the District Forest Officer concerned. As in Jammu and Kashmir, the Department of Forests retains the remaining 75% of the fund.

In Myanmar, the benefits derived from community-managed forests are shared among members of the users' group, and no royalty is levied on the forest products extracted from the community forest by the users' group for domestic purposes. Communities or communes that establish fuelwood plantations can use or market the products from such plantations.

The FUGs in Nepal have rights over all products, including timber, from their community forests. All the income generated is retained by the group, and no income is shared with the government. FUG funds can be used for forestry and community development activities. Benefit-sharing arrangements in participatory forest management in Pakistan vary according to the projects. Generally, the rights and concessions of communities include a share in such things as royalties (the guzara

forests in Hazara); trees for construction of houses, household furniture, and agricultural implements (Hazara, Malakand, Rawalpindi, Murree Hills, Azad Kashmir, and the Northern Areas); timber at concessional rates (Malakand, Azad Kashmir, and the Northern Areas); rights to graze domestic animals either free or on payment of a nominal fee; collection of grass; rights of way; and the right to cut dry trees and collect fuelwood, pine cones, and pine needles.

Tenure arrangements for PFM

In Bangladesh and Bhutan there are no explicit tenure arrangements for participatory forest management.

In China, state-owned degraded forest land is leased for 30 to 50 years for reforestation activities. Similarly, collectively owned sihuang land can be leased, through auction, for 50 to 100 years. Whoever buys the land is responsible for the management of these areas and enjoys the income generated. The tenure can be transferred, contributed as shares, rented, or mortgaged. In Yunnan Province, farmers from communes that own land may lease barren mountain land for 50 to 70 years. The next generation can inherit the land tenure, and the tenure can be transferred after 10-20 years. One third of all forests in Yunnan are state forest, one-third collective forest, and one third is managed by individual households.

In Jammu and Kashmir, there is no provision for handing over any forest area to the community or any other groups. Similarly, the state forest policies in Himachal Pradesh and Uttaranchal are silent on the issue of granting rights of tenure to communities, as are the national policies.

In Myanmar, local communities are allotted land for 30 years, the duration can be extended with the approval of the Director General of Forests.

In Nepal, the government retains ownership of the land that is handed over to FUGs as community forest. Normally, the operational plans for the community forests, agreed upon between the government and local communities, are for five years. There is no limit to the number of times the agreement can be renewed. Land can also be leased to local communities or industry, initially for 30 years, under a government leasehold programme.

In Pakistan, participatory forest management programmes are being implemented on communal and state lands, including some government forests. The tenure of communal lands, such as shamilaat, is vested in local communities or with a group of households, whereas reserved forests and protected forests are government land. Different programmes work on different types of land. The Malakand/Dir Social Forestry Project, for example, is mostly working with individually or communally held private land, whereas the Siran Forest Development project is mostly working with reserved and guzara forest. The Aga Khan Rural Support Programme is working with state, communal, and private lands.

Obligations of communities

In all the countries taking part in the workshop, local communities are expected to participate in the protection of forests and rehabilitation activities. In Bangladesh, households that participate in forestry activities must take part in reforestation, protection, and harvesting activities. Similarly, in Bhutan, communities participating in forest management are responsible for managing and protecting forest areas.

In China, whoever leases the land is responsible for the control and management of the area, and afforestation and protection work are usually undertaken.

In India, under joint forest management, the Forest Department and local communities draw up joint management plans. In Jammu and Kashmir, local people are expected to assist the Forest Department in identifying sites for joint forest management and appropriate species for replantation on the sites. The Village (Rehabilitation of Degraded Forests) Committee normally assists the Social Forestry Department or Forest Department in regeneration, maintenance, and protection of plantations. In Uttaranchal, according to the Van Panchayat Rules of 1976, Van Panchayat(s) are responsible for protecting and developing the forests falling under their jurisdiction. They may only fell those trees that are marked by the Forest Department and are available as a result of silvicultural plans**.** They may also demarcate boundaries by building boundary walls, pillars, or similar and must prevent encroachment of the forest land, close 20% of the area to grazing, and protect forests from illegal felling and fire. The Village Forest Committees must prepare five-year micro-plans. The Committee must protect the area under its management and also close at least 20% of the forest to grazing. They must keep appropriate records, documents, and accounts of income and expenditure.

In Himachal Pradesh, Forest Department staff and forest users consult and negotiate to draw up management plans, the terms of use of forest lands, an outline of a mechanism for sharing benefits**,** and a mutually binding agreement describing participatory forest management activities and the roles, responsibilities, duties, powers, and rules of both partners. The duties of the VFDC include persuading members to provide areas for plantation and assisting the Forest Department in planning, protection, afforestation, and judicious use of all existing rights, equitable sharing of products/benefits**,** and eco-development of the area as laid down in the approved management plan. The VFDC is responsible for the just and fair distribution of the products obtained, for ensuring management of the forest as prescribed, for settling disputes between villages, and for honouring all commitments. The VFDC can make its own byelaws with the agreement of the District Forest Officer concerned and can recommend punishment for offenders – including cancellation of membership.

FUGs in Nepal are obliged to follow the operational plan, developed with the support of the Department of Forests, for management of the community forest. For their organisational management, each FUG develops a constitution that lays down the

norms for organisational and financial management and the duties of the executive committee and general members.

Rights of communities

Participatory forest management programmes in Bangladesh and Bhutan are being implemented on a small scale, and the rights of communities are still being defined.

In China, the lessee of forest lands has the right to plant, harvest, and market the products. In Tibet forest policies motivate the voluntary cooperation of local communities for planting trees or grasses on bare lands and wetlands. The trees planted thus are owned by the person who plants them, and children have the right to inherit the use of the land. The lessee can retain all the income generated from leased land. In 1985 in Tibet, people living in protection responsibility areas were given permission to market fuelwood, charcoal, thinning wood, raw wood materials, and bamboo products; to hunt (non-protected animals); to collect and weave products; and to produce sawn timber according to the national plan. In Yunnan, the use rights, management rights, and property rights of sihuang auctioned by the government reside with the collectives, organisations/entities, or individuals who have bought the 50-70 year tenure rights. The next generation may inherit the land tenure, and the land tenure can be transferred after 10-20 years.

In Jammu and Kashmir, the joint forest management committee cannot punish or fine forest offenders, and they cannot cancel membership. All rules have to be framed in consultation with the Forest Department. The committee can form an executive committee with representatives from different groups in the community. Any work planned requires an agreement specifying the rights and responsibilities of all parties involved (usually between the local communities and the Department of Forests). If the Department of Forests terminates a person's membership, that person has the right of appeal to the Department.

Theoretically the Van Panchayat(s) in Uttaranchal enjoy the powers of a Forest Officer. Nevertheless, although the Van Panchayat(s) can form their own by laws, the Panchayat Rules of 1976 do not give sufficient financial and administrative autonomy to the Sarpanch or the committee. For example, Section 17 of the Rules requires the prior approval of the Deputy Commissioner before a watchman or any paid staff can be hired by the Panchayat. The Van Panchayat(s) can sell fallen twigs and grass to the right holders in the village for domestic use, but only with the prior approval of the Divisional Forest Officer (DFO). The sale must not violate the provisions of the Working Plan, which should be prepared by the Forest Department. The Van Panchayat(s) can levy and realise fines of up to Rs 50, but they may only compound cases up to Rs 500 with the prior approval of the Deputy Commissioner. They can confiscate implements used for illicit harvesting of products, can impound stray cattle, and can seize stolen timber and other stolen forest products. However, permission is required from the Deputy Magistrate before seized goods can be sold or auctioned. Van Panchayat(s) can issue permits for the collection of fuel and fodder and slate

and boulders and realise fees, but they are not allowed to extract resin, and approval by the Deputy Commissioner is required for removal or sale of any other kind of forest product. The Deputy Commissioner must seek the opinion of the Forest Department. The Sarpanch can, with the approval of the committee, mark one tree and sell it to a right holder for domestic use, but permission is required from both the Collector and the DFO before trees exempted under the Tree Protection Act of 1976 can be sold; and only the DFO can mark and initiate the sale of trees.

The forest protection committees in Himachal Pradesh cannot punish or fine people who violate their rules, they may only recommend to the Department of Forests that they be punished. The committees may, however, frame their own rules on many issues related to forest management and the duties of members.

In Myanmar, products from the community-managed forests can be shared among the community members. No royalties are levied for products harvested for domestic consumption. The community groups have the right to establish plantations and market products from them.

In Nepal, the FUGs have rights over all forest products (except those specifically banned), and they can make their own rules on such issues as organisation and punishment (Malla 1996).

Gender

Policy instruments from Bhutan make no specific mention of gender-related issues. The 1994 Forest Policy of Bangladesh clearly states that more women will be encouraged to take part in programmes such as homestead afforestation, rural tree farming, and participatory forestry.

In China, women's participation in compulsory tree planting activities has been significant. For example, in 1991, nearly 120 million women participated in the national compulsory tree-planting campaign and the construction of shelterbelt systems, planted 700 million trees, and established 150,000 green project bases with a total area of 470,000 ha. Women have been participating actively in reforestation programmes in Yunnan and Tibet, as in the rest of China. Women members of the People's Consultative Conference in Tibet have an important role in formulating policies on participatory forest management. In Tibet, women's participation in the collection and marketing of forest resources, such as wild edible mushrooms and medicinal herbs, is being promoted as part of the changes in forest policy.

Himachal Pradesh has a clear focus on the role of women in joint forest management. At least one woman from each household is registered as a member of the general house, and at least 50% of the members of the Executive Body have to be women. In Jammu and Kashmir, although different groups are represented on the executive committee, there does not appear to be any focus on gender. In Uttaranchal, women have not been given mandatory membership in the Van Panchayat committee, despite the fact that they are the important actors in collection of forest products. In one of

the projects being implemented in the region, the criteria for site selection for joint forest management have been developed to ensure that the poor or those without assets and women receive their share of benefits.

Nepal's Forestry Act of 1993 does not have any gender-specific policies, although the Master Plan for the Forestry Sector of 1988 did propose a quota for women members of the user group executive committees.

In Pakistan, some projects have formed women's organisations to promote women's involvement in natural resource management and community development work. One example of this is the Aga Khan Rural Support Programme. In the Siran Forest Development Project, joint forest management committees have only elected male household heads from the community and Forest Department staff as members.

Equity

Participatory forest management programmes in the Chittagong Hill Tracts of Bangladesh identify tribal slash-and-burn agriculturists as the main participants in the programme. Clearly delineated forest land is being set aside for these groups for permanent settlement. In other areas of the country, landless farmers are given priority in the programmes.

The guiding principles of Bhutan's Forest Policy include equity issues as a major consideration.

Policies have been formulated by the Chinese Government to promote poverty alleviation and the development of community forestry. At the beginning of the 1980s, 18 regions were identified as national poverty-stricken areas using the average net income as an index. Fifty-eight per cent (73) of the counties in Yunnan have been identified as 'national-level poverty counties.' The Tentative Regulations for Forest Policy, which were formulated by the Autonomous Regional People's Government of Tibet in 1985, have stressed that poorer communities and households must be given more attention by the local government and the Forestry Department. In Tibet, poor villages and individual households in forest areas have been given more support by the local government in the management of state-owned forest resources since the middle of the 1980s.

In Himachal Pradesh, each group of 10-20 disadvantaged households is represented on the executive committee for joint forest management, and this gives some scope for disadvantaged groups to put forward issues of concern in the committee. In Jammu and Kashmir, there is no specific reference to equity, although different groups are represented on the executive committee. In Uttaranchal, one of the criteria for the selection of villages for implementation of joint forest management projects is a high degree of economic and financial equity. Similarly, preference is given to poorer groups whose livelihoods have always depended on forest products (i.e., resource-poor and vulnerable groups). The guidelines also suggest that stakeholders and

individual households, that could have an adverse effect on the subsistence-based use pattern of poorer and vulnerable groups and/or on the sustainable management and development of forests, should not be included.

The needs of various interest groups for special forestry products are recognised in community forestry in Nepal, but these have not been effectively implemented in the field. The need for a suitable action plan to increase the participation of women and disadvantaged groups in decision-making has been identified as a key issue.

The role of government institutions in PFM

All the government forestry departments at various levels provide technical and financial support for various participatory forest management activities.

The Bangladesh Forest Department provides technical and financial support for reforestation activities.

In Nepal, the government supports local institutional formation and registration of the forest management committee (of Forest User Groups) and also subsidises reforestation activities and undertakes training of FUGs.

In Jammu and Kashmir, the Forest Department can cancel registration of the forest management committee, and the Block Forester or Forest Guard is a member of the forest management committee. The Forest Department has the main decision-making role. It prepares the annual plan, agreements are drawn up with the village committees, and field work is initiated in consultation with the committee.

In Uttaranchal, the Forest Department has to mark the trees in participatory forest management areas and ensures their disposal through the Forest Corporation. When forest products are to be auctioned, confidential estimates must be prepared by the Forest Department.

Human resource development

In Bangladesh, awareness is being raised on a large scale for afforestation, protection, and use of forests and forest products. There is a clear policy goal of strengthening the Forest Department to achieve the objectives and goals of the Forest Policy, and a Social Forestry Department is being established. Strengthening of forest research, education, and training institutions to achieve policy targets is also one of the main objectives of the policy. However, as yet, the Bangladesh Forest Department has not implemented a ‘scientific approach to human resource development’.

Bhutan’s current policy stresses the need to strengthen the efficiency of forestry sub-sector institutions and to involve and train local people in proper resource use.

Human resource development is an important part of forestry development in China. In Yunnan, a close relationship has been identified between the educational level of forest managers and their success in forest management. Thus, improving the

education of those engaged in collective and individual forest management should result in improvement in forest management and maximise the economic and ecological benefits from forestry. In Tibet, a lot of investment has been made in forestry education to improve the training of forestry professionals in forestry research.

In Himachal Pradesh, in view of the vision statement for 2000 AD and the objectives for the development of training schools in the department, there is an emphasis on developing suitable curricula for forest guards and deputy rangers with a focus on social/participatory forest management. Special refresher courses were designed between 1996 and 2000 AD for Range Officers and IFS Officers, as envisaged in the training agenda plan of the vision. The vision statement for 2000 AD has proposed that the Forestry Training School, Chail , supported by the Sundernagar Forestry Training Centre and the Forestry Training Centre, Kuther, should be established as the best participatory forestry training centre in the Himalayan region.

The Forest Policy of 1990 of Jammu and Kashmir has identified the strengthening of the communication and extension wings of the Forest Department and the Social Forestry Wing as high priority activities. It has also identified the need to set up a Forest Research Institute to address various forestry-related problems; and to include social forestry. The State Forestry Action Programme (SFAP) of 1995 in Uttar Pradesh, of which Uttaranchal is a part, emphasises participatory forest management. The broad objectives of this plan involve a change in the Forest Department's activities from a policing/regulatory role to a role in which communities are treated as equal partners in forest management. The plan also aims to change the management system of the Forest Department, so that it becomes client-oriented and adaptable, with decentralisation of decision-making and improved planning, monitoring, and evaluation capabilities. Thus the SFAP mentions appropriate human resource development linked to role definition, analysis of skills needed, as well as appropriate human resource planning and management.

The Myanmar Forest Policy of 1992 has clearly identified forest research, forestry planning, intersectoral coordination, and institutional strengthening as key components of forest sector development. Strengthening of educational and training facilities and both quantitative and qualitative human resource development through review of organisational structures and the introduction of incentive mechanisms have been articulated in the policy. In recent years, the Central Forestry Development Centre has introduced courses on community forestry for rural communities. However, the syllabuses in other forestry institutions that train foresters are mostly oriented towards basic biophysical sciences and technical forestry.

Nepal's Master Plan for the Forestry Sector of 1988 identified human resource development as one of the major supportive programmes for the forestry sector. The four other programmes also have an impact on human resource development as they deal with institutional reforms, forestry research and extension, resource information and planning, and monitoring and evaluation.

Both the Action Plan of the Forest Policy of 1991 and the draft Forest Sector Policy of 1988 of Pakistan have identified forestry research and education as important components. Strengthening of forest extension and institutional development are also identified by both policies.

In Bangladesh, a number of university and training institutions has started to offer courses on social/participatory forestry. The Institute of Forestry at Chittagong offers an elaborate course on social/participatory forestry. Khulna University offers courses on social/participatory forestry separately from its degree programmes. The Sylhet Forest School also has very good coverage of social/participatory forestry with subjects like sociology, agro-forestry, and social forestry included in the curriculum as compulsory subjects. The Forest Guard training course at the Sylhet Forest School has also revised its curriculum to emphasise participatory forestry and extension.

The Forest School at Rajshahi was established under the first Community Forestry Project of Bangladesh in 1985 to impart training on social and community forestry to forest extension workers. Courses on social/participatory forestry programmes have also been introduced at the Chittagong Forest School.

In Bhutan, the Bhutan Forestry Institute offers a one-year basic forestry course, primarily for forest guards, which includes courses on social forestry. The Natural Resources' Training Institute (NRTI) at Lobesa offers a three-year diploma course in agriculture, animal husbandry, and forestry. For foresters, part of the course also includes social forestry.

Forestry education and training institutions in Himachal Pradesh are undergoing rapid change to reflect the focus on participatory forest management. A beginning was made when a new training curriculum oriented towards participatory forest management was developed by a two-week workshop in November 1995 at the Sundernagar Training Centre. However, different institutions are at different stages of curriculum change.

The university and colleges in Jammu and Kashmir have not incorporated any curriculum on participatory forest management, nor have any of the training institutions run by the Forest Department. In Uttaranchal, the Forestry and Van Panchayat Training Institute at Haldwani has been training Range Officers and Van Panchayat Sarpanchs. The course content for training both Range Officers and Forest Guards in the Forest Guard schools in Almora and in Dehradun do not include participatory management of forests or participatory rural/rapid assessment techniques. However, the Uttar Pradesh Forestry Project envisages several job-specific and site-specific training programmes under its human resources' development component during the next four years.

In Nepal, appropriate changes have been made in the curriculum of the Institute of Forestry to train students in participatory forest management (PFM), although PFM topics still constitute only l3% of the course. Similarly, the training section of the

Ministry of Forest and Soil Conservation also imparts various types of training on PFM, as do various donor-funded community forestry projects. The Department of Forests has five Regional Training Centres. They carry out central, regional, and district-level training. The Regional Training Centres have been supported by the Community Forestry Training Programme to address the overall needs of community forestry in the country. The Regional Training centres carry out regular training needs' assessments to make the training more fruitful.

In Pakistan, the curricula in forestry courses traditionally included watershed management, range management, logging, engineering, social forestry, and a small course on wildlife, fisheries, countryside recreation, sociology, and public administration. With the shift away from traditional protection forestry to participatory forestry from 1985-95, forest education at the Pakistan Forestry Institute (PFI) in Peshawar and forestry schools has undergone considerable change. The present syllabi of the BSc Forestry and MSc Forestry courses taught at the PFI reflect this change. See Table 17.1 for a comparative overview of PFM in the HKH (page 446).

17.2 Strategic Issues for PFM in the Hindu Kush-Himalayas

The potential of participatory forest management as a promising mechanism that can contribute to poverty alleviation in mountain areas is contingent upon a diversity of factors. A review and analysis of policies and experiences in the different countries of the Hindu Kush-Himalayas provide evidence that ,whereas the last decade has seen major shifts in policies, barriers and obstacles still remain to participatory forest management.

This section deals with each of these important issues and highlights the advantages of participatory forest management, factors for its successful implementation, barriers and obstacles, and a synthesis of strategic issues vital for participatory forest management.

Advantages of PFM

Advantages of Participatory Forest Management include a number of issues pertaining to the improvement of the biophysical environment, meeting the needs of local communities in an efficacious manner, and effective resource generation and use for community development and poverty alleviation.

Improved forest protection, rehabilitation and management

One of the main benefits perceived is that PFM improves the protection and rehabilitation of degraded forests and facilitates sustainable management of forest resources. PFM's role in increasing a feeling of ownership and a sense of attachment to the resource among local communities is important for the sustainable management of forests.

Meets the subsistence needs of the communities

Under PFM, the communities themselves can set forest management priorities to produce those forest products that best meet their needs. Their subsistence needs can be met at minimum cost and products can be obtained more easily than without it. Increasing the quantity or range of forest products saves the time and labour of communities for obtaining these resources, and this allows them to be involved in other productive activities.

Income generation and employment

The role of PFM in increasing employment opportunities in plantation and other activities, such as forest product crafts and trade, is considered to be a major advantage. Local communities can market surplus forest products and generate income that can be used for community development programmes and contribute to poverty alleviation. PFM also allows local community institutions to undertake other resource generation activities such as value addition and marketing, and they can mobilise other resources for community development.

Local institutional development

One aspect of PFM is the evolution of community institutions to undertake PFM activities. Such local institutions are responsible for improving the participation of communities in planning, implementation, and monitoring and evaluation of programmes. Furthermore, they develop policies on institutions and resource mobilisation and gender and equity issues at the local level. The evolution and development of these institutions is thought to exert an influence beyond community forest management (Joshi 1998). The institutions have an overall positive impact on civil society; communities learn to work in groups, to have their say, to resolve conflicts, to negotiate with 'outsiders', to run effective organisations, to plan effectively, and to implement their plans. These are all important facets of overall community development processes, and local institutional development in PFM is considered to augment these community skills and actions.

Efficient resource use

PFM promotes the optimal and efficient use of available resources. This is an outcome of collaboration between the government, local communities, and other organisations. As more resources become available for rehabilitation, protection, and development activities, better scope for ensuring accountability on the part of all the stakeholders involved ensues.

Improved relationship between the government and local communities

PFM contributes to building a relationship of trust and confidence between the people, the forests, and the foresters. It results in a synergy from the pooling of knowledge from all stakeholders and facilitates the sharing of information and improved management of resources.

Factors for successful PFM

The key factors identified for successful participatory forest management include appropriate policies, rules, and programmes; recognising local communities' capacities; adoption of a participatory approach; appropriate institutional arrangements; human resource development; commitment to learning and sharing; and appropriate donor support.

Clear and stable policy support

Strong policy support and a stable policy are considered to be of paramount importance for successful PFM. Frequent changes in policy could have an adverse impact on the sustainability of PFM programmes. Clarity in both policy and the legal framework is very important.

Presence of appropriate and timely rules

Policy is only a statement of intent. Appropriate and timely rules are essential to ensure PFM policies are implemented as properly planned programmes. Many of the countries have policies, but there are no rules and guidelines to support them. This remains an important issue for the future of PFM.

Mechanisms to periodically review policies, rules, and programmes to ensure the appropriateness and timeliness of government actions are indispensable for successful PFM.

Recognising people's capabilities

The emphasis on recognising people and their capabilities is one of the most important aspects of successful PFM policies and programmes. The most important factors are people's involvement in the decision-making process from the planning stage to programme implementation and recognition and respect for traditional and indigenous knowledge. This recognition requires a change in the traditional attitudes of foresters who tend to value 'scientific' knowledge above 'traditional' and 'indigenous' knowledge and to consider local people to be part of the 'problem' rather than a part of the 'solution' (Bhatia, Pelinck, & Rastogi 1998).

Stakeholder participation and community involvement

The thrust of PFM is on involving local communities and empowering them to increase their roles in making decisions about local resource management. Their involvement in the early stages of planning is vital. The PFM stakeholders are not only constituted of local communities and the government, but also include others like non-government organisations and private businesses. These are important allies in providing diverse services. Innovative strategies for fostering stakeholder participation are considered a key factor behind the success of PFM.

Appropriate institutional arrangements

Without appropriate institutional arrangements, PFM cannot be viable. Appropriate institutional arrangements include both government institutions and local-level

community institutions. Government institutions need to have structures in place that ensure that government staff are in regular contact with local communities and are able to support their initiatives. This is a major determinant for the success of PFM. Similarly, robust community organisations need to be in place at the community level to develop and enforce community norms, help in conflict management, and lead participatory development planning and implementation.

Human resource development

Adequate numbers of government staff with appropriate attitudes and skills are indispensable for the successful implementation and promotion of PFM. Local communities may also need to be trained in new skills related to organisational management, mobilisation of people, and technical issues for resource management; all of which are needed for PFM. For these, training needs' assessment and training centres are required. Regular upgrading of the skills of trainers and regular assessments of the usefulness of training are also very important.

Learning and communication

A spirit of learning by doing and of communication have also emerged as a key factors for success. Although countries can learn from the experiences of other countries, 'learning-by-doing' is the best approach to ensuring that policies and programmes are truly suited to the situation of the country. Communications need to be improved, and feedback systems to policy-makers and communications between foresters and communities need to be established.

Appropriate donor support

In many countries, donor support has been important in providing resources, facilitating human resource development (HRD), refining policies, and implementing PFM programmes. Yet, donors need to be sensitive to a government's overall policy, and their actions should be transparent and accountable. Some donors attempted to put undue pressure on government institutions to implement standardised activities in all places, ignoring mountain specificities and not considering the level of funding. Disregard of appropriate timing and the level of scaling-up of programmes often leads to failure.

Barriers and obstacles to PFM

Despite the dramatic developments in participatory forest management, several barriers and obstacles still hinder the optimum growth and implementation of participatory forest management in the Hindu Kush-Himalayas.

Inappropriate legislation

Weak, complex, conflicting, and top-down legislation promotes confusion and leads to inappropriate PFM implementation. Inflexibility in rules to meet specific sociocultural conditions can also hinder PFM implementation. In many cases, other

government acts and programmes need to be taken into consideration, or even changed, so that PFM policies and actions do not contravene these acts or programmes.

There should be appropriate policy guidelines, and these should be backed by legislation. Legislation should be clear and simple. Stable forest policies, acts, and regulations are needed. Government legislation on PFM needs to be framed so that it complements other legislation.

Lack of priority given to PFM in national programmes

Inadequate priority given to PFM in national programmes leads to insufficient funding, which in turn results in inadequate human resource development and inadequate extension services. This remains a big obstacle for PFM in the Hindu Kush-Himalayan region.

Inadequate focus on changing attitudes and behaviour

Most country strategies for HRD do not explicitly include changing the attitude and behaviour of forestry staff as a priority. Attitudes and behaviour affect many activities as well as the relationships between forestry staff and local communities. Failure to focus on change has many negative impacts on PFM and community development as a whole. There will have to be a change in the approach of foresters and policy-makers from the top-down traditional style to a bottom-up participatory mode of working. All stakeholders should be committed; the will of the government, bureaucracy, and the people is absolutely imperative for the success of PFM. Mutual understanding and respect should be developed between all stakeholders in PFM, and there should be coordination and cooperation, not only between communities and the forest department, but also between different government departments.

A comprehensive HRD programme should be developed for PFM. This is not just a matter of training staff or local people, it also involves offering appropriate incentives so that the training is effective.

Failure to address complex social factors

Many forestry policies and programmes only take into account the technical and biophysical aspects of forestry. However, for PFM, social, institutional, and political realities also need to be considered. At the community level, social customs, such as gender issues, the caste system, and economic disparity within the community, often lead to inequitable sharing of benefits and conflicts (Bhatia 1997).

There is a complex range of stakeholders in participatory forestry and a need to involve the different groups of stakeholders in decision-making (Khanal 1998). The involvement of non-government organisations (NGOs) in facilitating communication and supporting extension services has been very important in some HKH countries. NGO involvement in communicating policy and implementing programmes at the

grass roots, an area in which many governments have limitations, has been particularly important for the promotion of PFM (Bhatia 1995).

Lack of transparency

A true spirit of trust and collaboration can only take root if transparency is maintained in decision-making by the government and local community-level institutions. When policies, rules, and legislation are made without wider consultation, important issues are often ignored and this leads to conflict.

Many communities do not follow the rules, guidelines, and management plans, and there is a lack of transparency in their activities. This can lead to disappointment with PFM and undermine its promotion. Lack of information and lack of awareness at various levels exacerbate such situations.

Lack of conflict resolution mechanisms

If there are no appropriate conflict management mechanisms to deal with conflicts that arise, this will seriously undermine programmes. Conflict resolution mechanisms need to be easily accessible, cost effective, timely, and consultative. As yet, none of the countries has any specific rules or programmes to address this issue.

Lack of site-specific planning

Inflexibility in the rules, regulations, and programmes can mean that a programme unsuitable to a place is forcibly implemented. This insensitivity to site specificity will cause the programme to fail. This is particularly true in a widely diverse mountain region like the HKH.

Lack of recognition of usufruct rights

Lack of recognition of local usufruct rights leads to conflict between local communities and the government. This undermines a good working relationship between the stakeholders and PFM cannot flourish under such circumstances.

Lack of security of tenure

Lack of clearly articulated security of tenure over land and products being managed by local communities under PFM can be a disincentive to local communities participating fully in PFM activities. This remains an important issue in the countries of the HKH region.

Poor involvement of women

Whilst the important role of women in natural resource management in the HKH region is well understood, practical policies and programmes to enhance their role, particularly in decision-making, remain elusive. This is an issue being faced by all the countries in the region and, without adequate emphasis on this, PFM is unlikely to be truly successful. PFM should make participation more effective by undertaking programmes for the empowerment of women and disadvantaged groups.

Inequitable benefits for the poor and the disadvantaged

The success of PFM should not be measured simply in terms of the protection and regeneration of forest resources, but also in terms of whether or not it meets the needs of local people. In many cases, studies have shown that the poor and the disadvantaged do not necessarily benefit from overtly protection-oriented PFM. It is important to recognise this, and PFM programmes should be sensitive to the needs of the poor and disadvantaged.

Alternative income generation is very important, especially for the poor and the disadvantaged, since the gestation period from planting to harvesting is long. Alternative income-generating activities should be implemented as part of the PFM programme in such areas.

Strategic Issues for PFM

The strategic issues for participatory forest management include a strong endorsement for participatory forest management at the policy level, lack of alternative options for forest management, the debate about forest areas for community management, the need for focus on equity and gender issues, benefit-sharing arrangements, human resource development, attitudes of foresters, and sensitisation of policy-makers.

Strong support for PFM as a viable option

There is a growing consensus that PFM is a viable option for sustainable forest management in the Hindu Kush-Himalayas. The emergence of policies on PFM in the countries of the HKH is an indication that this has been recognised. This provides an important opportunity to ensure that forest products contribute to poverty alleviation in mountain areas..

Lack of alternative options for forest management

No concrete alternative approaches to PFM for sustainable forest management are currently available. In the past, custodial approaches by government institutions were not very successful in maintaining the extent and quality of forest resources, in meeting the needs of local communities, or in meeting the needs of the country. This underlined the strong endorsement of PFM for resource conservation, sustainable management, and poverty alleviation.

As a future strategy, it is recognised that the involvement of local communities is critical and that there is a number of forest management models incorporating varying degrees of community participation.

Forest types and areas appropriate for PFM

With the exception of Nepal, all the countries of the HKH only implement PFM in degraded forest areas. This remains a very important issue for the future of PFM. If the governments were to persist in only implementing PFM on degraded lands, then local communities would have an incentive to degrade existing forests. Handing over good quality forests to local communities is an appropriate measure against

further forest degradation. The current policy framework that excludes well-stocked forests from placement under community management systems needs urgent review.

Equity and gender

Equity in sharing benefits and real participation of women and disadvantaged groups are important factors in the success of PFM. Lack of concern for equity will lead to conflicts and undermine any collaborative work, whether within a community, between communities, or between communities and forest departments.

Attention to gender issues is considered very important in all the countries of the HKH, including development of PFM. Development of innovative strategies in improving gender relations and in promoting the role of women in decision-making on issues related to the governance and management of forests will need to be high on the PFM agenda in the region. The critical gap between policy and practice on equity and gender issues needs to be bridged.

Benefit sharing arrangements

There is a diversity of arrangements for sharing forest products and income from forests between the government and the local communities in the countries of the HKH. In Nepal, the forest user groups retain all products and income generated, whilst in most other countries there is a sharing of benefits. Where benefits are shared, there is often inadequate clarity about whether it is the gross or the net benefit that is to be shared. A need for clarity is imperative, and there is a debate about what constitutes a fair sharing arrangement. This issue is of great importance, and it is unlikely that the same approach will be effective in all countries. Stakeholders, especially the local communities, will need to be included in negotiations on fair sharing arrangements. This has to be carried out with a sense of urgency, as the absence of clear arrangements for sharing benefits could undermine the trust of communities and have a negative effect on the promotion of PFM.

Human resource development challenges

Capacity building through effective training for different stakeholders is considered to be very important. Traditional forestry training does not include people-oriented planning and does not address the training of local communities or the incorporation of social aspects in forest management adequately. HRD encompasses not only formal training but also a range of other activities that provide learning opportunities. The issue of motivation and incentives is considered to be very important, as well as that of changing the organisational culture so that organisations can be responsive to changing HRD needs and recognise, facilitate, and promote innovations.

Training institutions should be strengthened by upgrading their physical facilities and the quality of trainers and material should be improved. Shortage of trainers with adequate field experience remains a great constraint to HRD. Improvement of formal forestry training at universities and other forestry schools is essential. Most

courses are too theoretical and,in many cases, the curriculum has not been updated to reflect innovations in participatory forest management.

Attitude of foresters

The question of attitude is closely linked to the training received and the institutional culture, including the history of forestry organisations. Traditional top-down attitudes of foresters, which have been largely shaped by the custodial approach of forestry institutions need changing and attitudes inculcated that are compatible with a more catalytic role suitable to the concepts and approaches of PFM.

Sensitisation of policy-makers

With increasing understanding that participatory forest management cannot exist in a vaccuum divorced from policies and practices in other sectors that aim to alleviate poverty, policy-makers need sensitisation. This sensitisation process has to provide a central focus to the sustainable management of forest resources in mountain areas as a potential source for growth and poverty alleviation. Policies in important sectors such as industry, infrastructural development, water resources, tourism, and so on need to ensure that the sustainability of forest resources is not negatively affected. As policy-makers try to balance conservation and development objectives in their pursuit of poverty alleviation, sensitisation emerges as an extremely urgent strategic issue.

Linkages with local governance

The shift to democratic structures, decentralisation, and devolution poses new challenges for community-level institutions charged with the responsibility of managing the forest resources of the Hindu Kush-Himalayas. Elected local-level institutions are interacting increasingly with forestry users' community organisations and, while the terms of this engagement are evolving, it is evident that, along with opportunities, concerns related to conflicts and problems exist. Positive synergies between these two vital stakeholders can make a significant contribution to growth and providing a better quality of life for mountain communities.

17.3 Conclusion

The dramatic changes in the policy domain in participatory forest management are a symbol of an important change in community-based resource management. The fact that these changes have taken place in the short span of a decade are significant in the 150-year history of forest management in the countries of South Asia and represent opportunities for taking advantage of the potential in both community institutions and in the forest resources of the mountain region.

We can move into the next century with a sense of optimism. The evolution of these policies for mountain forests would not have been possible without the sustained effort of the women and men of the mountains who have demonstrated that, given an enabling environment, they can be entrusted with the sustainable stewardship of mountain resources.

We are now moving from a decade of policies and experiments to a future of practice and implementation that will test these policies on the ground and lead to further reflection, learning, and change. This will call for a high level of political will and commitment from a diversity of institutions to ensure that policies do not remain merely statements of intent but can be put into practice.

The new opportunities represent a challenge to explore the shadows that fall between the notion and the act and which will ultimately contribute to a better quality of life for the mountain people and resources of the Hindu Kush-Himalayan region.

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Chapter 18
Improving Accessibility for Mountain Development: Role of Transport Networks and Urban Settlements

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18.1 Introduction

The age of development commenced with the unanimously recommended strategy of modernisation. The concept of modernity was synonymous with growth. To sustain and accelerate economic growth an adequate physical infrastructure was a prerequisite or constituted an eminent component of the developmental paradigm. Surprisingly or not, in this respect there was very little difference between the two predominant ideological role models of the 20th century. Mobility and urbanisation were the key parameters of the goal of modernisation, and the process of development required specific strategies. The idea behind all this was that overall development could be achieved by breaking with tradition, by relocating people from rural to urban areas, and by improving the accessibility of formerly peripheral and remote regions. An overall increase in exchange and mobility was envisaged as the tool to solve the problem of backwardness and underdevelopment. The principle of unlimited growth was finally challenged by perception of the limited resources available. In a global perspective, the unrestricted growth model had failed and was succeeded by sustainable growth as suggested in the Brundtland Report of 1987. Nevertheless

development thinking and practice continue to be strongly influenced by previous concepts.This persistence needs to be taken into account when focusing on recent developments in mountain areas.

How are these general remarks about developmental paradigms related to the topic of improving accessibility for mountain development? If we try to analyse the role of transport networks and urban settlements, we have to apply a historical perspective and review the processes of improving accessibility and urbanisation to date. The relationship between infrastructure established and its impact on indicators of development needs to be defined. The existing concepts of accessibility and urbanisation have to be evaluated in relation to their efficiency in describing processes relevant for mountain development today before prospects for future development in South Asia's mountain areas can be foreseen.

18.2 Accessibility and Imperialism: Railways

The paradigm of modernity has matured to become a concept that is applied globally. Traffic infrastructure has reached all areas of economic importance. The first railway lines were introduced into South Asia less than three decades after the beginning of railways in Europe. The East India Railway Co. was founded in March 1845, the first line became operative in 1853. Daniel Headrick highlights the importance of this 'tool of empire':

"The 1840s were a time of railroad fever in the Western world, and most of all in Britain. Building the railroad system of India became the most monumental project of the colonial era; it involved the largest international capital flow of the nineteenth century, and produced the fourth longest rail network on earth .." (Headrick 1981).

During the 19th century,contemporary modern traffic was planned along railway lines. Russian colonisation and introduction of physical infrastructure in Central Asia followed an approach similar to that of the British railway networks in India.[1] Railways connected commercial and population centres with seaports and industrial cities. In both empires railheads ended at the foothills, leaving a mountain barrier in between.

With few exceptions, the railway revolution brought about less change in the Himalayan arc than in the European Alps. Railway lines, such as the ones from Kalka to Shimla (opened in 1903), Hardwar to Dehra Dun (1900), and Siliguri to Darjeeling (1880-1886), are remarkable and rare cases in point[2] (Bhandari 1984).

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1 The Russian railhead at Andijan which was linked in 1899 with the Middle Asian in 1899, became the starting point for enterprising traders travelling to Eastern Turkestan and the mountain areas of Central Asia.

2 The Kalka-Simla railway climbed from 640 to 2,150 m, going under 103 tunnels and covering a distance of less than 100 km (Kanwar 1990, 40; Kennedy 1996, 91). The Darjeeling Himalayan Railway (DHR) operated the 88 km of line from Siliguri to Darjeeling covering an altitude of from 150 m to the highest point above 2,200 m. The construction of the DHR Extension from Siliguri Kalimpong began in 1914-1915, but was never completed as a result of natural hazards. The final decision not to continue rail construction towards the Himalayan range was made in 1950.

They opened up the mountain barrier for visitors to the growing numbers of hill stations and the Indian summer capital, Shimla. While in 1873 a journey from Calcutta to Darjeeling (666 km) could take as much as eight days (e.g., for the artist Edward Lear), by the end of the 19th century the same journey took less than 21 hours, and by 1940 less than 14 hours.[3] (Kennedy 1996). Emphasis was put on the accessibility of hill stations, the majority of these settlements could be reached from a railhead within a range of less than one hundred kilometres (Figure 18.1). These services were provided for the exclusive and small group of imperial travellers, while other mountain areas remained untouched by them and their economic development was not significantly linked to railways.

Nevertheless, the vision of the imperial mountaineer, Martin Conway, did not materialise. He had predicted substantial establishment of railways in the Karakoram mountains at the end of the 19th century:

"... Gilgit must grow to be an important trade centre, and possibly, a railway junction on the line from India to Kashgar, where the Samarkand branch will turn off!" (Conway 1894)

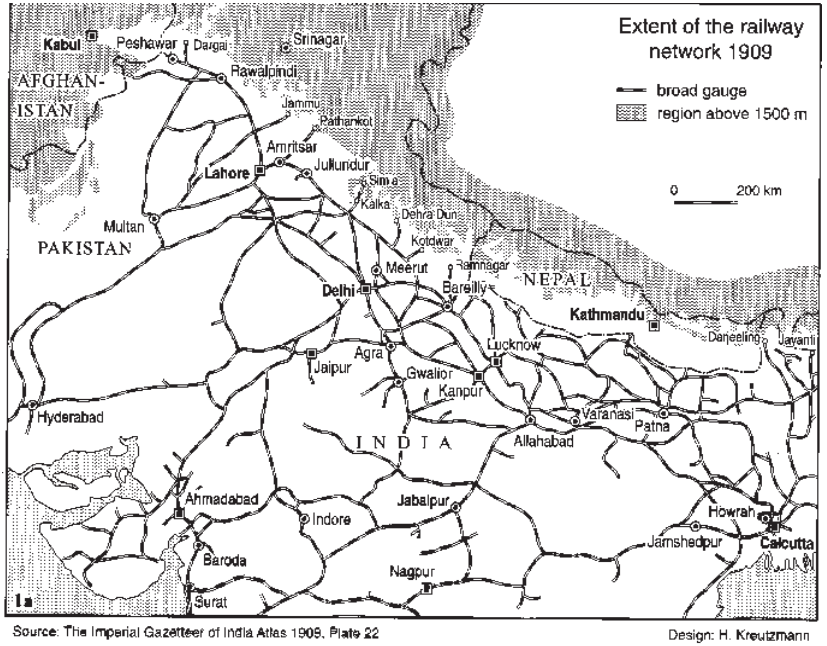

Figure 18.1a: Extent of the railway netweork

[3] In 1982 it took me nine hours to travel by 'toy train' from New Jalpaiguri to Darjeeling (90 km) after spending a night in the train from Calcutta (Sealdah) to the starting point of the narrow-gauge train.

Railway networks were extended to the lowlands and helped to reduce the cost of transportation for bulk goods everywhere. The one-sidedness of this technology is highlighted by the fact that, between 1865 and 1941, about 700 locomotive engines were built in India while 12,000 were imported from Great Britain (Hurd 1982).

The only country where big new railways leading towards the mountain arc have been planned and constructed in recent years is the People's Republic of China. During the Tibet-Xinjiang conference in Xining in 1998, certain serious considerations were discussed about three different railway lines connecting the provinces of Qinghai and Yunnan with the Tibetan capital. Beyond Lhasa, railway lines are meant to run into the South Asian network in a second step. At least in the blueprints ! In 1999 the Trans-Xinjiang railway towards Kashgar was completed and started operating.[4] Experiencing a change in the esteem with which they were held, the railway lines south of the Himalayan arc were not extended much after 1931 and remained essentially unextended after independence (Figure 18.1).

Other communication and exchange relationships deserve attention. In contrast to the colonial incapability of bringing 'modern' traffic into the mountains on a large scale and thus reducing the impact of the 'mountain barrier', important trans-montane trade routes flourished and were responsible for substantial trade in valuable commodities (Figure 18.2). The salt trade between Tibet and Nepal, the Tibetan 'pashmina' (cashmere wool) trade via Kashmir, the sale of Badakhshani opium in the Ferghana oases and along the Southern Silk route, and Yarkandi 'charas' (hashish) as a commodity destined for the plains of the Indian subcontinent are only a few cases in point; and in addition jade from Khotan, silk and carpets from their various places of origin, and uncounted bales of material that changed the tailoring and dressing habits of the people living along the trade routes significantly[5] (Mason 1936; Fürer-Haimendorf 1975; Bishop 1990; Stevens 1993; Choudhury 1996; Kreutzmann 1998a, b; Stellrecht 1998). The mountain communities which became involved in these businesses made ample use of their opportunities to generate off-farm income by providing transport and services to traders. Consequently, many groups of mountain dwellers were able to change their lifestyles and to broaden their earning bases by breeding transport animals or carrying loads themselves. The service sector connected with 'traditional' mobility should not be underrated as these 'agents of change' left significant traces themselves.

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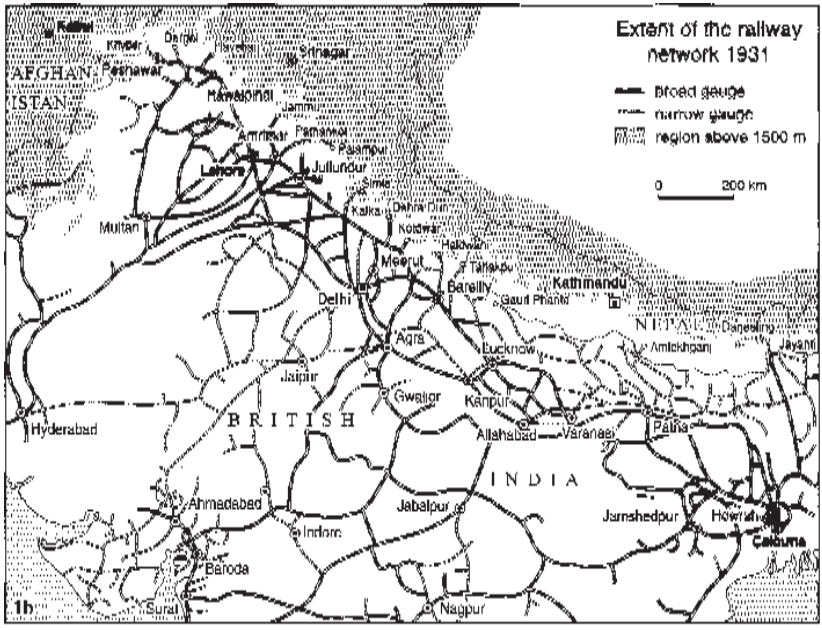
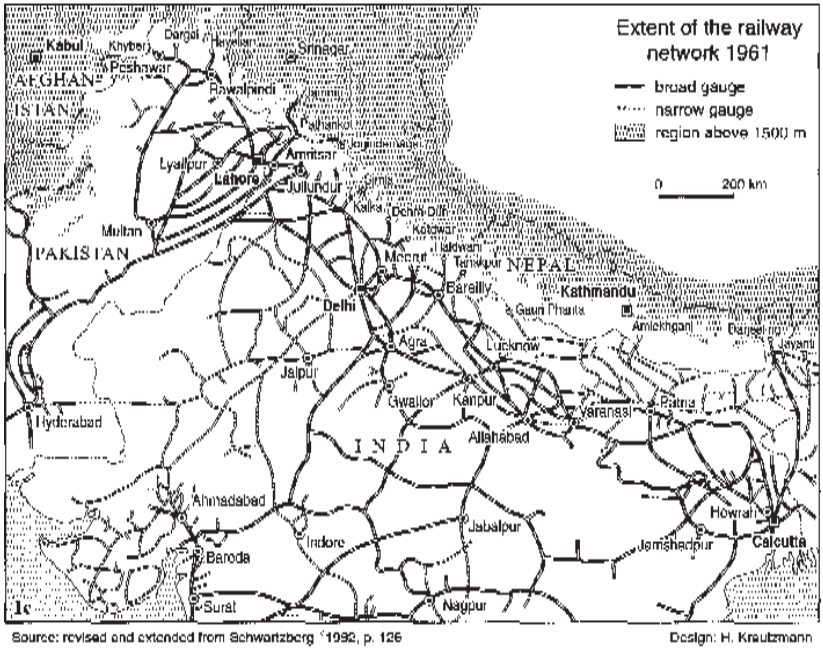
4 The railway station in Kashgar was not ready for the scheduled opening of the new line on the 50th anniversary of the People's Republic of China.

5 Starting with the impact of railways, Kenneth Mason (1936) argues from a strategic point of view. Consequently his perspective concentrates on the changes in the Himalayan arc as a communication barrier based on developments in the modern traffic sector (roads and air routes) neglecting the above-mentioned existing forms. More recent research has shown their impact.

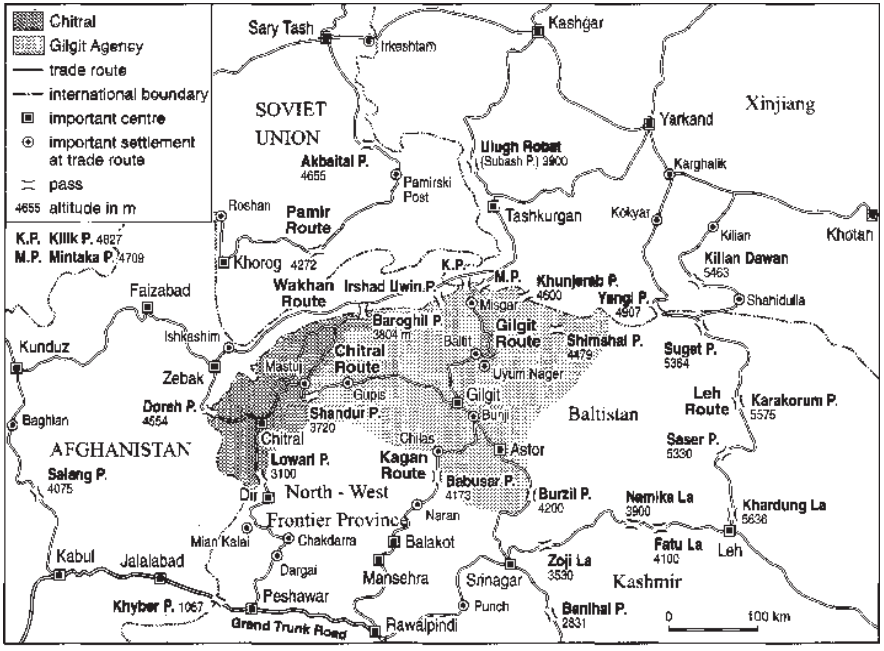




Source: revised and extended from Schwartzberg 1992, p. 126

Design: H. Kraubmann

Figure 18.1b & c: Extent of the railway network in 1931 and 1961



Source: revised from H. Kreutzmann 1991 : 720

Figure 18.2: Important trade routes between Central Asia and British India in 1935

18.3 Accessibility after Independence: Road Systems

In the 20th century, motorised transport became the appropriate technology and revolutionised communication. The advent of motor vehicles and the construction of roads in the mountain belt began in a singular mode and required a different planning background from that of railways. Roads for small four-wheeled vehicles can be built following traditional mule tracks, which need some extension or amendment and, especially, strong cantilever and suspension bridges. Some regions were connected to motor traffic already during colonial times. These enterprises were the adventurous ones, for example the Citroen expedition across the Karakoram – devoid of any roads at that time - in 1932 en route from Beirut to Beijing. Prior to that the first motor car was brought to Chitral in pieces and was re-assembled to run in the main valley on specially constructed roads for the local ruler. Direct access to Chitral by crossing the Lowari pass (3,100 m) was only possible after 1947[6] (Kreutzmann 1998a). Two years later, the first motor vehicle made its way into Gilgit (Kreutzmann 1995a). The completion of the Tribhuvan Rajmarg in 1956 linked

[6] It took another five years, after widening the road between Dir and Chitral (Fig. 2), for regular traffic to commence.

Kathmandu to the border town of Birgunj in the Terai (Table 18.1). Prior to this event a limited network of motor roads existed in the Kathmandu Valley. Bhutan's most important places – Paro and Thimphu – were initially linked to the Indian road network in 1962 when the Indo-Bhutan Highway started to function.

Table 18.1: Major trans-montane road systems in high Asia

Mountain Range	Destination	Name	Pass	Altitude (in m)[1]	Length (in km)[2]	Date[3]
Hindu Kush	Kabul-Jalalabad-Peshawar	Khyber Road	Khyber	1067	232	1963
	Kabul-Qizil Qala-Dushanbe	Salang Road	Salang	3600	497	1965
Pamir	Osh-Khorog	Pamir Highway	Akbaytal	4655	728	1932
	Dushanbe-Kala-i-Khum-Khorog		Shorobot	3252	536	1940
	Khargosh-Khorog	Pamir-Ishkashim	Khargosh	4344	280	
	Murghab-Tashkurgan	Gorno Badakhshan-Sarikol	Khulma			1998
Pamir/Karakoram	Khunjerab-Tashkurgan	Friendship Highway	Khunjerab	4550	120	1968-86
Pamir/Kun Lun Shan	Kashgar-Tashkurgan		Subash	3900	294	1958
Tienshan	Kashgar-Naryn-Bishkek	Xinjiang-Kyrgyztan	Torugart	3752	600	1983
Kun Lun Shan	Yarkand-Gartok	Aksai Chin Road	Khitai	5341	1200	1956-57
Karakoram/Himalaya	Khwazakhela-Chilas	Indus Valley Road	Shangla	2150	278	1959-65
Karakoram	Thakot-Khunjerab	Karakoram Highway	Khunjerab	4550	735	1964-78
	Gilgit-Skardu	Skardu Road	-	-	210	1950-68
	Abbottabad-Gilgit	Kagan Route	Babusar	4173	420	1948-49
Himalayas	Rawalpindi-Srinagar	Kashmir Road			320	
	Jammu-Srinagar	Banihal Road	Banihal	2196	330	1955-60
	Srinagar-Leh	Ladakh Road	Fatu La	4100	435	1962-74
	Leh-Khardung La-Thoise	Nubra Road	Khardung La	5636	80	1980
	Birgunj-Kathmandu	Tribhuwan Rajpath	Daman		221	1953-56
	Kathmandu-Xigazê	Arniko Rajmarg	Zanglu	5481	500	1963-67
	Kalimpong-Xigazê		Natu La	4310	370	
	Phuntsholing-Paro/Thimphu	Indo-Bhutan Highway			180	1959-1962

1) Altitude refers to the highest point on the road (pass)
2) Length indicates total destination between connected points
3) D ate describes the period of construction and/or the opening of sealed surface/asphalt roads
Source: Extended table from Kreutzmann (1998, 23)

Earlier road networks were developed in the Soviet Union where the Pamir Highway was completed in 1934 linking Osh in Kyrgyzstan with Khorog, the central place in Gono-Badakhshan in Tajikistan via the 4,655 m high Akbaytal pass. These examples of early linkages of mountain regions to existing road networks show the great variety of methods employed to make mountain regions accessible.

Ecological constraints are blamed for the general bias between highland and lowland accessibility, although population density, socioeconomic performance, and strategic interests need to be taken into account. Environmental aspects seem to be of minor importance as railways and roads have not only been brought to areas where natural conditions are favourable. Regional disparities in road networks in South Asia's mountain belt follow a different logic than that of environmental determinism. This observation leads us to the question of planning roads, pressure groups, and specific interests.

The strategic importance of the border regions in the mountain arc has to be seen as the driving force behind development of physical infrastructure. A monumental road was planned during World War II. British blueprints had been drafted for a road connecting Kashmir with Xinjiang in order to support the armed units of the Guomindang General Chiang Kai-shek. This strategic enterprise was for the purpose of military support against Japanese occupation forces in China and Mao Zedong's Red Army. In addition, Soviet influences in Xinjiang were to be controlled, thus a giant project involving 70,000 labourers and army staff was to be executed. As the war ended a short time afterwards, this project did not materialise; and, incidentally, it was immense, having been calculated on the basis of nine million days' work within a span of one year for the section from Gilgit to Kilik Pass alone (IOL/P&S/12/4609). After a lapse of half a century, this was the first serious attempt to realise the prognosis of Captain Medley and voiced in 1896:

"The road [Punjab-Khagan-Chilas-Gilgit-Hunza-Kilik Pass-Yarkand] will in fact become the Grand Trunk road from Central Asia to India." (IOR/2/1064/45)

However, its implementation was to be subjected to further changes as a result of regional politics. This major road link between the Grand Trunk Road of South Asia (Figure 18.3) and the Central Asian highways following the Southern Silk road was realised after Pakistan's independence and the Chinese Revolution. Its construction was based on the common strategic interests of the neighbours. The Karakoram Highway (KKH) has become a symbol connecting two major regions of subcontinental dimensions and two historical road networks. In our context the KKH is taken as a case in point for discussing the overall results of projects to bring about strategic accessibility.

Case study: Karakoram Highway

The first link for 'modern' traffic from Northern Pakistan with down country Pakistan was established from the railhead in Havelian (NWFP, Figure 18.1) via the Kaghan

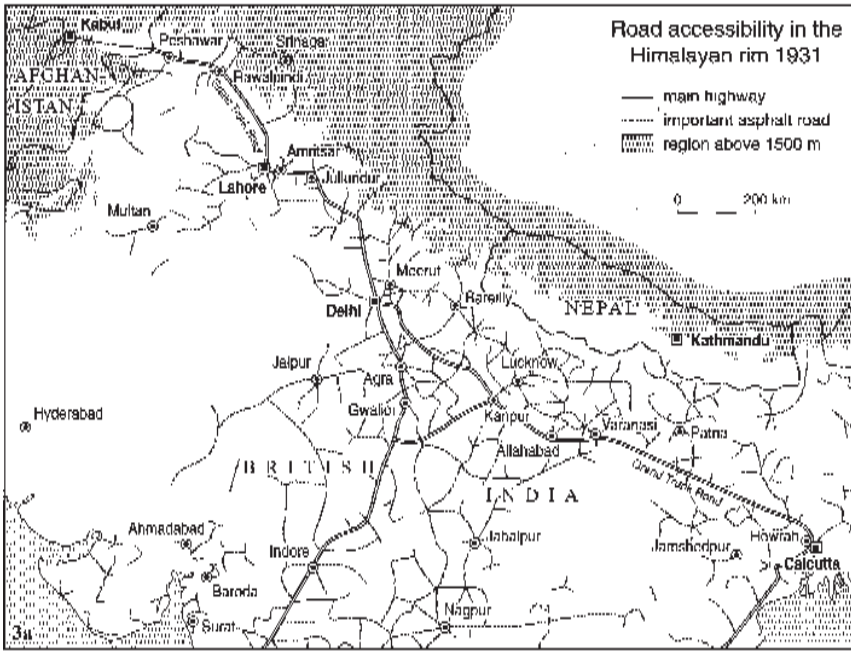


Figure 3a

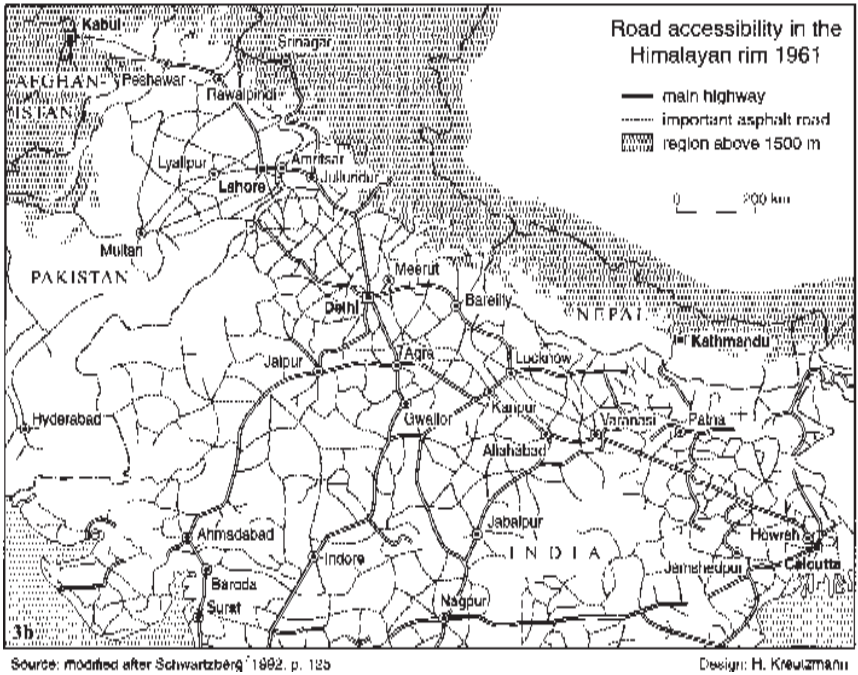


Figure 3b

Source: modified after Schwartzberg 1992, p. 125

Design: H. Kreutzmann

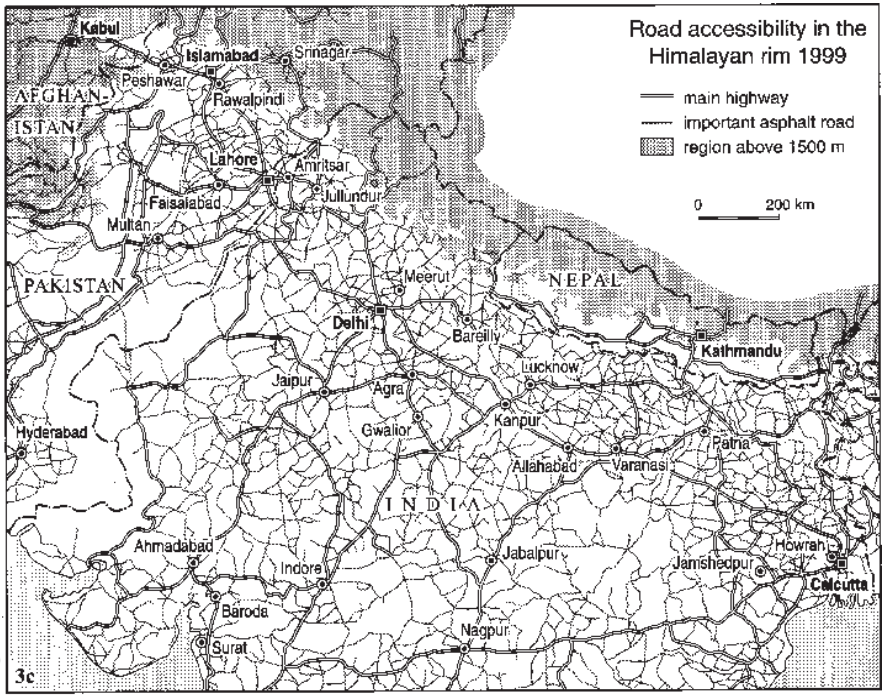


Figure 3c

Source: Indian Subcontinent (1:4 Mio.) 1999

Design: H. Kreutzmann

Figure 18.3a, b, & c: Road accessibility in the Himalayan rim 1931, 1961, & 1999

Valley in 1949. This route followed a mule track built in colonial times to support the British administration and the garrisons in the Gilgit Agency.[7] It was only after independence that the first jeep reached Gilgit - a cul-de-sac of its own - before the track was extended to Hunza in 1957[8] (The Times 1949). The road across Babusar Pass (4,173 m) remains open for three months in summer only and during the rest of the year air links transport valuable supplies at high cost.[9]

After the inception of Pakistan's first Village Aid Five-Year Plan in 1956, development efforts paid for by public funds reached the mountains and were made available to the Gilgit Agency. A participatory approach facilitated the construction of suspension bridges to span the Hunza River near Danyor and the Gilgit River at Sher Qila. Villagers provided three-quarters of the cost and all the unskilled labour and cut all the wood for bridge construction from communal forests (Clark 1960). In this early

7 Before 1935 the Gilgit Agency was supplied with goods via Burzil pass (4,200 m) from Srinagar. After the lease of Gilgit to British India, the Babusar route was expanded and improved by military engineers and contractors for the summer caravans. Both routes were closed in winter because of heavy snowfall.

8 A photograph of that event is on display in the Gilgit Municipal Library.

9 Air traffic between the Punjab and Gilgit was introduced as early as 1927.

stage of development the Central Government covered '75% of all non-recurring expenditure and 50% of recurring expenditure' (Clark 1960) trying a holistic approach by introducing new wheat varieties, new ploughs, different fruit varieties, improved livestock (pedigree bulls, merino rams, and so on), silkworm production, and new weaving looms for local tweeds. Out of the annual Village Aid Programme's budget of Rs 300,000 (circa US $ 65,000), two thirds were spent on transport alone. Without accessibility goods from the lowlands sent to places in the mountains where they were needed were very expensive. Consequently, the budget remaining for development projects decreased substantially.

Not surprisingly, the transport charges for one 'maund' (1 'maund' equals 37.32 kg) of goods from Rawalpindi to Gilgit were from 25 to 35 Rs, while carriage costs on the return trip ranged between zero and eight rupees (Staley 1966), highlighting the limited to negligible exports from the mountains. Air transport from the plains to Gilgit increased the cost of a sack of chemical fertiliser by a factor of twelve from five to 60 rupees (Clark 1960). In order to reduce transportation costs for basic goods, an Indus Valley Road from Swat was proposed and in 1959 construction began (Table 18.1). As a result of the Pak-China Border Treaty of 1963, bilateral cooperation led to what has been termed the Pak-China Friendship or Karakoram Highway (KKH). By 1975 the KKH was carrying trucks, and since 1978 regular traffic has plied between Rawalpindi and Gilgit.

In addition to trans-montane exchange of goods, the KKH brings in subsidised cereals from down country Pakistan into the region. It is the lifeline for Northern Pakistan with its ever-growing food deficit (Table 18.2). Cereals, fresh meat (imported as live animals for slaughter in the bazaars), and cooking oil account for more than three quarters of all imports from the lowlands. The per capita dependence on supplies through this artery is highest for the Gilgit District and significantly lower in Chitral and Baltistan. Chitral will be seasonally cut off from external supplies until the tunnel under the Lowari Pass is completed.[10] Baltistan has been linked to the Karakoram Highway by an asphalt road that now enables year-long traffic and a rapid change in the market prices of basic commodities.[11] In addition to its obvious military importance, huge quantities of food are brought into the region to supply army personnel, tourists, and growing numbers of local farming and trading households.

As early as 1972, the Government Report of Abdullah (1972) advocated the regular supply of basic food items to northern Pakistan from the grain chambers of lowland Punjab. The concept proposed favours an exchange of a different range of cash

[10] The Lowari tunnel has become a story in its own right. After planning for two decades, work commenced in the 1970s but was stopped soon after and never commenced again. The tunnel has become a symbol of the unkept promises at prime ministers and candidates to their electorates.

[11] The Baltistan road did not exist as such in previous times when Baltistan was oriented towards Srinagar. In 1963 the first road link to Gilgit was established across the Deosai Plateau, two years later by the Indus Valley.The road was extended and asphalted in the mid-80s.

Table 18.2: Import of regular items from the lowlands to the eastern Hindu Kush and Karakoram valleys of northern Pakistan in 1989

Commodity	Import via Karakoram Highway (in million Rs)				Import via Lowari Top Road (in million Rs)	
	Gilgit District		Baltistan District		Chitral District	
	absolute	%	absolute	%	absolute	%
Wheat flour and grain	70.00	34.7	3.60	15.4	23.00	49.5
Rice					13.00	28.0
Pulses	7.00	3.5				
Cooking oil	37.00	18.4				
Fresh vegetables	9.30	4.6	2.74	11.7	1.61	3.5
Fresh fruit	5.04	2.5	0.68	2.9	1.83	3.9
Beef and mutton	29.95	14.9	10.01	42.8	1.21	2.6
Poultry products	18.30	9.1	5.72	24.5	0.84	1.8
Milk products	17.57	8.7	0.64	2.7	5.00	10.7
Fruit juices	1.25	0.6				
Kerosene oil	6.06	3.0				
Total	201.47	100.0	23.39	100.0	46.49	100.0
Total (Rs per capita)	738.6		83.2		172.2	

Source: Data compilation and calculation according to Khan and Khan (1992: 15) and Kreutzmann (1994: Figure 7)

crops from the mountain valleys with surplus staple foods from the plains, with transport subsidised from public funds. In Abdullah's opinion, self-sufficiency in cereal production cannot be achieved in the mountain valleys. For example, the highly subsidised and competitive prices of wheat flour (ata) cannot be met by local producers. Consequently, the proportion of food produced locally is steadily decreasing. In some villages of the Hunza Valley, local production of ata nowadays is less than one third of the household's annual consumption. The dependency on down-country supplies for other consumer goods is even greater than for flour. Consequently, for the first time in history there are now no periods of starvation and famine, as such disasters have been prevented by subsidies and crisis management on the part of the Federal Government and the World Food Programme.

The observation of Robert Chambers that research and development projects follow networks of roads (Chambers 1983) has been supported by the extension of major development projects to this region in the aftermath of construction of the KKH . The Government of Pakistan and non-government organisations with international funding have established rural development and community services' projects. These projects are having a substantial impact on the physical infrastructure, local trading, education, and health services. Their efforts also focus on the extension and improvement of existing agricultural resources. By applying economics to different scales of production, they aim to increase productivity through the cultivation of

valuable niche products such as seed potatoes, vegetable seeds, and special varieties of fruit (Khan and Khan, 1992; Kreutzmann, 1993a, b; Streefland, Khan, and van Lieshout 1995). Exchange of goods between the lowlands and highlands is the impetus for this.

In periods of crises, these development models based on long-distance trading relations for cereals and other staples are vulnerable. Possible drawbacks must be kept in mind. Closure of the road because of natural or hazards caused by human intervention can have dreadful results. In the case of the Karakoram Highway, the engineer corps are maintaining the road and most of the natural hazards – especially in spring and during the monsoon season - are managed in such a way that the affected stretches are re-opened after a short while. Providing a service line throughout the year incurrs high costs. It is a great achievement that such a road in extremely difficult terrain provides such a high standard of transportation. Less control is executed when highway robbers and/or politically motivated activists threaten the safety of travel along this lifeline and make use of its uniqueness to exert pressure.

Blockage of the Karakoram Highway by the inhabitants of Kohistan took place in May-June 1993 to convince the public administration that timber exports from the few remaining, and rather depleted, natural forests should no longer be prohibited. The royalties for wood-cutting concessions formed an important source of income in colonial times, especially for the 'jirgadars' (residents with entitlements to community resources) of Tangir and Darel. Local unrest and fluctuating timber prices in Punjab regulated the demand and supply situation. Nevertheless, in 1925, six timber companies, as well as the Northern Forest Company, were involved in timber procurement from Tangir and Darel. These companies originated from as far away as Abbottabad, Sialkot, Lahore, Hoti (near Mardan), and Peshawar.[12] Royalties paid by two timber firms in Darel alone accrued to more than 1.2 million rupees in the course of a few years. In comparison, all subsidies received by the hereditary rulers and governors from the Kashmir Durbar and the Government of India amounted to less than 10,000 rupees prior to 1927 and 12,800 rupees later.[13] Timber has been the most valuable natural resource in the region and a source of income for the jirgadars (Janjua 1998). In neighbouring Gilgit, marginal forest resources appear to have been depleted by 1929, as the administration remarked in their annual report:

"Wood is every year becoming increasingly difficult to obtain. Practically all the wood on the nearest hills and in the nullahs [valleys] has now been cut, and it is necessary to go far afield for supplies."[14]

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12 Records in the Gilgit Agency Diaries between 1921-1930 (IOL/P&S/10/973) provide insight into the practices of timber merchants in exploiting the natural foreests of the Western Himalayas and Karakoram.

13 IOR/2/1083/284, 59.

14 IOL/P&S/12/3288, 6.

Nevertheless timber harvesting without appropriate replantation has continued in the Chilas District and Kohistan. In recent years, royalties from this enterprise, the major source of income for the proprietors of forests, have been at stake. While local residents negotiate bilateral contracts with timber dealers annually, the local foresters from the administration identify the suitable stems to cut. Despite the only marginal incomes from toll taxes, the Forestry Department plays a crucial role as a regulative force. Efforts by the administration to restrict overexploitation and to stimulate replantation were counter-checked by the residents by interfering with traffic flow and other measures. The correlation of road access and forest exploitation or, to be more specific, the degree of tree felling is quite substantial (Schickhoff 1998a, b). In this context, questions about ownership and control of natural resources, such as forests, mineral wealth, and water (irrigation and hydro-energy potential), have become political issues relating to the unsolved constitutional status of the Northern Areas. Road blockages occur more frequently as the result of hazards caused by human intervention such as sectarian clashes. These have resulted in tragic loss of life and have led to the closure of the KKH because of unpredictable dangers. These unstable conditions affect other spheres of global and inter-regional exchange like tourism and trade.

The initial construction of the KKH as an artery between the lowlands and the Karakoram has led to a secondary road network of link roads. In the Hunza Valley more than 95% of all households are connected by jeepable or truckable roads. In the side valleys, such as the Gilgit, Ishkoman, Yasin, and Astor valleys and in Baltistan, the same density is planned and has been achieved almost. New suspension bridges were constructed with bilateral aid. Most link roads have been financed by public funds and regional development plans, some of them have come into existence as a productive physical infrastructure programme of the Aga Khan Rural Support Programme (AKRSP). This development agency has taken on the role of a planning institution for accessibility and connection to markets, especially in remote areas where there are a few scattered settlements. In contrast to public enterprises, which are based on institutional planning and sub-contracting (tekedari) of the work, its key advantage lies in its greater cost efficiency. A link road project is executed as a cooperative effort by a village organisation – supplying the initial idea, workforce, and labour input – and by the development institution – providing labour costs, machinery, and technical expertise (AKRSP 1996).[15] The result is a degree of accessibility only reached in the neighbouring mountain areas of India and the People's

[15] With each and every inauguration of a new link road and/or bridge the representatives of the public administration emphasise the quality and low cost of these projects. Even difficult roads, such as the Shimshal and Yarkhun Valley Roads, including major bridges, have been built in this way. Most link roads were built in Chitral (164 out of 277) in 1994 (World Bank 1996, 144-146) where traffic infrastructure lags behind in a valley without all-year round connection to down-country Pakistan. Road construction has become the second-most important activity of this rural development programme only to be surpassed by the construction of irrigation channels.

Republic of China, but quite outstanding if compared with the road networks in Nepal. The quality of roads influences the cost of transportation, and being accessible does not mean a village is on a par with others. For example, potato dealers from Punjab and NWFP purchase seed and potatoes in the Northern Areas. Their main business is concentrated along the asphalted highways, very little commerce occurs on truckable roads, and next to none along jeep roads, although the cost of purchasing potatoes is substantially lower there.

General conclusions from the case study for accessibility patterns in South Asia's mountains

The observations presented here, using the specific case of the Karakoram Highway as an example,could be projected on to other major mountain roads and generalistions derived for the South Asian mountain rimland. What are the parameters of importance?

1. The provision of better transport facilities for mountain people was not the top priority when major road networks were built. The driving force behind road construction was strategic interests. Examples supporting this observation are the Pamir Highway, the Salang Road, Pak-China Friendship Highway, and the Kashmir, Ladakh, and Nubra roads. Especially after the India-China war of 1962, several thousands of kilometres of mountain roads were constructed in the Himalayan belt of India. Road construction led to confrontation between both major players north and south of the mountain arc. In 1956-57, China built a road across the Aksai Chin to connect Xinjiang and Tibet, while both countries claimed the Aksai Chin to be within their borders. Two years later, this construction in a nearly uninhabited region was discovered and made into a cause of confrontation leading to a war (Maxwell 1972, 482-485; Ispahani 1989, 145-213). The incident resulted in increased efforts to control the mountain belt — for which a road network on both sides was needed and which came into being. In the case of Nepal, these strategic considerations are less prominent and are reflected in the extent of the road network, while Bhutan is rather well served with asphalt roads that have all been built by outside support and probably as a result of outside interests.
2. Motorable roads provided better access to the mountain valleys. Consequently, roads built for strategic interests work as agents of change, but are not the results of regional planning efforts. Road access does not reach mountain communities in an even manner. The chances and constraints of accessibility are thus distributed unequally and might cause regional disparities of substantial variation (Table 18.3).
3. Besides differences in accessibility, there is quite a variation in the pace of change along mountain highways. The Karakoram Highway is a good example of major changes in the Hunza Valley and the lesser impacts in Kohistan and other valleys along its course (Kreutzmann 1991, 1995a, b; Daud and Nasir 1998; Janjua 1998). Similar developments could be observed along the Ladakh Road or the Jiri Road in Nepal.

Table 18.3: Opportunities of and constraints on improved accessibility and urbanisation in South Asia's mountain systems

Opportunities	Constraints
Reduction of transport costs: adjusted economies of scale	Reduction in competitiveness of locally produced basic goods
Reduction of economic distance: faster travelling and increased mobility through public and private transport	High investments and regular maintenance costs for traffic infrastructure
Provision of food supplies in emergency cases: relief from the lowlands can be supplied quickly	Dependence on one lifeline with dramatic results in periods of conflict and crisis
Provision of subsidised goods, fuel, and basic items at reasonable prices for local demand	Advance of bureaucratic institutions, tax collectors and controlling bodies
Attraction for investors from outside	Immigration of economically potent entrepreneurs who may dominate local markets
A market approach becomes feasible for exclusive and competitive niche products from the mountains	Growing competition between lowland and highland producers in which the latter regularly become losers because of more difficult cultivation techniques and less productivity in the mountains
Resource potential of the mountains becomes accessible and the exploitation of natural wealth becomes economical	Forest depletion, mining, and construction of high dams cause natural hazards and/or might damage the environmental balance and lead to loss of ecological potential due to the market demands in the lowlands
Improvement of tourism infrastructure and attraction of more visitors result in higher returns from tourism and affect the job market within the mountains	All problems and challenges connected with seasonality, probability values, uncertainty factors, and long-term investments in the tourism industry are experienced here in a similar manner to other tourism destinations
Urbanisation and development of market centres	Dependence on lowland markets and connected exchange relations
Town planning sets the standards for basic infrastructure	Concentration of development funds in urban areas, weakening position for rural areas
Controlled growth of settlements in urban areas and attraction for migrants who experience a higher standard of health and educational institutions	Brain drain from the rural areas and a loss of competent representatives there

Source: Compilation by author

4. The impact from the introduction of road systems and improved accessibility to mountain areas should not be underestimated in respect to nation-building in formerly colonised states such as India and Pakistan, or in communist countries such as the Soviet Union and the People's Republic of China with their Central Asian Republics and the 'autonomous' regions of Xinjiang (Tibet) and Xinjiang respectively. Mountain regions have been integrated into nation states and national economies through networks of roads. Consequently, exchange relations are

strengthened to such a degree that those regions become actors within the national economy. At the same time they depend on supplies from the domestic market to a very great extent. In all cases, more goods and valuable items reach the highlands from the lowlands, transport costs are high up and very low downhill; which is not a reflection of slope characteristics but of lack of exportable crops and products for down-country markets. Besides market participation with a limited range of specialised and niche products such as seeds, fruit, and herbs, mountain people compensate for this inequality of exchange relations, in general, through migration of human labour and/or income from service industries such as tourism. From a macro-economic perspective, it seems that mountain societies derive more security in food supplies by paying the price of growing dependency on lowland markets and increased out-migration (Table 18.3). This perspective might be quite different for individuals. More opportunities for entrepreneurs serve a group of insiders as well as outsiders who invest in certain niches while expecting substantial returns.

5. Having made the above observations, it should be made clear that improved accessibility does not mean the beginning of a new economic regime or era. The scale, direction, and speed of exchange relationships are affected and do not necessarily create new phenomena or follow the developmental paradigm. Increased accessibility can increase the turnover within existing exchange patterns, and it can also contribute to a growing number of constraints and/or backlashes (Table 18.3)

If national and regional planning promotes and demands greater participation of mountain regions in the domestic and international markets, then improved accessibility is a necessary prerequisite. As achievements towards this aim are often supported by bilateral or international, government or non-government development aid, a survey of existing development activities in the Hindukush-Karakoram-Himalayan arc notably emphasises the observation that development projects are strongly linked to networks of roads. An infrastructure-related approach towards development is in tune with demands put forward by the World Bank (World Bank 1994).[16] On the other hand, the reports on Human Development in South Asia place less stress on the improvement of physical infrastructure than on the provision of social infrastructure and stable political frameworks for good governance (Mahbub ul Haq 1997; Mahbub ul Haq and Khadija Haq 1998; Khadija Haq 1999).[17] Here, a different perspective of development is presented emphasising that development seems to be rather a societal and not solely a technological problem.

[16] The sub-title of the World Development Report for 1994 is ‘Infrastructure for Development’. Infrastructure is perceived in the broad sense and traffic infrastructure is an important aspect of it.

[17] Reports on ‘Human Development in South Asia’ have been published since 1997.

18.4 Urbanisation in the Mountains

For the followers of modernisation theory, urbanisation is the ultimate solution to development problems. Although this perspective might be challenged, overall urbanisation is increasing and this phenomenon can be observed in mountain regions as well. Discussing this aspect in a historical perspective, we find traditional urban centres in the two major intra-montane basins of South Asia's mountain arc: in the Kashmir and in the Kathmandu valleys. Both became centres of urban cultures as their wealth was derived from trans-montane trade relations in which valuable commodities were involved. Further urban centres are related to the British colonial period when the summer capital was established in Simla and hill stations grew to some functional importance comparable to other cities in the lowlands. Murree, Mussoorie, Almora, and Darjeeling represent such hill stations with recreational, educational, and military facilities (Kennedy 1996).[18]

The situation has changed quite dramatically. Formerly small market towns with some trade and military functions, such as Gilgit in Northern Pakistan, had a predominantly rural appearance. A number of similar places can be found in the region under study which occupied a higher status than the neighbouring villages because it was the the seat of a ruler, a garrison, and/or a toll post along a trade route (Figure 18.2). Chitral, Leh, Mandi, Gangtok, Kalimpong, Paro, and Thimphu belong to this group of central places. Some of them have experienced tremendous growth in the second half of the 20th century. For Gilgit the boom was strongly connected with the construction of the Karakoram Highway (Figure 18.4a) and occurred in the 1960s. Similar developments occurred in Leh and Kargil as stage posts on the newly-built Ladakh Road. The growth of urban population in Kalimpong and Darjeeling[19] (Figure 18.4b), which had an earlier link to modern transport systems, shows a slightly more gradual expansion. Basically, we find urban growth connected with an increase in market-related economic enterprises and/or the build up of new administrative centres as focal points for regional bureaucracies.[20] Increasingly, these centres advance to become the distribution centres for goods and knowledge. Here we find the bazaars in which barter traders from the villages exchange surplus goods from their domestic produce for highly acclaimed and desperately needed basic goods from the lowlands. Moreover, a job market exists in the service industry and monetary incomes are

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18 Kennedy's (1996, map 2) includes, besides the above-mentioned: Gulmarg, Dalhousie, Dharamsala, Sonawar, Solan, Kasauli, Lansdowne, Nainital, Kalimpong, Kurseong, and Shillong.

19 The growth pattern in Darjeeling reflects that, since its foundation in 1835, the district has matured to become one of the Himalayan areas with the highest population density: in 1971 it was above 200/km^2 compared to Sikkim's 27 (data according to Dasgupta 1985, 53). The urban

20 Take for example the shift from a traditional regional centre such as Nuwakot in Central Nepal to Bidur, a newly established administrative headquarters located along an asphalt road.population has grown steadily from 19,003 inhabitants in 1911, doubling by 1961 to 40,651, and reaching the 70,000 mark in the 1990s. Other urban centres, such as Kalimpong, are growing fast from 7,880 in 1911 to 41,000 in the 1990s (Fig. 4b).

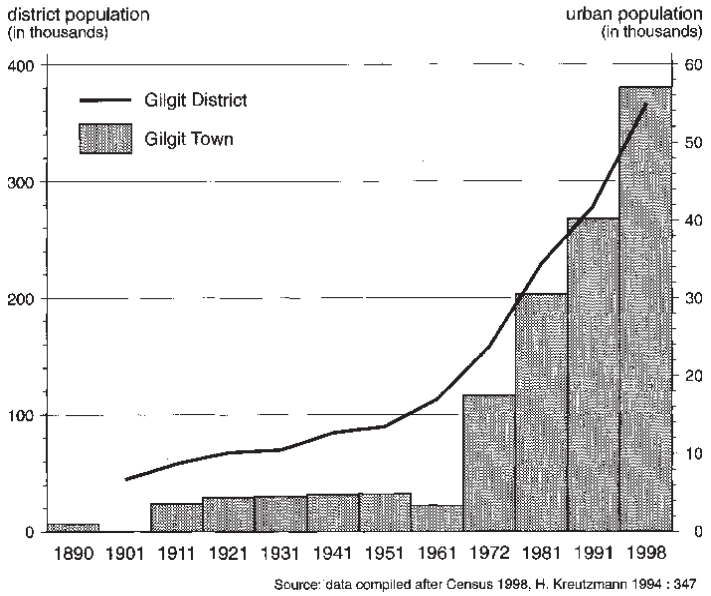

Figure 18.4a: Population growth in Gilgit town and district from 1890 to 1998

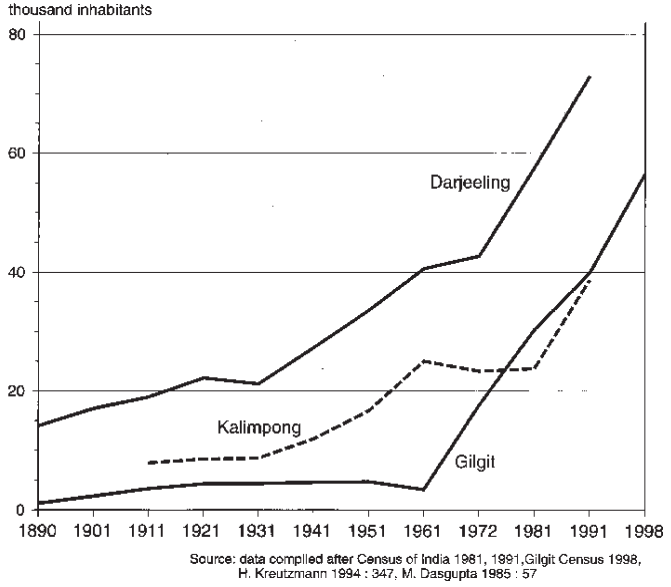

Figure 18.4b: Comparision of urban growth in Darjeeling, Kalimpong and Gilgit 1890 to 1998

generated, sometimes these bazaars function as a transition point for out-migrants. The combination of private and public enterprises forms the basis of urbanisation in these central places which become nodes along the transport networks. Information and the distribution of a particular kind of knowledge increasingly become important as assets of these places. For example, the radio station in Gilgit transmits news of job announcements, scholarships available, and tenders for public works in three local languages. Farmers and their family members, even in remote locations, can receive this information by listening to their transistors and contacting the urban centre if they are interested. Market towns function as centres of knowledge as the quality of education and training is better than in rural areas and certain levels can only be attained there (Table 18.3). At the same time, regional planners and development plans concentrate on these central places for the provision of equal standards and the upliftment of mountain regions, and rural locations cannot give such facilities. Accessibility and urbanisation are two phenomena that attract the attention of the actors in development who function as agents of change themselves.

Problems of accessibility concepts: the case of Nepal

The concept of accessibility was introduced into spatial planning and regional science in the heyday of modernisation theory. Thomas Wilbanks applied his model of accessibility to Northern India and, following the same tradition, Nigel Allan projected it on the mountain regions and compared developments in Europe, Latin America, and Asia (Wilbanks 1972, 1980; Allan 1986).[21] These concepts suggest that physical infrastructure is the major agent of change, and they emphasise this point to such an extent that it seems that development only begins when roads are built. Once a traffic network has been introduced, change comes and leads only in one direction 'towards modernisation'. Following these lines 'traditional' agriculture ceases when roads permit 'modern' agriculture to take place. Empirical evidence shows quite a different and more complex picture. These models that follow a developmental approach are oversimplistic and do not reflect the realities that have been presented in so many case studies to date (Fürer-Haimendorf 1975; Manzardo 1977; Fisher 1987; Bishop 1990; Khan and Khan 1990; Kreutzmann 1991, 1993a,b, 1995a, 1998a,b; Stevens 1993).

Nepal might be the best example of the economic success of certain groups from remote locations not connected to a road, or not yet having an urban centre in their valley. Thakali, Manangi, and Sherpa communities have managed to find other ways of regional development, very often brought about by labour migration, participation in outside trade, and service industries (Manzardo 1977; Fürer-Haimendorf 1984; Chhetri 1987; Schrader 1988; Fisher 1990; Pohle 1993; Stevens 1993). A controversy has arisen over the future Upper Mustang Road, connecting the Annapurna

[21] For a critique of the application of the accessibility model in mountain regions cf. Uhlig 1995 who argues from a different perspective than presented here.

Conservation Area with the Kodari Road (Arniko Rajmarg), and for which there was a groundbreaking ceremony recently.[22] Strong arguments were put forward that no feature could be more instrumental in bringing about development in these remote regions than a road, whereas others had the opposite point of view. All depends on the understanding and definition of the term 'development', and this needs further clarification in the case of Nepal.

Looking at Nepal from a regional perspective, most textbooks provide us with an orthographic classification in which we find three ecological zones classifying the country into a high and middle mountain and a Terai zone. The borders between them run more or less parallel to the northern and southern boundaries (Figure 18.5a). This orographic stratification is very often related to development in such a way that new towns and road networks are to be found in the Terai where actual immigration and regional development take place. The densely populated middle mountain or hill region where the traditional urban centres are located is gradually connected to the road network and relieved from population pressure by out-migration. The high mountain region is more or less devoid of urban centres and good roads (Fig 18.5c). Both mountainous regions are losing population because of outward mobility, the migration process leads downhill to the cities. If we apply development indices such as the 'Human Development Index' (HDI)[23] for the districts of Nepal the picture of regional disparities in Nepal is quite different. The HDI is configured by three equal components incorporating the per capita income in Purchasing Power Parity (PPP) in US dollar, the standard of education, and the quality of living standards. For our discussion these aspects are of eminent importance when projected on to high mountain regions. In the case of Nepal such disaggregated data on a district level show an extreme difference between central places such as the Kathmandu basin and remote high mountain districts, such as Mugu, in all respects (Figure 18.5a). While Kathmandu ranks first in the list for Nepal, Mugu district occupies the last position, reflected in a life expectancy of only 37 years and an adult literacy rate of 22%. Separating all districts by regional order, the Middle Mountains of Nepal, including the Kathmandu Basin, fare best with an HDI of 0.421, followed by the Terai lowlands (HDI = 0.389), while the high mountain region as the northern belt remains at the lowest level with an HDI of 0.365 (Figure 18.6). At the district level, the regional

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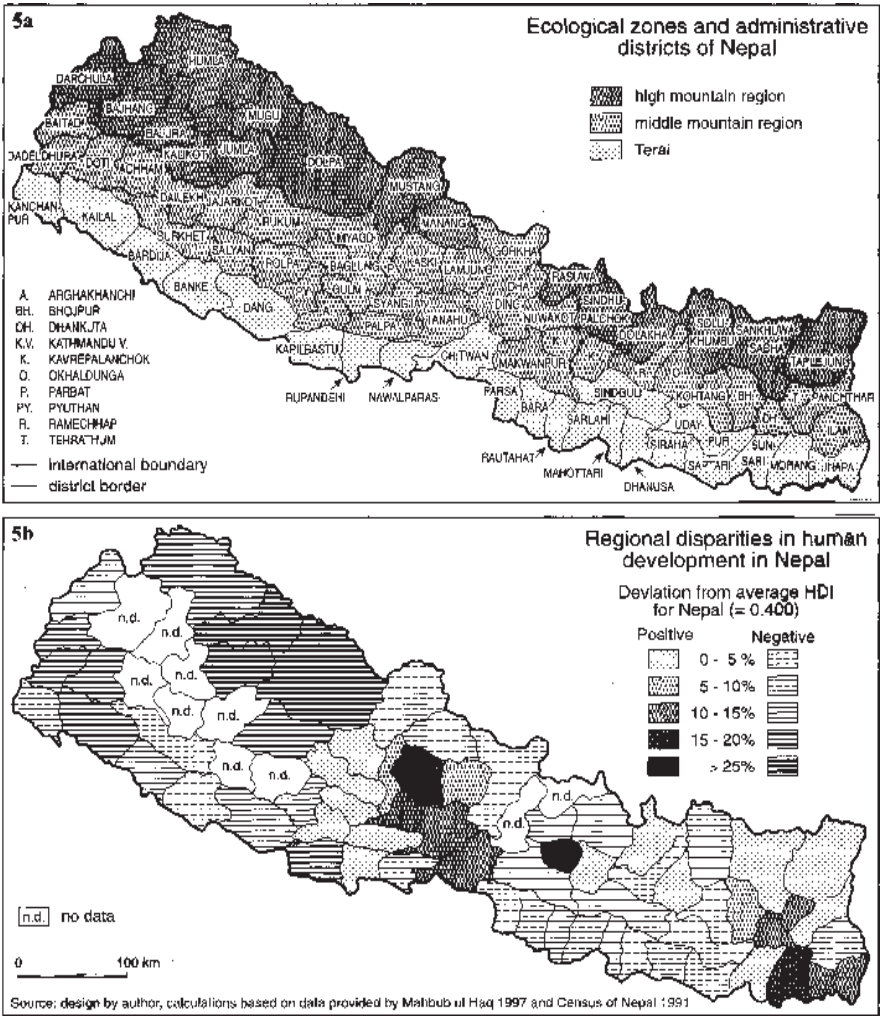
22 The author is grateful to Brot Coburn for his email communication about the recent developments. These can be followed in the Asia-Pacific discussion group of the Mountain Forum (http://www2.mtnforum.org/mtnforum/index.html; - View the mf-asia archives)

23 The Human Development Index (HDI) is constructed of a normative value of the standard of living measured in Purchasing Power Parity (PPP $), of life expectancy (at birth) value, and of an education index (this is created by giving adult literatcy twice the value of school attendance). All three components are embedded in normative formulas to construct a simple and comparable indicator. Countries with low human development are those in which the HDI ranks below 50%. The HDI has been modified several times, the last modification was introduced by UNDP in 1999. See for a regular update the technical instructions in the Human Development Reports and/or the homepage for analytical tools (http://www.undp.org/undp/hdro/anatools.htm) (UNDP 1990-1997).



Figures 18.5a & b: Ecological zones and administrative districts of Nepal

inequalities between different ecological zones as well as between individual administrative units can be identified (Figure 18.5b). The capital region commands more facilities and infrastructural assets than any other, while the remote high mountain districts of the western development zone remain at the lowest level. There is a significant east-west and lowland-highland decrease in human development while the urban centres of the capital region, Kaski (Pokhara), and Morang (Biratnagar) in the Terai are exceptions.

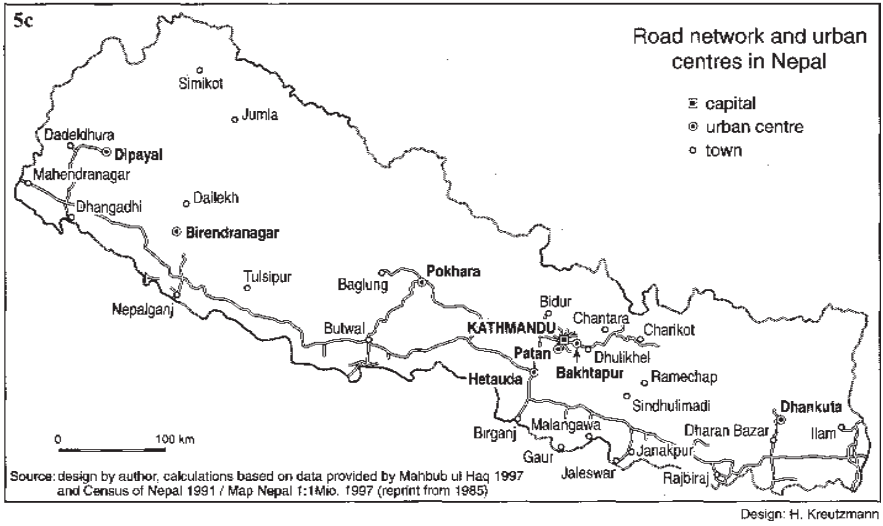


Figure 18.5c: Road network and urban centres in Nepal

Our second case in point stems from the Northern Areas of Pakistan where accessibility has been provided through the Karakoram Highway and where the pace of urbanisation is rapid in the town of Gilgit. Constructing the 'Human Development Index' for the Gilgit District its value is quite low: HDI = 0.308 (Figure 18.6). Despite incorporation of this region into a domestic and world market by modern means of transport this area ranks low, because of the income factors especially (UNDP 1999).[24] The values for life expectancy and education are somewhat higher and close to the Nepal level. This observation was exactly the reason why different development programmes were introduced into the Northern Areas about two decades ago, and the results show that there is still a long way to go until the region is brought on to a par with the rest of the country (Khan and Khan 1992; Kreutzmann 1993a, b).[25]

On the contrary, the Indian Himalayan province of Himachal Pradesh (HDI = 0.447) resembles the country's average (0.436) which is indicated by a similar HDI value, far above Nepal's average (Figure 18.6) (Mahbub ul Haq 1997). Observers in Himachal Pradesh attribute this development to the accelerated expansion of the road network from the 1960s onwards.[26] Anyhow, all countries and all mountain regions within them remain in the 'low human development' category (HDI < 0.500).

24 In an international rank list the HDI = 0.308 suggests a position among the five poorest countries in the world total of 174 (UNDP 1999). The reference HDI value for Pakistan is 0.442, based on 1994 data (Mahbub ul Haq 1997).

25 The income gap between the mountain areas and the lowlands of Pakistan was the initial justification for development efforts in rural development. The supply of data for the calculations by The Aga Khan Rural Support Programme (AKRSP) is gratefully acknowledged.

26 The author is indebted to Andrew Manzardo for valuable information on Himachal Pradesh.

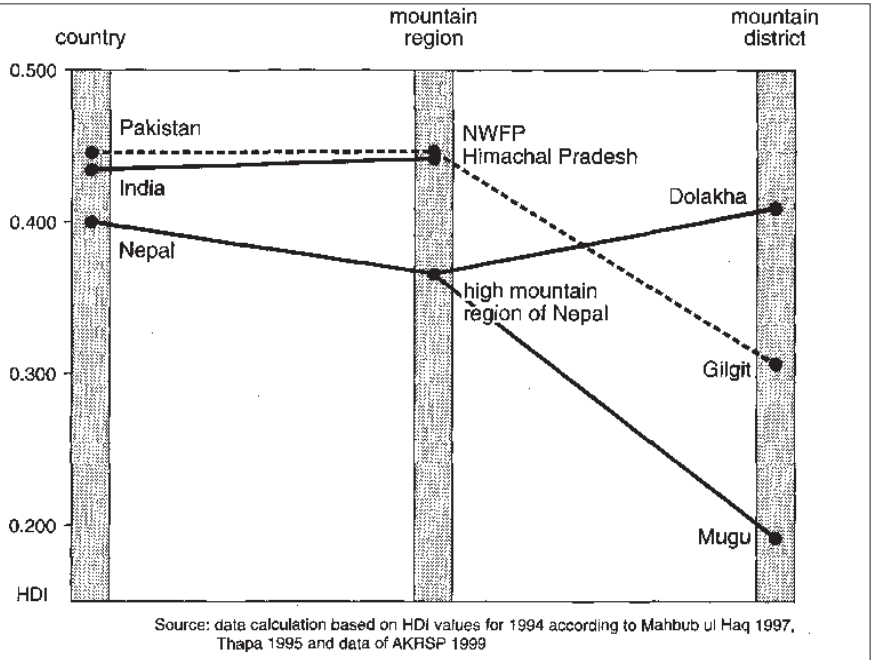


Figure 18.6: Human development indices for selected mountain areas in South Asia

Our discussion reveals that the question of 'development' depends on the measures and categories introduced. If accessibility and urbanisation are the indicators selected, the pace of development is intrinsically linked to technological solutions. In addition, other important aspects remain to be taken into account that strongly relate to the socioeconomic living conditions. These parameters are not strongly linked to a place and the permanent residence of mountain farmers and their household members in their villages. We have to take into account that accessibility covers a wider range of facilities and opportunities that can be used in different places. This is especially true when inaccessibility is a marketable resource for tourism and when lightweight commodities such as pashmina wool, herbs, and spices are cash earners; in such circumstances the road link is not of prime importance if the upliftment of living conditions is the main concern.

18.5 Conclusions

Historical evidence from the above discussion points to the fact that a number of motives initiated the construction of major road systems in the South Asian mountains. Development and poverty alleviation do not seem to have been the driving forces. The questions to be raised are: will there be wide-scale road construction in future or will there be a search for other strategies in order to improve living conditions in the

Hindu Kush-Karakoram-Himalayan region? Trans-montane road systems have never been cost efficient from the perspective of regional development when the mountain inhabitants and their economies have to bear the costs of investment and maintenance. The overall interest of a nation-state and/or policy-driven international support could be sufficient to trigger planning and construction of mountain highways. During the Cold War, more funds were allocated for such schemes than ever before or after to date. We must wait and see what the future holds.

A second case in point is that accessibility and urbanisation do not create fool-proof roads to development. It is evident that further inspection of socioeconomic frameworks is required in order to determine the effects of road construction and subsequent changes in settlement structure. Again, the aspect of alternative approaches refuting the simplistic and resource destroying paradigm of modernisation and leading towards the sustainable management of natural and societal resources has to be discussed. Although road access might be of utmost importance from a certain perspective, a realistic approach indicates that this target may not be pursued without considering the given limitations in remote mountain societies.

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Chapter 19
Economic Opportunities for Mountain Women of South Asia: the Poverty Context

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19.1 Introduction

The mountain areas of South-Asia vary widely in terms of topography, access to modern means of transportation, and, above all, cultural traditions. Therefore extreme care is required in making generalisations about the area. Nevertheless, an analyst's job is to search for patterns in the chaos, and that is what this paper hopes to do. The paper is divided into four parts. Part 1 (this part) provides a brief introduction to women's status in different societies in the HKH region and changes in it being brought about by the process of modernisation. The next part deals with women and poverty. Part 3, which constitutes the core of the paper, discusses various aspects of women's work and the impact of commercialisation in the context of Nepal. The last part attempts to draw some policy implications for increasing economic opportunities for women in mountain areas.

Women's economic status and modernisation

In terms of division of labour within the household, access and control over household resources, mobility, and social control over her sexuality, societies were classified between two broad groups, Tibeto-Burman and Indo-Aryan, by Acharya and Bennett (1981). This classification is still valid for intra-household analysis as illustrated by the recent ICIMOD publication of eleven case studies from different parts of the

region, covering eight countries in the Hindu-Kush-Himalayas (Gurung 1999). However, when it comes to access and control over public resources and public decision-making processes, women in all communities face many levels of discrimination. Control over property and land is mostly patriarchal. The exceptions are Bhutan where preference is given to daughters in inheritance and Tibet where the inheritance system is gender neutral. Moreover, because of the gendered nature of the modernisation process itself, which is permeated by capitalist, individualistic western value systems, a gendered education system, and gendered technology, women in all communities lost out in comparison to men in the past. Such a modernisation process reinforced discrimination against women in gendered societies. In other less gendered societies, forces of modernisation introduced gender discrimination by selective intervention in favour of men. How this happens has been recorded extensively by now and needs no elaboration here.

On the positive side the modernisation process could:

- free women from the arduous tasks of collecting fuel and fodder,
- give them control of their own fertility,
- lighten their work burdens by introduction of technology,and
- increase their mobility through development of transportation.

On the other hand, the elements in the modernisation process that reintroduce or reinforce gender bias include:

- dichotomisation of production and reproduction,
- marketisation and globalisation of the production process,
- male-oriented technology,
- a gendered education system in terms of access and gendered value systems,
- privatisation of public resources along patriarchal lines,
- gendered institutions, in terms of structures and value systems,
- replacement of values of sacrifice and collective good by individual greed and consumerism,and
- increased physical insecurity for women and girls by treating the human body as a commodity.

19.2 Poverty and Women

Another issue that needs to be discussed before proceeding to analyse how the women's perspective could be incorporated into poverty alleviation programmes is how poverty is related to women. Often data are marshalled from other contexts to illustrate that women are the poorest of the poor. Whether this is true or not in the mountain regions of South-Asia, we do not know.

In spite of the multifarious disadvantages women face in access to resources, employment, and income in Nepal, recorded data do not indicate a comparatively disadvantaged position of women or female-headed households in terms of income and assets. About 13% of households are reported to be headed by women. According to the sample Agricultural Census (1991) of 2.7 million farm households in Nepal 6.4% were owned by women. The proportion of farms owned by women was highest in the hills (9%) and lowest in the Terai (3.5%). From his study of farm households, their landholdings, and income, Sharma (1996) draws the following conclusions about the incidence of poverty in female-headed farm households.

"There is only a slight difference in the poverty incidence between male-headed (MHH) and female-headed (FHH) households (50.7% vs. 47.2%). The difference in the income of the MHH and FHH is not statistically different in the Mountains and the Terai. In the Hills, female-headed households have much lower incomes than their male-headed counterparts. Yet, at the per capita income level, this difference also disappears because FHH are smaller than MHH in size. There are fewer economically active members in FHH. The landholdings of FHH are consistently lower in all regions. Yet, a much greater proportion of male-headed households are [sic] landless. Thus, the relatively disadvantaged position of women in the above analysis is reflected only in the fact that, whereas more than 13% of households are female-headed, only six per cent of farms are owned by them."

Feminisation of poverty in Nepal, therefore, needs to be viewed in terms of concentration of women in agricultural occupations with low productivity, unskilled, poorly paid jobs in the non-agricultural sector, and the impact of poverty on women and girls on poorly -household allocation of resources. Because of social discrimination, the impacts in terms of poverty on access to food, health and nutrition, and educational facilities and workloads are more severe for women and girls in the poor households in Indo-Aryan communities where gender discrimination is entrenched. Proportionately more girls (2%) have to work for their living than boys (Gurung 1995). This may not be true in the Tibeto-Burman groups. Nevertheless, women in general have less access to modern employment opportunities than men and receive lower wage rates, hence have more difficulty in overcoming poverty.

Moreover, to analyse poverty and women's options in particular, it is necessary to mention that mountain areas and households cannot be seen in isolation from the overall development trend in the country. A general assumption is that mountain households are generally poor because of their isolation from the national and global mainstream. This assumption itself is questionable because, in terms of modern yardsticks of development such as education, health, and cash income, such households may be 'poor' but, in terms of food security and social support systems, they may be much better off than households with access to modern amenities. Further, even in terms of income, areas and households in urban and near urban areas are found to be poorer than those in these remote areas. In this context, it is extremely important to examine how the macro-national trends are likely to affect the women

in poorer households in mountain areas. For this purpose, Part 3 of this paper examines trends in employment opportunities for women in Nepal since 1984/85 by ecological region.

19.3 Commercialisation of Production and Its Impacts on Women: the Case of Nepal

Policy initiatives and commercialisation of the economy

A general conception about Nepal has been that it is poor because it is not integrated enough in into the world economy. Our recent policy initiatives have focused on commercialisation and liberalisation of the economy, market friendly deregulation, development of infrastructure to facilitate foreign and local investment, and downsizing of the government and privatisation. Liberalisation has included all sectors: agriculture, forestry, and the industrial and financial sectors. Virtually all industries, barring those that are related to defence, are now open for foreign participation. Since the early 1990s, the aviation, telecommunications, and power sectors and, recently, highway construction have been opened up to the private sector.

The policy reforms in the external sector were the most extensive and most rapid among all the sectoral reform measures undertaken. Nepal had attained full convertibility of NRs by early 1993 and had freed the exchange rate of NRs vis-à-vis convertible currencies. Tariffs and sales' tax on imports were reduced substantially and additional taxes on imports withdrawn. The average tariff (as measured by the ratio of import revenue to total imports) declined to 6% in 1995 from more than 15% in 1987/88. Excluding aid imports, the average tariff rate stood at 9.8% in 1995 compared to 18.8% in 1990. The Nepalese currency has depreciated by nearly 400% since 1984, from NRs. 17.6 to one US$ in July 1985 to NRs 68.4 per US$ as of the end of December 1999.

These policies were expected to accelerate foreign and domestic investment and to create new jobs for the people. Investments in rural infrastructure, human development, self-employment, and credit have been conceptualised as the main interventions for reducing poverty. Directed credit programmes have been continued throughout this period in various forms, e.g., the Intensive Banking Programme and Cottage and Small Industries' Credit Programme, Production Credit for Rural Women, and the Small Farmers' Development Programme. After 1990, five special banks, based on the model of the Grameen Bank of Bangladesh, and a micro-credit programme for women that envisages channelling resources through NGOs have been added by the government sector for lending to the poor (NRB, Annual Economic Reviews for various years). Non-government (NGOs) and international non-government (INGOs)organisations are also running credit programmes on an extensive scale. From this year, (2000AD) two more credit programmes, namely Banking for the Poor and the 'Jagriti' Programme for Women have been added to these through government initiatives.

As a consequence the GDP growth rate accelerated to about five per cent per annum on average until the early nineties. The share of agriculture in the GDP is declining perceptibly. Its contribution to GDP has decreased by more than 10% since the mid-eighties. The role of manufacturing, trade, restaurants, hotels, and construction is increasing proportionately (Economic Review 1998/1999). The recorded manufacturing output has increased and its institutional structure is estimated to be changing substantially from being based on home and village cottage industry to factory-based maufacturing. Commercialisation of agriculture is perceived to be increasing, albeit slowly. Vegetable and fruit production, primarily for sale, has increased substantially: the vegetable production index going up from 100 in 1984/85 to 168 in 1998/99. In 1997/1998, this index had reached 190.

The proportion of urban population increased by almost 50% during the eighties, from 6% in 1981 to 9% in 1991. With the construction of new roads, new townships are growing day by day, and the process of urbanisation is estimated to have accelerated during the nineties.

How have these changes affected the household economy, the labour market, and employment opportunities for women?

There are some distinct indicators of decline in the household economy and increased commercialisation in terms of income (Table 19.1). The proportion of contribution of the non-agricultural sector to household income and the proportion of cash in the wage/salary income increased substantially between 1984/85 and 1995/96. On the other hand, the proportion of cash income and income from salary and wage employment has declined. This decline in the percentage of salary and wage income could be due to an increase in self-employed enterprise activities. But this could also be a result of declining employment opportunities for the bulk of the population in the labour market. The proportion contributed by non-agricultural enterprises to household incomes almost doubled during the period under review.

How have these structural changes in the economy impacted on the employment opportunities and workloads of the women in the mountain and hill areas of Nepal?

Table 19.1: Selected indicators on the degree of commercialisation of the household economy

Indicators	MPHBS (1984/85)	NLSS (1995/96)
Contribution of non-farm enterprises (%)	6.8	13.1
Cash income (%)	41.8	39.3[1]
Non-agricultural Income (%)	16.7	22.0
Wage/salary employment income(%)	26.2	21.7

[1] Includes estimated cash wage and salary income and income obtained from operating home enterprises, renting property, remittances, and other sources

Source: NRB 1988 and CBS 1997

The following section analyses some of the available indicators on current employment and work opportunities for women on the basis of MPHBS (NRB 1988) and NLSS (1995/1996) data. The analysis is carried out by ecological zones and by ethnicity separately, as the sample size is not adequate enough for cross classification.

Trends in economic opportunities for women

Occupational structure is a good indicator of employment opportunities for both men and women. The 1996 NLSS (CBS 1997) has collected information on primary, secondary, and subsidiary occupations. A person's occupation has been defined as primary if he/she devoted most hours of work in the preceding twelve months to this activity. In case equal hours are allocated to two activities, the first activity has been taken as the primary one. The occupational tables in the following analysis relate to primary occupations only. MPHBS data also relate to the primary occupation only. This information has been collected by asking direct questions about persons' occupations.

The increasing proportion of the non-agricultural sector in the GDP should have expanded opportunities for non-agricultural employment, in general, for both men and women. As per the census counts, the number of women employed in the non-agricultural sectors had gone up from 64 thousand in 1981 to 249 thousand in 1991. Women's employment had increased significantly in personal and community services and in commerce and manufacturing, although relatively they were still concentrated in agriculture (Acharya 1994).

A comparison of the occupational distribution of the population, however,in the 1984/85 MPHBS and the 1995/96 NLSS, shows a slightly higher concentration of both men and women in agriculture in 1995/96. Overall, the occupational employment pattern displays little change either for men or for women. Within the non-agricultural sector, particular declines are noticeable in the proportion of both men and women employed as ordinary labour and female workers; in the category of production workers; that is, women working as skilled and semi-skilled labour in the manufacturing sector. What is surprising is the overall decline in the combined role of the manufacturing and construction transport/communication sectors as employment generators in urban areas, as indicated by a decline in percentages of both men and women workers employed as production workers (Table 19.2).

Table 19.2 summarises occupational information by urban/rural and ecological regions of the country. Most of the categories are self-explanatory and follow International Labour Office (ILO) standards. For example, the category of professional/technical workers includes primary school teachers to professors in the universities, from doctors to assistant midwives in the health sector, and so on. Service sector workers include cooks, domestic servants, barbers, and caretakers as well as working proprietors. The definition of the category of production workers includes workers in the manufacturing, construction, transport, and the communication sectors.

Table 19.2: Percentage of economically active men and women ten years and above in selected employment sectors (primary only)

Sectors	Male		Female	
	MPHBS 1984/85	NLSS 1995/96	MPHBS 1984/85	NLSS 1995/96
Professional & Technical/Adm. (All Nepal)	3.1	2.7	0.4	0.7
Urban	7.9	9.9	3.2	7.7
Hill	11.1	10.7	3.5	6.9
Terai	4.9	9	2.8	8.8
Rural	2.7	2.3	0.2	0.5
Mountain	3.5	1.3	0.1	0.4
Hill	2.9	2.7	0.4	0.4
Terai	2.2	1.9	0.2	0.6
Clerical Workers (All Nepal)	3.0	2.8	0.3	0.2
Urban	13.8	17.9	3.0	4.9
Hill	17.4	21.6	3.6	6.7
Terai	10.4	13.7	2.2	2.4
Rural	2.2	1.8	0.1	0.1
Mountain	2.3	0.9	0.0	0.2
Hill	3.7	2.5	0.1	0.1
Terai	1.2	1.4	0.1	0.1
Agriculture and Forestry (All Nepal)	72.9	78.9	86.1	93.7
Urban	23.5	22.2	54.6	49.3
Hill	19.2	15.2	51.5	39.7
Terai	27.6	30.2	58.9	62.1
Rural	76.6	82.8	88.3	95.3
Mountain	77.4	88.8	91	96.8
Hill	65.7	82.0	68.6	95.4
Terai	81.1	82.4	89	94.9
Production* (All Nepal)	6.1	5.7	2.9	1.7
Urban	20.2	18.4	9.5	9.8
Hill	19.6	13.5	12.3	14.9
Terai	20.8	23.8	5.8	3.0
Rural	5.2	5.8	2.5	1.7
Mountain	3.6	4.9	1.4	0.6
Hill	7.6	5.1	3.2	1.7
Terai	4.0	4.7	2.1	0.8

* Includes manufacturing, construction/transport/communication

Table 19.2 Cont.....

Sales (All Nepal)	4.4	5.0	2.4	2.6
Urban	16.0	20.4	8.4	18.0
Hill	15.4	24.0	8.8	18.7
Terai	16.4	16.4	7.8	17.1
Rural	3.5	3.9	1.9	2.0
Mountain	2.0	0.9	0.7	0.2
Hill	3.9	3.5	1.9	1.8
Terai	3.8	4.8	2.6	2.5
Services (All Nepal)	2.8	1.9	1.3	0.8
Urban	8.1	6.5	8.9	9.5
Hill	7.8	9.4	8.8	11.5
Terai	8.4	3.2	9.0	6.7
Rural	2.3	1.6	0.7	0.5
Mountain	2.2	0.4	0.6	0.2
Hill	1.6	1.4	0.6	0.5
Terai	2.8	1.9	0.9	0.5

Source:All tables in this paper, unless indicated otherwise, are from Acharya 2000.

The relevant eco-regions for this analysis are the mountains and the hills. Compared to the urban Terai, the urban hills indicate a much more rapid expansion of non-agricultural employment opportunities for women. Employment opportunities for women seem to have almost doubled in the professional and technical category. Service sector opportunities have also expanded significantly. A declining trend is observed in the proportion employed in agriculture, as expected. The role of production as an employment generator has increased marginally for women compared to the substantial declining trend observed in the case of men.

In rural areas, a positive trend is noted only in the slight increases observed in proportions of women employed as professional and technical workers in the mountains. In the rural hills, no change is observed in this respect. The proportion of population engaged in agriculture is increasing, both for men and women and in rural areas of all ecological regions. This shift is more prominent for women than for men. Given limited land resources, this could be construed as a fallback strategy only rather than a conscious shift. The proportion of working women engaged as production workers has declined in all ecological regions. As a source of employment for rural women, even the trade and service sectors indicate a declining trend.

Thus, a decline is observed in the proportion of women and men employed in the category of production workers in general, with few exceptions. This decline is greater for women (42%) than for men (7%). The trend could be attributed to the fact that

the indigenous local cottage and household level manufacturing sector is disappearing as a result of the onslaught of mass produced goods, such as plastic products, aluminium utensils, textiles, ropes, and even matting and furniture, especially in rural areas. The service castes as a group are out of work in large numbers. The increasing mountain tourism and trekking businesses do not seem to have compensated for the decline in local demand for such products in the hills and mountains. Neither have services (including tourism) and trade been able to compensate for the declining role of manufacturing as a source of employment in rural areas.

Compared to 1984/85, a bigger proportion of women is now employed in trading and as professional and technical workers, particularly in urban areas. However, women are concentrated at lower echelons of power. For example, the increase in the proportion employed as professional and technical workers is accounted for largely by an increase in the number of teachers and health personnel at lower levels (see Acharya 2000).

Compared to the 1991 census, the 1996 NLSS indicates an increase in the proportion of women in all occupational groups, except among production and other workers. As per the NLSS, women now constitute 53% of the agricultural labour force, 33% among sales' workers, and 29% among service sector workers. The proportion of women among production workers, however, is declining. All manufacturing and construction transportation/communication industries are included in this group, and these are expanding sectors of the economy, as is evident from the structure of the GDP. However, employment opportunities in this sector seem to be declining for both men and women, more so for women than for men. Trade and services are predominantly informal and often complement agriculture as a fallback strategy. Without a detailed analysis of these activities, it is not possible to say whether women's employment patterns are changing in a positive or negative direction within these sectors. The move towards agricultural occupations indicates a negative trend for women, as they own very little land and also because the productivity of labour in agriculture is relatively low. Overall, in 1995/96, women constituted about 49% of the population employed.[1]

Employment status

As per the census figures, the overwhelming majority of workers are still self-employed as own-account workers while less than one per cent are employers. Still, the percentage of self-employed workers, which remained more or less constant at about 86% between 1971 and 1981, decreased to 75% in 1991. In contrast to the

[1] (This figure differs from the women's proportion in the total of economically active population reported in the NLSS Report. This is because the current figure relates only to men and women employed according to their primary occupation, while the NLSS figure includes the unemployed as well as those seeking employment and those discouraged. Among the total economically active population, women constituted 52%. Overall, 71% of men and 66% of women were reported to be economically active (CBS 1997-NLSS, 1996, Volume II, p 13).

increasing role of wage employment in the economy, as indicated by census trends, a comparison of the NLSS information with the 1984/1985 MPHBS shows that the proportion of self-employed in the total employment increased from 1985-1991 for both men and women. This may indicate decreasing wage employment opportunities, greater self-employment opportunities, or just a definitional problem. In the rural hills, women's concentration in self-employment has actually increased. Urban hills and mountains do show a slightly decreased concentration. This trend is more prominent for men (Table 19.3).

Table 19.3: Employment status (1984/85-1995/96)

	Male				Female			
	MPHBS 1984/85		NLSS 1995/96		MPHBS 1984/85		NLSS 1995/96	
		Non*		Non		Non		Non
	Wage	Wage	Wage	Wage	Wage	Wage	Wage	Wage
Urban	54.8	45.2	50.0	50.0	29.8	70.2	30.8	69.2
Urban Hills	37.4	62.6	52.3	47.7	30.2	69.8	31.9	68.1
Urban Terai	52.3	47.7	47.5	52.5	29.3	70.7	29.3	70.8
Rural	31.3	68.7	30.1	69.9	17.6	82.4	14.6	85.4
Mountain	20.5	79.5	21.5	78.6	7.4	92.7	8.9	91.1
Rural Hills	28.2	71.8	23.3	76.7	13.6	86.4	7.9	92.1
Rural Terai	37.0	63.0	36.8	63.2	28.0	72.0	22.4	77.7
Overall Nepal	33.0	67.0	31.4	68.6	18.6	81.6	15.3	84.8

Notes: a) May not total 100 because of rounding.
b) In the tables, self-employed and non-wage workers have been used interchangeably.

With the decline in the role of the household as an organisation of production, industrial activities become increasingly externalised and both male and female workers lose control over the production process as self-employed persons and become transformed into wage labourers. In this process, women are more affected, since newly-emerging organised industries need not only more capital but also place more emphasis on more educated and mobile labourers. In Nepal, the managerial class in these industries, which is dominated by Indo-Aryan and westernised conceptions of gender specialisation, reinforces its own biases in hiring and firing (see Rana and Shah 1987).

Wage employment and earnings outside agriculture

Only about 7% of women compared to 27% of men are employed in the non-agricultural sector. Of this, wage employment constitutes a meagre 2.6% for women and 16.4% for men, the rest are self-employed (Table 19.4).

Table 19.4: Percentage wage/non-wage employment outside agriculture

	Wage			Self Employment			Total Non-Agriculture		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Urban	45.9	22.7	37.3	33.5	26.2	30.8	79.4	48.9	68.2
Hills	51.4	28.5	42.6	35.9	31.3	34.1	87.3	59.9	76.8
Terai	39.7	15.1	31.1	30.8	19.7	26.9	70.5	34.8	57.9
Rural	14.4	1.8	8.0	8.7	3.3	6.0	23.0	5.1	14.0
Mountain	13.6	1.1	7.2	4.0	1.4	2.7	17.6	2.5	9.9
Rural Hills	17.4	2.0	9.2	7.6	3.4	5.4	25.0	5.5	14.6
Rural Terai	12.2	1.7	7.2	10.2	3.6	7.1	22.4	5.3	14.3
Overall	16.4	2.6	9.5	10.2	4.2	7.2	26.6	6.8	16.8

The NLSS data indicate some differences in the pattern of wage/salary employment for male and female workers. Structurally, a greater proportion of working women is in the category of professional and technical workers and in the service sectors than men. Nevertheless, both men and women are concentrated in the category of production workers, which refers primarily to manufacturing labour. Within manufacturing, women are concentrated among the spinners, weavers, and tailors.

Compared to men, a smaller proportion of women is employed as ordinary labourers in the non-agricultural sector. This is in conformity with the tradition of hesitating to send women to work as ordinary labour outside the household economy as it is considered to be socially degrading for the household. Urban/rural, or ecological, regions make no difference to the fact that the biggest proportion of women employed outside agriculture work as production workers.

As for the share of women in each of the occupational groups, services and professional/technical workers' groups top the list in all areas except for the rural mountains where the largest proportion of female workers is in the clerical category. Overall, women constitute 11.8% of the total non-agricultural labour force (Table 19.5).

Women in Nepal devote six to seven hours a day to wage work outside of agriculture. They work uniformly lower hours per day than men in such activities. This is true even for the professional, technical, administrative, and clerical categories and can be explained only by part-time work. On the other hand, women production workers work almost as many hours a day as men (Acharya 2000).

Overall, women earn 12% less than men as daily wages in the non-agricultural sector. In the total salary and wages, however, they earn about 97% of men's earnings. From a regional perspective, only the women in the urban Terai seem to devote less than

Table 19.5: Proportion of women in employment outside agriculture

Sectors	Urban			Rural				Nepal
	Total	Hills	Terai	Total	Mountain	Hills	Terai	
Professional & Technical	33.9	34.4	33.7	20.4	12.1	16.6	26.6	22.9
Administrative & Managerial	14.0	14.0	0.0	0.0	0.0	0.0	0.0	11.2
Clerical	12.1	15.0	7.2	6.3	19.1	6.3	4.5	8.6
Sales	15.2	3.7	21.5	5.2	0	12.4	0.0	9.4
Service	33.5	36.7	19.9	12.1	0	10.5	29.2	23.3
Farm & Forestry Workers	40.7	45.2	39.2	16.9	0	6.1	27.4	18.7
Production Workers	28.5	42.7	0.0	11.0	9.8	19.8	3.0	12.7
Construction/ Transport/Communication	0.0	0.0	0.0	8.8	6.2	10.7	5.7	8.6
Ordinary Labour	11.2	16.3	0.0	5.9	5.1	6.4	5.4	6.2
Overall	21.0	25.1	14.7	10.5	7.2	11.6	10.2	11.8

six hours a day to non-agricultural activities. This could be because of a lack of socially acceptable jobs for women in the Terai. Terai women also work less days per year than women in other regions of Nepal. Considering only average daily wages, contrary to expectations, the earnings of women in rural areas are higher than in urban areas (Table 19.6). Only a more competitive labour market as a result of immigrant labour in urban areas can explain this. In the total of wages and salaries,

Table 19.6: Hours/days and wage/salary earnings of women outside agriculture by residence

	Hours Per Day	Days of Work in a Year	Average Wage (NRs)	Wage + Salary (NRs)
Residence				
Urban	6.0	260.1	49.9	76.8
Urban Hills	6.3	262.7	56.1	89.2
Urban Terai	4.9	253.7	43.9	46.3
Rural	6.8	155.2	58.5	76.4
Mountain	6.8	158.9	64.3	67.7
Rural Hills	7.0	152.2	70.0	80.1
Rural Terai	6.6	156.9	47.6	72.7
Ecological Belt				
Mountain	6.8	158.9	64.3	67.7
Hill	6.8	182.9	68.1	83.4
Terai	6.3	171.3	47.1	67.9
Overall	6.6	177.3	57.6	76.5

women in the Terai and mountains seem to earn almost 20% less than hill women. Because of the price factor, which is much higher in the hills and mountain areas than in the Terai, wages are generally higher there. In this case, mountain women are disadvantaged because of both the wage differential and the price factor.

Ethnicity and caste factors in the structure of economic activities

The studies in the series on the Status of Women in Nepal (CEDA 1979-81) concluded that, in Nepal, ethnicity/ caste played an important role in the economic activity patterns of Nepalese women. The sample populations in this study were classified into two broad ethnic groups - the Indo-Aryan and the Tibeto-Burman. From comparison of their patterns of economic activity, it was concluded that women from the Tibeto-Burman group tended to be more enterprising and more involved in economic activities in the market than those from the Indo-Aryan group. Those conclusions were derived from an analysis of 280 households from eight villages in different parts of the country. The NLSS provides a bigger data set, and this is analysed below by ethnicity/ caste. Nevertheless, there are many records on ethnicity/caste missing from the NLSS data set. Moreover, because of the sampling framework used for generalisation of the survey findings for national level calculations, some odd outcomes (such as women earning more than men in some occupations) are apparent in various cross classifications. The following analysis should be read with this limitation in mind.

Irrespective of ethnicity/caste, most economically active women are concentrated in agriculture, percentages ranging from 83% for Newar women to 98% for Limbu women (Table 19.7). Other areas where women are involved in substantial proportions in the labour force include production (manufacturing), trading, and services. Magar, Tamang, Limbu, Damai, Kami, and Muslim communities did not have any women in the sample holding professional/ technical or managerial/ administrative jobs. Proportionately, more Brahmin, Newar, Rai, Sarki, and Gurung women were working as professional and technical workers (Acharya 2000).

On the basis of primary data on occupational distribution, nine ethnic/caste groups, including others, were formed for further analysis. The category of others includes those not classified elsewhere and was left out in further analysis. The grouping was necessary to expand the sample size in each of the occupational sub-groups in order to arrive at a meaningful analysis.

In the subsequent tables, among the eight groups, BC stands for Brahmin/Chhetri, TML for Tamang, Magar, and Limbus; DKS for Damai, Kami, and Sarki; and GR for Gurung and Rai. Usually, Rais and Limbus are classified in one group. In the current analysis, this tradition is broken because, from the primary processing, Rais seemed to be much more advanced occupationally and closer to Gurungs than Limbus (See Acharya 2000 for more details on occupational classification).

Table 19.7: Distribution of the labour force by broad occupational groups and by ethnicity/caste

Ethnicity/Caste	Forestry & Farm Workers		Others	
	Male	Female	Male	Female
Indo-Aryan				
Brahmin	77.7	91.6	22.3	8.4
Chetri	84.4	95.7	15.6	4.3
Newar	54.8	83.0	45.2	17
Yadav/Ahir	93.6	97.4	6.4	2.6
Damai	70.1	90.6	29.9	9.4
Kami	72.3	96.8	27.7	3.2
Sarki	75.8	94.3	24.2	5.7
Tibeto-Burman				
Magar	90.4	95.5	9.6	4.5
Gurung	82.4	88.2	17.6	11.8
Tamang	89.8	96.9	10.2	3.1
Rai	88.3	94.1	11.7	5.9
Limbu	90.6	98.5	9.4	1.5
Other Groups				
Tharu	89.4	96.3	10.6	3.7
Muslim	61.9	89.4	38.1	10.6
Other	73.3	93.1	26.7	6.9
Overall	78.9	93.7	21.1	6.3

Outside of agriculture, a majority of Newar, Gurung/Rai, and Yadav/Ahir women worked as production workers. Muslim women were concentrated among ordinary labour and almost half of the Tharu women were concentrated in the service sector. For Brahmin/Chhetri, Yadav/Ahir, and Gurung/Rai women, professional/technical/administrative/managerial professions provided more job openings. Damai/Kami/Sarki women were almost evenly spread among professional/technical/managerial/administrative,agriculture/forestry, production, and ordinary labour groups.

The male/female composition of occupational groups by ethnicity/caste seems too erratic to lead to any firm conclusions (Table 19.8). Only a few remarks can be made. Trading seems to be predominantly women's business among the Gurung/Rai. Women constitute the bigger proportion of service workers within the Tharu, Tamang/Magar/Limbu, and Damai/Kami/Sarki groups. The agricultural labour force has more than 50% women in all ethnicity/caste groups, except among the Yadav/Ahirs. Men predominate in all other occupational groups. Nevertheless, Gurung/Rai women constitute nearly 48% in the professional/technical/managerial/administrative professions in this community.

Table 19.8: Percentage of women in occupational groups

Ethnicity/Caste	Prof & Tec/ Adm & Mg	Clerical Workers	Sales Workers	Services	Agri Forestry	Pdn Workers	Ord Labour	Constr Trans	Overall
Indo-Aryan									
Brahmin/Chhetri	17.6	12.2	39.1	30.5	56.1	35.5	0.9	21.1	52.5
Newar	17.0	12.0	22.5	37.5	56.3	50.8	0.0	0.0	46.0
Yadav/Ahir	35.3	0.0	39.0	0.0	41.2	33.3	0.0	0.0	40.2
D/K/S	18.5	0.0	34.6	52.7	55.7	15.0	2.8	18.2	49.1
Tibeto-Burman									40.2
G/R	47.6	2.8	72.2	44.0	53.7	42.7	0.0	29.4	44.8
T/M/L	0.0	0.0	35.1	71.6	51.4	32.7	7.1	0.0	
Other Groups									
Tharu	22.4	0.0	29.1	61.1	50.5	12.9	27.6	0.0	48.7
Muslim	0.0	0.0	33.7	28.0	54.0	21.0	0.0	0.0	52.1

The above finding partially supports the thesis that women from the Tibeto-Burman group will be more attracted to outside income-earning opportunities, as services and trading sectors seem to be predominated by women from the Tamang/Magar/ Limbu and Gurung/Rai respectively. The data on composition of the overall occupational groups, on the other hand, do not support this thesis, as proportions of women in the overall employed population of their respective groups are highest for Brahmins/Chhetris and Muslims. Other factors, such as opportunities in the case of Brahmins/Chhetris, and poverty in the case of Muslims, may be playing an important role in this respect.

As for the employment status, the numbers for both men and women, irrespective of ethnicity/caste, are concentrated in self-employment, but proportionately more women than men are concentrated in such employment in all ethnicity/caste groups (Table 19.9). This concentration, however, is lower for the service caste group, Damai/ Kami/Sarki, for both men and women. Agriculture predominates as a source of self-employment for both men and women. Once again, proportionately, the degree of concentration of self-employed women in agriculture is more than for men in all ethnicity/caste groups.

Compared to the higher castes, a much bigger proportion of lower caste women, such as Sarki, Damai, Kami, and Muslim, are in wage employment, as expected (Table 19.10). Next to them nearly an equal proportion of employed Yadav\Ahir women are engaged in wage work. Thus, a bigger proportion of women from the Terai are represented in wage employment than from other areas,and this may well be because there are more opportunities for wage employment in these areas than others or a higher level of poverty among the households of these caste/religious groups than in other groups.

Women earn less than men in terms of daily wages, irrespective of ethnicity/caste (Table 19.11). The only exceptions are Brahmin/Chhetri women who earn equal

Table 19.9: Proportion of self-employment to total employment

	In Agriculture			Not in Agriculture			Total		
Ethnicity/ caste	Male	Female	Total	Male	Female	Total	Male	Female	Both
Indo-Aryan									
B/C	71.9	89.7	81.3	7.0	3.7	5.3	78.9	93.5	86.6
Newar	49.6	79.7	63.6	22.0	8.6	15.8	71.7	88.3	79.4
Yadav/Ahir	57.2	79.9	66.7	2.2	2.5	2.3	59.4	82.4	69.0
D/K/S	44.7	69.3	57.0	15.1	4.8	10.0	59.8	74.1	67.0
Tibeto-Burman									
G/R	68.1	80.7	74.8	6.9	6.5	6.7	75.0	87.2	81.4
T/M/L	73.0	89.9	81.5	4.0	2.4	3.2	77.0	92.3	84.7
Other Groups									
Tharu	67.0	81.9	74.4	4.3	2.0	3.2	71.3	83.9	77.6
Muslim	38.5	66.4	51.3	22.9	6.8	15.5	61.3	73.3	66.8
Total	58.4	80.6	69.4	10.2	4.2	7.2	68.6	84.8	76.6

Table 19.10: Proportion of wage/salary employment to total employment

Ethnicity/ Caste	In Agriculture			Not in Agriculture			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Both
Indo-Aryan									
B/C	4.1	3.8	3.9	17.0	2.7	9.4	21.1	6.5	13.4
Newar	3.0	4.3	3.6	25.4	7.5	17.1	28.3	11.7	20.6
Yadav/Ahir	32.9	15.8	25.8	7.6	1.8	5.2	40.6	17.6	31.0
D/K/S	18.0	21.4	19.7	22.2	4.4	13.3	40.2	25.9	33.0
Tibeto-Burman									
G/R	9.3	9.6	9.5	15.7	3.2	9.1	25.0	12.8	18.6
T/M/L	10.9	6.6	8.7	12.0	1.1	6.5	23.0	7.7	15.3
Other Groups									
Tharu	19.2	14.4	16.8	9.4	1.7	5.6	28.7	16.1	22.4
Muslim	15.6	26.3	20.5	23.1	0.5	12.7	38.7	26.7	33.2
Total	15.0	12.7	13.8	16.4	2.6	9.5	31.4	15.2	23.4

Table 19.11: Daily wages/salary earnings outside agriculture by ethnicity/caste

(Amount in NRs)

Ethnicity/Caste	Daily Wages			Wages+Salary		
	Male	Female	F/M Ratio	Male	Female	F/M Ratio
Indo-Aryan						
B/C	79.6	82.8	1.0	95.1	91.5	1.0
Newar	112.4	58.8	0.5	133	51.2	0.4
Yadav/Ahir[1]	54.7	-	-	91	-	-
D/K/S	77.9	44	0.6	85.5	51.6	0.6
Tibeto-Burman						
G/R	78.4	58.3	0.7	141.4	52.3	0.4
T/M/L	79	58	0.7	96.8	159	1.6
Other Groups						
Tharu	65.9	43.2	0.7	72.1	33.3	0.5
Muslim	59.3	40.3	0.7	71.1	40.2	0.6
Total	75.5	57.5	0.8	92.2	76.5	0.8

[1] No wage rate reported for female wage earners.

wages. As far as wages plus salary go, the Tamang/Magar/Limbu women seem to earn much more than their men. However, once again the limited nature of the disaggregated sample size should be recalled.

Women's entrepreneurial activities and access to credit

The NLSS does not provide data on proprietorship of enterprises. The occupational information, nevertheless, does identify managers and working proprietors. This information shows no women in managerial positions. Nevertheless, female working proprietors are listed among all ethnicity/caste groups. Female proprietors constitute the largest proportion among the Gurung/ Rai, Tharu, and Brahmin/Chhetri groups (Table 19.12). This information, once again, contradicts our thesis that Tibeto-Burman women have greater control over economic resources than Indo-Aryan women. Yet, one should note that women spouses of the male heads of the households operating family enterprises may tend to report themselves as proprietors even if they are in fact unpaid family workers.

The following analysis attempts to identify features of female-operated enterprises by relating household-head information to enterprise information. Overall, 24% of the households operated an enterprise. Out of them, six per cent were operated by female-headed households. Ethnicity/caste wise, the bigger proportions of such enterprises were operated by Brahmin/Chhetri and Newar groups. Ethnic/caste distribution of enterprises is more or less similar among male-headed and female-headed households.

Table 19.12: Percentage of women proprietors by ethnicity/caste and sectors

Ethnicity/Caste	Proportion of Female Proprietors (100%=Male+Female)				Ethnic Distribution
	Sales	Services	Manufac-turing	Total	
Indo-Aryan					
B/C	44.8	64.5	5.7	43.0	28.8
Newar	26.4	46.3	20.0	26.8	12.1
Yadav/Ahir	39.0	0.0	50.0	40.5	2.5
D/K/S	56.0	0.0	0.0	33.5	0.1
Tibeto-Burman					
G/R	78.7	71.2	2.7	64.2	8.1
T/M/L	29.8	73.3	0.0	31.2	4.8
Other Groups					
Tharu	39.7	100.0	46.4	45.2	6.1
Muslim	26.4	66.7	0.0	28.8	6.8
Overall	34.5	60.9	20.3	35.5	100*

* The balance of 30.6% of enterprises is operated by an ethnically unclassified population.

An attempt was made to test once more whether our earlier findings (Acharya and Bennett 1981) that the Tibeto-Burman women tend to be more enterprising than Brahmin/Chhetri women were correct with the current information. For this, the proportion of female-headed households was compared with the proportion of female-operated enterprises by ethnicity (Table 19.13 and the corresponding Chart). The difference between the two percentages is plotted in the chart

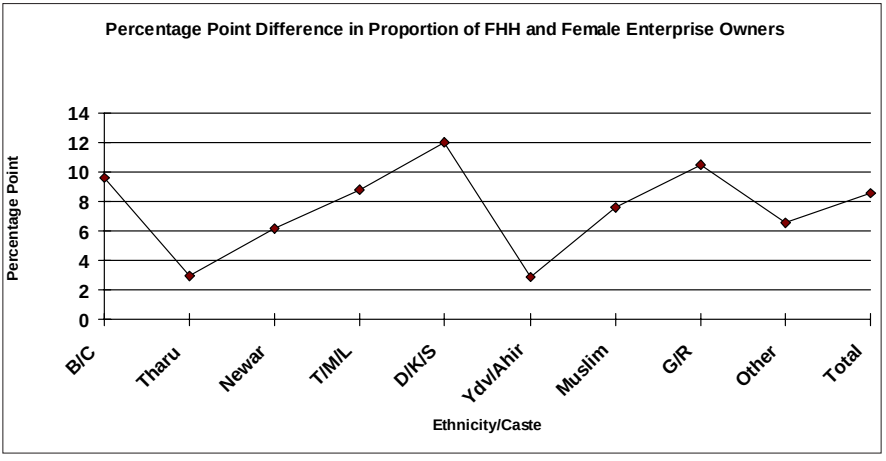
The greatest difference in these two percentages is found among the low caste and Rai/Gurung groups. The Brahmin/Chhetri group followed closely in third place. Given the equal probability of male- and female-headed households operating enterprises, there should have been no difference in the percentages of female-headed households and female-operated enterprises. Yet, the chart shows that, in general, households headed by women have less probability of operating enterprises. Further, the low caste Damai/Kami/Sarki group and Gurung/Rai, and Brahmin/Chhetri women household heads have lower within-group probability of operating enterprises than female-headed households in other communities. This does not support our thesis that women from the Tibeto-Burman communities have more opportunities vis-à-vis men in their respective groups than women in more 'Aryanised' communities.

Overall, most female-headed enterprises belonged to the trade/hotel/restaurant and manufacturing sectors. However, enterprises operated by the lower caste groups belonged primarily to the manufacturing sector, while more than 66% of the enterprises operated by the disadvantaged ethnic Tamang/Magar/Limbu groups and 54% of

Table 19.13: Per cent distribution of FHH and non-farm enterprises by ethnicity/caste

Ethnicity/Caste	% of FHH (a)	% of EPs by FHH (b)	Difference (a-b)
B/C	17.3	7.7	9.6
Tharu	6.0	3.0	3.0
Newar	14.3	8.1	6.2
T/M/L	12.7	3.9	8.8
D/K/S	18.5	6.5	12.0
Yadav/Ahir	2.9	0.0	2.9
Muslim	12.1	4.5	7.6
G/R	24.9	14.4	10.5
Other	10.3	3.8	6.6
Overall	14.3	5.7	8.6

FHH= Female Headed Households; EP= Enterprise



Newar enterprises also belonged to this sector. Thus, it seems that the more advanced of the ethnic groups, the Gurung/Rai, and the high caste Brahmin/Chhetri group are primarily in trade and services.

Access to institutional credit is much more limited for enterprises run by female-headed enterprises (FHEs) than for those household enterprises headed by men (MHEs). In total, about 17% of the MHEs and 10% of the FHEs had borrowed. While male-headed enterprises from all ethnicity/caste groups, except for Gurung/Rai, had borrowed some money from banks and financial institutions, few female

enterprises had borrowed from such sources. Women who borrowed from such sources were from the Brahmin/Chhetri households. Yet, only 5.3% of Brahmin/Chhetri women entrepreneurs had borrowed from the bank and financial institutions. Access of enterprises run by men to institutional credit ranged from nearly 48% in the case of the Newar group to 20% in the case of the Tamang/Magar/Limbu group.

Overall, FHEs earn two-thirds of what MHEs earn. Enterprises run by women make much less in most ethnicity/caste groups. Education, training, capital, and credit are crucial factors in prompting women's non-agricultural activities. Women in educationally disadvantaged groups are usually unable to take advantage of the new employment and business openings. Low service castes have very little access to education. Within each group, women have less access to education than men.

Conclusions about Nepal

Despite HMG's declared objectives since the inception of the Sixth Plan of integrating women into development (NPC 1981), a diaspora of micro-credit programmes, provision of some training programmes for women, individual examples of successes of women's income earning and forestry groups (see for example PCRW evaluation reports and Pandey 1990 for an example in forestry), and development of carpets as a major export industry employing women, the proportion of non-agricultural employment opportunities for women and men is decreasing in the country. Agriculture is becoming increasingly feminised. Women now form 53% of the agricultural labour force compared to 36% in 1981. The trends in wage employment opportunities are not clear. While the census information indicates an expanding trend in wage employment opportunities both in and outside agriculture, MPHBS and NLSS comparisons indicate a reverse trend. Relatively more women are concentrated in self-employment in comparison to men. Women wage earners are concentrated more in agricultural than in non-agricultural jobs. Men wage earners are spread more evenly between agricultural and non-agricultural employment.

Village craftsmen/women are out of jobs on a large scale. The proportion of production workers declined substantially in rural areas between the two surveys. This decline has been very sharp for women. With very few alternative employment opportunities, women are falling back on agriculture or forced to earn a living through unwanted activities such as commercial sex work (see New ERA 1998).

Overall women earn about two-thirds of men's earnings in agriculture, but three quarters outside of agriculture as daily wages. When annual payments are included in daily average earnings, these ratios go up slightly.

Generally women have much less access to institutional credit, at both individual and household enterprise levels, irrespective of ecological regions, urban/rural areas, and ethnicity/caste. However, Brahmin/Chhetri and Newar women have greater access to credit than in other caste/ethnic groups . Women from low caste and disadvantaged ethnic groups have no access to institutional credit at all.

19.4 Policy Implications for the Region

Experience from Nepal and other areas of the region (for example, see Mehta [1993] for the Tehri Garhawal area in India and Papola [1999] for a regional review) indicate that, in societies with existing gender discrimination in access to land and other resources, the commercialisation process further marginalises women from the development process, in both agriculture and industry. According to Mehta pressure on women's lives on account of commercialisation of agriculture in Tehri Garhwal has taken two forms. First, privatisation and loss of common lands have reduced their access to common resources, such as fuel and fodder, and increased the time required to collect them. Secondly, this has reduced their physical security and social status by introducing commercial sex work into the area.

Both agriculture and livestock are problematic areas from a gender perspective in many communities of the region, because these activities are mostly land-based and women have very little control over land. Involving women on a larger scale in agriculture and livestock activities is important more from the perspective of efficiency rather than from the point of view of women's empowerment per se. Women's activation and empowerment are by-products of the process of bringing women out of the household for training and providing them with a platform for coming together. On the other hand, the promotion of livestock and intensive agriculture has tended to impinge on women's free time and traditional sources of nutrition and income (Bhatta et al. 1994). Further, even in areas where women may inherit land, access to and control over new technology are exclusively male. As soon as a new technology arrives, men take over the task (Gurung 1999). This can be attributed to the male bias in technology and differential male/female access to education. Gender issues in development cannot be perceived only as an efficiency issue to be dealt with in the poverty alleviation programmes.

The process of marginalisation of women from manufacturing employment as a consequence of the shift of production to factories or introduction of newer products with more market value was well described for Nepal by Rana and Shah (1987) and illustrated by the above case study. For other areas of the region, a summary is presented by Papola (1999).

The process of dichotomisation of production and reproduction must be stopped. This could happen in two ways. First, by facilitating women's access to organised production sectors, by increasing their education and improving their mobility, and by provision of easier transport facilities; and, secondly, by facilitating their reproductive responsibilities by sharing workloads, provision of child care facilities in the work place in the modernised sector, and introduction of simple technologies. In the context of mountain areas, accessibility to roads seems to be the most important factor for increasing women's mobility and access to education and health facilities. This is important to improve returns to women's enterprises. Otherwise, the benefits of productivity and income gains tend to be monopolised by middlemen. It is well recorded by now that the introduction of cash crops or market-oriented dairy

enterprises in the already dichotomised communities tends to marginalise women, increase their work load, and reduce their control over household resources.

Thus, the most visible symbol of modernisation, the roads, can have both positive and negative implications for women. With careful planning of alternative employment opportunities, construction of roads could bring substantial positive opportunities for women entrepreneurs as also for the poor women who work as porters in the absence of roads. Both men and women who are small farmers could benefit from a gender sensitive anti-poverty programme.

It is also clear that policy packages must differ as per the cultural groups. In Indo-Aryan groups with an already entrenched patriarchal value system, the policy packages must address the systematic gender discriminations, whereas, for the Tibeto-Burman groups, the policy packages must be culture sensitive and designed with care so as not to introduce a gender bias in employment or social behaviour in general. Decentralisation of decision-making and people's participation in a real sense is a must in both cases.

As regards women's role in poverty alleviation, the assumption that isolated mountain people are poorer in terms of food, clothing, and shelter itself is questionable. Many of these communities lag behind in education and health, but whether their food habits or social behaviour are inferior to those of the urbanised modern sector is debatable. The issue that needs to be sorted out in this context is whether the market-oriented, individualistic development propagated today can proceed without marginalisation of those segments of society that are already as disadvantaged in terms of access and control over resources as women are.

A well-designed programme of enterprise development seems to have had a positive effect on women's status, in both the Indo-Aryan and the Tibeto-Burman groups, as indicated by the Dhampus case of the Annapurna Conservation Area Project in Nepal. From the Dhampus study, three conclusions seem to be relevant for this paper: a) women's workloads have declined in general and women's social status, in both the private and public arena, have improved in the Gurung and Brahmin/Chhetri communities, b) Gurung women have benefited most, and c) socioeconomic differentiation is clearly visible; the low castes and poor Brahmin/Chhetri women/men have benefited the least. The conclusion that the lifestyle of the poor has remained more or less the same, in spite of the general prosperity of the area and expanded job opportunities, is most telling. As such, development programmes must also be poverty-sensitive to reduce poverty.

A pertinent question is how does the focus on women in income-generating activities or cash crop production help to reduce poverty? Poor households have neither resources nor land to concentrate on cash crops. Micro-credit is relevant only for those who are nearer the market and who have adequate alternative resources or employment opportunities to pay back the credit installment regularly. Moreover, in

mountain areas, female-headed households may not be the poorest ones. The poor may benefit from cash crops and micro-credit only in terms of increased employment.

Further, as discussed above in the case of Nepal, the issue of poverty and women needs to be viewed more in terms of the impact of poverty on women, as reflected in their workload, access to food, and nutrition deficiency for girls and women, in general, and discrimination in access to education and health facilities. It is necessary to assess how an increase in income impacts on these variables in both the Indo-Aryan and Tibeto-Burman groups. Programme packages for intervention within the household must take cultural differences between the two groups into account.

Finally, from their examination of policies, programmes, and institutional capacity, the ICIMOD study (Gurung 1999) concludes that generally policies and programmes for women's development do exist in most countries of the area, however their percolation to the grass roots' level varies from area to area. General insensitivity of the implementing machinery to the gender issues and the inadequacy of such institutions are also noted. Lack of specific policies for mountain areas is also noted, particularly for Nepal.

Women's economic opportunities can be increased substantially only through mainstreaming the gender perspective within sectoral programmes. This is because development policies and programmes have a large-scale impact and cannot be reversed with small-scale individual project interventions. Individual projects should be promoted as a facilitative measure, but they cannot solve the problem in a holistic manner. Acharya (1997), analysing Nepal's case summarises the emerging gender issues at the sectoral level as follows: (a) ensuring adequate analysis of all programmes and projects with a gender perspective; (b) gender sensitisation of the implementation mechanism and machinery; (c) ensuring adequacy of measures initiated to ensure gender equity in project benefits; and (d) development of indicators and mechanisms for continuous monitoring and evaluation of policy, programme, and project impacts on women in terms of not only their participation but their empowerment as well. In the current paper's perspective we may rewrite the points to incorporate ecology, ethnicity/caste, and sensitivity of sectoral programmes to poverty.

Land rights and other facilities in projects involving resettlement of families should be given serious consideration in those areas in which such rights do not exist. Any assistance to resettled families and small businesses should include women on an equal basis.

The livestock sector needs to pay special attention to the poor, men or women. Traditionally, in many Indo-Aryan communities, small girls and women may keep goats or poultry as a source of private income. They may also be encouraged to raise cow and buffalo calves, which they may sell later. This could open up new avenues of employment and income for poor women as is evident from the experience of many poor women's groups organised under the PCRW programme in Nepal. As such, the livestock projects need to have separate programmes for raising animals

and producing milk. This is because milk production for commercial purposes, using hybrid animals, is an expensive and risky activity. In gendered societies where women have little decision-making authority in the household, women do not have the space or resources for this kind of activity on their own. Traditionally, rearing calves until the breeding stage and raising animals for meat have been more practical and accessible activities for landless and marginalised households and women.

Fodder Development Programmes must cater to the needs of the poor households and women. The scope for livestock activities as a source of income for poor households has been decreasing because of the growing scarcity of free grazing land. Development of community fodder lands for such households must be an integral part of all livestock projects. Community forestry may relieve this problem to some extent, but livestock and community forestry projects have rarely gone together. Moreover, in most cases, community forests have been monopolised by better-off households. The poor households usually do not understand its importance in the beginning and do not participate on a large scale, as it involves free contribution of labour. Later, it becomes too late. By the time they wake up no more community land is left. Further, dairies and production of fresh milk products are commercially viable only in areas accessible by road. This factor limits the scope of this activity as a poverty alleviation strategy in remote and difficult areas, precisely those areas where poverty is concentrated. Alternative modes of intervention, such as cheese production, need to be planned for such areas.

Rural infrastructure could be a new focus for creating economic opportunities for poor men and women. For this to happen, construction projects must focus on specific people friendly technology (e.g., green roads) and mobilise male and female construction brigades (groups) as contractors and entrust the tasks to them.

Once again, streamlining institutional credit to suit the requirements of women entrepreneurs and legal reform to ensure property rights for women are essential for this purpose. Credit policies should devise mechanisms to facilitate direct access of women entrepreneurs along the same lines as the Dhampus experience (Sharma and Acharya 1997). Women should be ensured 50:50 participation with men in all tourism-related training, because this sector employs women on a large scale. Women should not be forced into lower level jobs, such as clerks and receptionists, by a gendered training process that excludes women. Although women occupy a prominent position in the tourism sector, as soon as external relations are involved and the establishment expands, women are relegated to the lower levels of the organisational hierarchy (Gurung 1995).

Special programmes are needed for modernisation of women's entrepreneurial and technical skills for micro-enterprises based on local materials and traditional knowledge for remote mountain areas (see Papola 1999). Introduction of high-value crops should go along with food security. To ensure food security, new improved technologies need to be introduced to increase the productivity of more nutritious

traditional cereals, such as millet and 'bazra', rather than replacing them with rice and wheat.

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Chapter 20
Poverty Alleviation and Sustainable Development in Mountain Areas: Role of Highland – Lowland Links in the Context of Rapid Globalisation

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20.1 Introduction

The discussion on the above subject can be broadly structured into three inter-related themes, namely, facts, paradoxes, and solutions. The 'fact' aspects are covered in terms of prevailing realities and changes characterising mountain areas. The paradoxes refer to coexistence of development potential as well as development efforts along with the persistent poverty and underdevelopment of mountain areas. The solutions, based on the identification of factors behind the paradoxes, are indicated in terms of identification and promotion of mountain development options based on a mountain perspective. The discussion focuses on dominant biophysical and socioeconomic features of mountain areas, called mountain specificities, and their imperatives; and these are generally disregarded by development approaches leading to several negative side effects of external interventions. Section 2 of the paper elaborates on the circumstances that give rise to poverty in mountain areas and the mountain perspective missing from mountain development efforts. Section 3 highlights the role of unequal highland-lowland economic linkages in the persistence of poverty in mountain areas and among mountain people. Section 4 presents the apprehensions about the negative

repercussions of the rapid globalisation process on mountain areas; which, unless it is guarded against may accentuate the processes causing poverty and resource degradation in mountain areas. The last section covers suggestions for altering the ongoing approaches and processes and preparing mountain areas and communities to adapt to the positive and negative consequences of the emerging changes, including rapid globalisation. Based on factual observation and understanding of the HKH region, the paper attempts to develop a conceptual-cum-operational framework to address the issues manifested in its title.

20.2 Mountain Development: The Dominant Scenario

In terms of development situations, barring transformed areas such as Himachal Pradesh (India), Ningnan county (China), and Ilam district (Nepal), most mountain areas in the HKH region have low levels of economic development and persistent poverty, rising population pressure and increasing resource scarcity, natural resource degradation and unsustainability of present patterns of resource use, and finally declining range and quality of unsubsidised production and consumption options for mountain communities (Jodha et al. 1992, Banskota and Sharma 1994). ICIMOD, with a specific focus on agriculture and related land-based activities, which traditionally contributed to environmental and livelihood security in mountain areas, has documented such negative changes, described as indicators of unsustainability, in different parts of the region (Table 20.1).

These changes relate to resource base, production flows, and resource-use practices and options. Some of them exhibit negative changes whereas others reflect the processes potentially leading to such negative changes. Some of the negative changes are clearly visible, but others are concealed by the human adjustment responses to them. Table 20.1 is quite self explanatory and no elaboration is needed on these aspects.

Mountain development: paradoxes and reasons

The emergence of the trends described, as well as the general state of under-development are manifestations of paradoxes characterising the recent development history of mountain areas. Poverty and underdevelopment persist in mountain areas, despite the frequent national and international concerns expressed about them; despite the existence of unused resource potential and the net contributions of the mountains to the development of mainstream (plain/urban) economies; despite (inadequate but) increased development interventions and investment in mountain areas in recent decades; and despite the availability of lessons and replicable experiences of scattered success stories in mountain development (Messerli and Ives 1997). The primary reason behind the said paradoxes and the emerging situation of unsustainability is the fact that policy-makers and planners do not take the mountain perspective into account when they promote and plan for mountain development.

Table 20.1: Negative changes as indicators of emerging unsustainability of agriculture/current resource-use systems in mountain areas

Visibility Aspects of Change	Change Related to[a]		
	Resource Base	Production Flows	Resource-use Management Practices/Options
Directly visible changes	Increased landslides and other forms of land degradation, abandoned terraces; per capita reduced availability and fragmentation of land, changed botanical composition of forest/ pasture, reduced bio-diversity, reduced water flows for irrigation, domestic uses and grinding mills	Prolonged negative trend in crop/livestock yields, increased input need per unit of production, increased time and distance involved in food, fodder, fuel gathering, reduced capacity and period of grinding/saw mills operated by water flow, lower per capita availability of biomass, and range of agricultural products	Reduced extent of following: crop rotation, intercropping, diversified resource-management practices, extension of cropping to steep slopes, replacement of social sanctions for resource use by legal measures, unbalanced and high intensity of input use, dependence on subsidies and external inputs
Changes concealed by responses to change	Substitution: of cattle by sheep/goats, deep-rooted crops by shallow-rooted crops, shift to non-local inputs, choice of inferior options, substitution of water flow by fossil fuel in grinding mills, or manure by chemical fertilisers	Increased seasonal migration, introduction of externally supported public distribution systems (food inputs), intensive cash cropping on limited areas, additional production by using marginal areas	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
Development interventions, i.e., processes with potentially negative consequences[b]	New systems without linkages to other diversified activities and regenerative processes, generating excessive dependence on external resource (fertiliser/ pesticide-based techno-logies, subsidies), ignoring traditional adaptation experiences (new irrigation structure), programmes focused mainly on resource extraction	Agricultural measures directed to short-term quick results, primarily product-centred as against resource-centred approaches to develop-ment, service-centred activities (e.g., tourism) with negative side effects, focus on food self-sufficiency ignoring environmental stability/carrying capacity	Indifference of programmes 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

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

b. Changes in this category differ from the previous two categories, in the sense that they are yet to take place, and their potential emergence can be understood by examining the resource-use processes involved 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), Jodha (1997a) based on data or descriptions in over 50 studies from the countries of the Hindu Kush-Himalayas and nearly a dozen studies/documents on the Andes and African mountains.

The mountain perspective and mountain specificities

The mountain perspective, described simply, means explicit or implicit consideration of specific mountain conditions and their imperatives while conceiving, designing, and implementing development interventions in mountain areas. This can help ensure the relevance and effectiveness of development interventions. The important conditions characterising mountain areas that, for operational purposes, separate mountain habitats from other areas are called here 'mountain specificities'. The six important mountain specificities (some of which might be shared by other areas such as deserts in the plains) are considered here. The first four, namely, inaccessibility, fragility, marginality, and diversity or heterogeneity, can be called first order specificities. Natural suitability or 'niche' (including those made by humans) for some activities or products in which mountains have comparative advantages over the plains and the 'human adaptation mechanisms' in mountain habitats are second order specificities. The latter are different from the former in the sense that they are responses or adaptations to first order specificities. Nevertheless, they are specific to the mountains. It should be noted that these characteristics are not only interrelated (due to their broadly common biophysical roots) in several ways, but within the mountains they demonstrate considerable variability or diversity. For instance, all locations in mountain areas are not equally inaccessible, fragile, or marginal. Neither do human adaptation mechanisms have uniform patterns in all mountain habitats. With full recognition of such realities, we now briefly introduce the mountain specificities in Table 20.2. Table 20.2 lists the features of each of the mountain specificities in terms of factors creating these conditions, their manifestations and implications in operational contexts, and their imperatives in terms of required and appropriate responses. These features create objective circumstances, which in turn present a range of constraints and opportunities and influence human responses directed to the use of mountain resources. Table 20.2 also indicates the circumstances provoking poverty and approaches reducing poverty elicited by the imperatives of different mountain specificities. The key inferences from the contents of Table 20.2 form part of the following discussion.

Mountains and generalised development models

Since the objective circumstances and implied potential responses referred to above are not fully and appropriately perceived by mainstream policy-makers, mountain development efforts often amount to extending externally conceived and designed approaches and measures to mountain areas (Banskota 1989, Banskota and Jodha 1992, Jodha and Shrestha 1994). To elaborate upon this aspect, it is instructive to juxtapose the objective circumstances created by mountain specificities with the broad conditions historically associated with the transformation/development of different sectors, regions, and countries. This will also help to focus more sharply on the need for understanding and internalising imperatives of mountain specificities in designing strategies for poverty alleviation and sustainable mountain development.

Table 20.2: Mountain specificities and their imperatives

Limited Accessibility	
a) Product of	Slope, altitude, terrain, seasonal hazards, and so on (and lack of prior investment to overcome them)
b) Manifestations and implications (i.e., promoting poverty circumstances)	Isolation, semi-closedness, poor mobility, high cost of mobility, infrastructural logistics, support systems, and production/exchange activities Limited access to, and dependability of, external support (products, inputs, resources, experiences) Detrimental to harnessing niche and gains from trade Invisibility of problems/potentials to outsiders
c) Imperative (appropriate responses, approaches to reduce poverty)	Local resource centred, diversified production/consumption activities fitting to spatial and temporal opportunities Local regeneration of resources, protection, regulated use; recycling Focus on low-weight/volume and high-value products for trade Nature and scale of operations as permitted by the degree of mobility and local availability of resources Development interventions with a focus on: decentralisation and local participation: reduction of inaccessibility with sensitivity to other mountain conditions (e.g., fragility) and changed development norms and investment yardsticks
Fragility and Marginality	
a) Product of	Combined operations of slope/altitude, and geologic, edaphic, and biotic factors; biophysical constraints create socioeconomic marginality
b) Manifestations and implications (i.e., poverty promoting circumstances)	Resources vulnerable to rapid degradation, unsuited to excessive/costly use of inputs; 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 costly options that facilitate high productivity, disregard by 'mainstream' societies
c) Imperatives (i.e., appropriate responses, approaches to reduction of poverty)	Upgrading resource and regulation of usage (e.g., by terracing) Focus on low intensity, high stability in use of land Diversification involving a mix of high and low intensity uses of land, a mix of production and conservation measures with low cost Local regeneration of resources, 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 & Niche	
a) Product of	Interactions between different 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

Table 20.2 Cont.....

b) Manifestations and implications (i.e., potential for poverty reducing activities)	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 Potential for products, services, activities with comparative advantages
c) Imperatives (i.e., appropriate responses, approaches to harness poverty-reducing opportunities)	Small-scale, interlinked diversified production/consumption activities differentiated temporally and spatially for fuller use of environment Need diversified and decentralised interventions to match diversity

Source: Table adapted from Jodha (1997a) and based on evidence and inferences from over 60 studies referred to by Jodha and Shrestha (1994).

According to Table 20.3, conditions associated with high economic performance in a region, system, sector (e.g., agriculture, a dominant activity for mountain populations) could be grouped under (a) conditions increasing production such as resource-use intensification, input absorption capacity, infrastructural back-up, and economies of scale of activities; and (b) the ability of a sector or system or an economy to link itself with the wider systems (economies) to facilitate gains through trading the surplus as well as learning from and replicating successful external experiences, technologies, and so on . However, when such general basic conditions associated with development or high economic performance (implying poverty eradication in our case) are examined in the context of mountain areas, many of them are missing from most mountain regions, and this is because of the aforementioned mountain specificities. For example, intensification of resource use — including increased use of inputs to improve productivity —is very crucial for high productivity. However,fragility and marginality (implying low pay-offs from use of inputs) 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 take risks associated with costly resource-intensive production measures that use resources excessively. Limited accessibility/poor mobility further restrict any efforts at resource-use intensification through import of external inputs and technologies. Fragility constrains the building of infrastructure to improve access. The consequent isolation or semi-closedness imposed not only deprives mountain areas of gains from trade but also makes infrastructure and development logistics extremely costly.

The three main features generating constraints in mountain areas, namely, inaccessibility, fragility, and marginality, lead to subsistence (with associated poverty) production systems in the mountains. This blocks the possibilities of mechanisms devised by the people facilitating specialisation of production, generation of surplus, and exchange to facilitate economic transformation with the help of value-adding, secondary (e.g., processing) and tertiary (e.g., service) activities.

Table 20.3: Mountain specificities and conditions associated with high economic performance of activities/sectors/regions

Constraints/Opportunities Generated by Mountain Specificities	Conditions Associated with High Performance Agriculture						
	Production Enhancing Factors				Ability to Link with Wider Systems		
	Intensity of Resour-ce use	Input absorp-tion capacity	Infra-struc-ture	Scale econo-mies	Surplus genera-tion/ trade	Replicating external experien-ces (tech)	Attracting external attention
Limited Accessibility Distance, semi-closedness, high cost of mobility and operational logistics, low degree of dependability on external support or supplies	(-)[a]	(-)	(-)	(-)	(-)	(-)	(-)
Fragility Vulnerable to degradation with intensity of use, limited low productivity/pay-off options	(-)	(-)	(-)		(-)	(-)	(-)
Marginality Limited, low pay-off options; resource scarcities and uncertain-ties, cut off from the 'mainstream'		(-)	(-)	(-)	(-)	(-)	(-)
Diversity High location specificity, potential for temporally and spatially interlinked, diversified products/activities	(+)[a]	(+)		(-)	(+)	(-)	(-)
Niche Potential for numerous, unique products/ activities requiring capacities to harness them	(+)	(+)		(+)	(+)	(-)	(+)
Human Adaptation Mechanisms raditional resource management practices-folk agronomy, diversification, recycling, demand rationing, and so on	(+)	(+)		(-)		(+)	(-)

Source: Table adapted from Jodha (1997a); the situation illustrated with reference to mountain agriculture applies to other sectors as well.

a (-) and (+) respectively indicate an extremely limited and relatively increased degree of convergence between imperatives of mountain conditions associated with high economic performance. The constraints indicated for the primary production sector also apply to secondary and tertiary sector activities such as product processing and marketing.

According to Table 20.3, in contrast to the above features constraining development and exacerbating poverty-promoting features, diversity and niche, along with human adaptation mechanisms (including indigenous knowledge systems), do have some potential through which mountain areas can satisfy some of the conditions historically associated with very satisfactory economic performance and transformation of areas and economies. If properly understood and harnessed they can facilitate use of resources and improve inputs (without degrading the resources); can help to generate surplus of tradeable products/services; and can help to link mountain economies gainfully with external systems. However, as elaborated upon later, the potential of the above features remain untapped in terms of eradicating the poverty of mountain people. In fact the overshadowing impact of mountain specificities that generate constraints is so overwhelming that they (mountain specificities) make most of the opportunities and potentials (as well as problems) invisible to mainstream policy-makers. This 'invisibility' is partly responsible for the latters' indifference to mountain areas. The exceptions, however, are niche opportunities (e.g., hydropower, timber, tourism, herbs, horticulture, and so on) used by mainstream economies. The 'invisibility' in turn is caused largely by the lack of information and awareness about mountain specificities and their imperatives as well as their usefulness in designing development interventions. The negative implications of this gap (as discussed later) are all the more serious in the context of the rapid globalisation process affecting mountain areas and communities.

Inferences

The discussion in this Section leads to the following conclusions. The constraining biophysical features of the mountains (fragility, marginality, inaccessibility), unless properly managed, generate circumstances exacerbating poverty and degradation of resources. The safeguards against them are through indigenous folk technologies; institutional arrangements, and diversification of natural resource uses that are feasible and effective with small populations; and the subsistence situation is disappearing in a rapidly changing situation that is caused also by inappropriate institutional and technological interventions intended to help mountain areas. The positive attributes (e.g., diversity, niche opportunities, and human adaptation mechanisms), despite their potential for reducing poverty and promoting sustainable development, are of no help to mountain people either, except in a few selected pockets where features of development interventions match well with the imperatives of mountain specificities (Jodha 1997a,b). Broadly speaking, the process behind the above paradox involves the following.

Firstly, due to the insensitivity of external interventions used in mountain conditions, but not specifically designed for them, the importance of diversity as well as people's adaptation mechanisms receive little attention from development planners and policy-makers. Secondly, harnessing major niche opportunities (e.g., timber, water, hydropower, minerals) remains beyond the capacity of local communities because of (i) their poverty and limited capabilities, especially in terms of generating and

trading surplus gainfully and (ii) because of the social marginalisation of mountain people and their vulnerability, they cannot influence the decisions and actions of mainstream policy-makers to harness mountain niche. Thirdly, the main way of harnessing mountain niche involves extraction of resources by and primarily to meet the needs of downstream/ mainstream economies in national, regional, or global contexts, with limited gains for local communities. Timber, tourism, hydropower, and minerals are well-known examples of exploitation of mountain niche by outside interest groups (Messerli and Ives 1997). Even if harnessing petty resources (e.g., non-timber forest products and other specialised products) involves local communities, their trading transactions are always dominated by mainstream agencies with a disproportionately lower share of gains going to the former (Banskota and Sharma 1999).

Thus, biophysical conditions, such as fragility, marginality, and limited accessibility, directly restrict the range and quality of income-generating options for mountain communities; the man-made circumstances, i.e., the nature of their socioeconomic links and interactions with the external world, tend to deprive them of the gains derived from harnessing mountain niche. In fact, unless checks and balances are introduced , the unequal external linkages are likely to become a major factor behind the persistent poverty, continued underdevelopment, and rapid environmental resource degradation in mountain areas in times to come. The mechanisms and processes of possible approaches to bring about a reversal are the subject of the rest of this paper.

20.3 Unequal Highland – Lowland Economic Linkages

Deprivation as a result of external linkages based on unequal exchange are part of the wider dynamics of highland-lowland economic linkages. No doubt, increased physical integration and opening up of mountain areas to markets in the plains in recent decades has helped the mountain areas in several ways, although their share in the gains associated with trade and exchange has been disproportionately low. The flows of resources, products, and services between the two are characterised by terms of trade unfavourable to the highlands. The issues and mechanisms involved are described below.

How highlands relate to lowlands

The fundamental basis of highland – lowland economic linkages stems from differences in their natural resource endowments and the potential production and exchange opportunities they generate. Equally important are human interventions, ranging from infrastructure and institutions to technological and human capabilities, that shape the pace and pattern in harnessing opportunities. Nature (i.e., biophysical conditions) also plays an important role in determining human interventions. This is more so in the highland context in which, because of constraints imposed by relatively high degrees of inaccessibility, fragility, marginality, and even diversity, the means and mechanisms of harnessing ‘niche opportunities’ and engaging in external

exchange transactions are restricted. Because of these very circumstances, mountain areas and communities acquire the status of marginal entities in their economic and other interactions with the mainstream, more urban, economies in the plains (Jodha 1997b).

The above circumstances, or rather the differences in the mountains compared to the plains, have shaped the nature and patterns of highland-lowland economic linkages. In the first place, the economic relationship between the mountains and the plains has been that of a hinterland-metropolis type in which the highlands served as a source of primary products (raw materials) for the mainstream, lowland economies and societies with all the structural and operational inequities associated with such a relationship.

Second, as a consequence of the above, the selective overextraction of natural resources (e.g., timber, minerals, and water) from the highlands for uncompensated transfer to the lowlands emerged as the predominant method of harnessing niche opportunities in the highlands.

Third, even petty trading by mountain people in special mountain products (e.g., herbs, seed, fruit), constrained by poor mobility, perishability, and low bargaining capacities, amounted to operating in a buyers' market. Consequently, trade in these and other products has been characterised by constant underpricing for producers.

In contrast (viewed from the lowland perspective), the resource and commodity flows towards the highlands have been too small and selective, making the highland-lowland linkages virtually one-way traffic. Besides the limited supply of consumer goods (cereals and industrial products), the main transfer of resources from the lowlands has been investment in infrastructure and related developments in the mountains. However, such resource transfers are guided for the most part by the infrastructural needs of mountain-resource extraction to meet lowland requirements and also by national security concerns in some cases.

Thus, no matter from which angle one looks the terms of trade between the highlands and lowlands have been perpetually against the former. Furthermore, if the unrecognised costs and sacrifices of highland communities in terms of the backlash effects of resource extraction for external profit (e.g., through disruption of their economies and habitats) are considered, the inequities of prevailing economic linkages increase.

Manifestation of economic linkages: resource and product flows

In a concrete manner, economic linkages are manifested by flows of products, services, and resources. An understanding of these flows, i.e., their nature and magnitudes as well as their processes and impacts, can help us develop approaches to make them more equitable and sustainable. This can strengthen the complementarity of highland-lowland economic linkages. However, in view of the prevailing socioeconomic circumstances and the varying degree of inaccessibility, such as lack of access to

markets, characterising mountain areas, any attempt to inventorise the economic flows is a daunting task. A broad idea of the two-way flows showing the economic linkages between the mountains and the plains, based on observation and understanding of the situation in many parts of the HKH region, can be presented. Accordingly, Table 20.4 presents the major activities and their relevant features to indicate the highland-lowland economic linkages, their dominant features (i.e., processes and impacts), and possible approaches to alter the unfavourable circumstances consequences for mountain areas/ communities. Some inferences can be drawn from Table 20.4 that are of direct relevance to the issues discussed in this paper.

- Broadly speaking the economic linkages between the mountains and plains that are seen in the different types of flow have been grouped as (a) flows of traded commodities and services, (b) managed/semi-managed natural resource flows, (c) human resource flows and associated monetary flows, and finally (d) social transfers and (mainly) public sector investment flows.
- In the case of (a) unfavourable terms of trade, lack of local processing/value additions in products traded or resources reduce the gains of mountain areas. In the case of (b) managed and semi-managed natural resources, most of the flows from the highlands to the lowlands are largely uncompensated for or inadequately compensated. Moreover, this compensation in terms of royalties for resource extraction is mostly from government to government level or agency to agency level without involving the communities conserving these resources.
- Mountain people have definitely benefited from remittances or the 'money order economy'. However, the picture of net gains to the mountains through human and associated monetary resource flows is quite mixed. If formal jobs in the plains employing mountain people (the army for example) are excluded, most of the migrants to the plains are unskilled, seasonal or regular workers who earn low wages. The monetary benefits of the latter are likely to be discounted by their negative impacts on the seasonal labour available for crops in the hills. On the other hand, the money received by most workers from the plains stationed in the mountains — mostly in government establishments or project activities — also flows back as remittances to their respective destinations in the plains, demonstrating another form of resource outflow or capital flight.
- In recent decades, on account of both welfare (relief, social services, subsidies) and development, visible resource flows (money and materials) to the mountains have taken place. Despite certain inadequacies, inappropriateness, inherent inequities, and leakages (i.e., money received going out of mountain areas on several accounts), this is an important trend as it increases the resource flows from the lowlands to the uplands or from the mainstream economy to marginalised areas within largely mountainous countries. Nevertheless, seen in the overall context of upland - lowland economic flows, this may not cover even a reasonable fraction of the resource flows from the mountains in categories (a) and (b), namely products and services traded as well as managed/semi-managed resource flows.

Table 20.4: Major flows of products, services and resources manifesting highland-lowland economic linkages[a]

1. Broad Categories of Flows	Traded Commodity and Service Flows	Managed/Semi-managed Natural Resources (NRs) Flows	Human Resource Flows	Social Transfers; Public Sector Investment Flows
2. Major items under (1)	a) Special mountain products (herbs, flowers, fruit) b) Timber/other forest products c) Hydropower/ water d) Tourism e) Consumer/industrial goods from the plains	a) managed NR flows (e.g. irrigation water) from mtn. b) Semi-managed NR flows (nutrients, environmental resource/ services) from mtn	a) Seasonal/ periodical migration of mtn. labour to the plains b) Workers from the plains managing interventions in mtn. areas	a) Cash/kind relief, subsidy flows to mtns. b) Development, welfare investments from the lowlands
3. Dominant features, i.e., processes, impacts of (2)	(a-b) traded as unprocessed primary products; little local value additions, unfavourable terms of trade for the mountains c) Designed-developed externally, mainly for lowland use, very little local gains d) High-value activity, little local gains (a-d) backlash effects exceed gains to mtns., likely to accentuate with globalisation e) Disproportionate profit to the plains	a) Largely uncompensated use of water resources by lowlands; backlash effect for mtns., but little sharing, ploughing back of gains b) Costs/efforts of local resource management (i.e., conservation) benefiting lowlands never compensated, global environmental services neither priced nor compensated	a) Migration of unskilled labour represents a mix of gains/losses as local labour shortage compensated by higher and more regular earning b) Salaried, lowland workers as part of development interventions to help implementation, bulk of their earnings get back to the lowlands	a) Has limited development orientation b) Little effectiveness; the extent disproportionatel y low compared to resource/ product flows from mtns. to lowlands; terms decided by lowlands
4. Possible approaches to alter (3)	Alter terms of trade by realistic pricing; local processing (value-adding), improving local skill levels and infrastructure; and suitable sharing or compensatory mechanisms	Using environmental costing techniques evolve/implement appropriate compensatory mechanisms for both 'managed', and 'semi-managed' resource flows	Build infrastructure, enhance local skills, and encourage local development, micro-enterprises etc to reduce migration; impart better skills for higher earnings from migration	Appropriate and enhanced investment in mtns. to raise their productivity and comparative advantages, local participation in development decisions

a Table adapted from Jodha 1997b. Also see Banskota and Sharma 1999. The table is based on observations and inferences from various studies in the field of natural resource use, production, and marketing in HKH areas.

- The key conclusion from the above discussion is that mountain areas are net donors of resources to the economies in the plains. The impacts of this phenomenon percolate to the community in different forms and constitute some of the reasons and circumstances responsible for unreduced poverty, deprivation, and underdevelopment in these areas. Hence, an understanding of the net drain of material/economic resources (forget environmental resources) from the mountains is a key step towards understanding the poverty and lack of development in most mountain areas.

Emerging awareness and importance of economic linkages

The facts and tendencies described above are not new but have been rarely recognised and much less have they elicited a response. On the contrary, over time their magnitudes and negative impacts have increased. In fact, the extent and intensity have increased with the increased physical, administrative, and market integration of historically, relatively isolated mountain areas with the lowlands. Table 20.4, section 4, presents steps that can help redress this situation. Furthermore, the possibility of building approaches and strategies incorporating these elements is quite encouraging in light of some of the recent developments supporting the cause of the mountains. It should be noted that, of late, inequitable economic linkages between the highlands and the lowlands have become a key area of attention for those concerned with the worsening economic and environmental situation of the highlands and its associated consequences for the lowlands. Factors directly or indirectly contributing to this awareness, concern, and the need to alter the situation are as follow.

Rising awareness about the mountains:

During and following the Earth Summit in 1992, awareness about mountain development has increased substantially. As a major source of the world's fresh water supplies, as the still surviving habitats of rich biodiversity in the global context, and as a natural regulator of downstream resource stability and productivity, the mountains have drawn global attention. In the process, several mountain problems, such as rapid resource degradation and mounting poverty, and their relationship to inequitable highland-lowland linkages have also received some attention.

Economic and social roots of resource degradation

Increasing recognition of economic and social causes of environmental degradation in the mountains has also led to acknowledgement of the inequities of highland-lowland economic linkages as a central component of exploitative resource-use dynamics.

Advances in environmental costing

Both conceptual and empirical studies on realistic costing of natural resources and environmental services have helped to raise concern for the uncompensated drain of

mountain resources to the plains and have helped to project the mountains as net donors of resources to mainstream (lowland) economies. However, such costing becomes more relevant when mountain people's perceptions are incorporated.

Recognition of off-side impacts

There has been an increasing emphasis on recognition, measurement, and monitoring of externalities and off-site impacts of mountain resource conservation/management, helping the downstream economies, and need for sharing or at least partially ploughing back gains to mountain areas to compensate the highland communities for their efforts in helping the lowlands.

Rising community aspirations and emergence of a mountain constituency

Related to the above factor is the rising ethnic consciousness and growth of unsatisfied community aspirations which often use the unequal highland-lowland linkages as part of the highlanders' agenda to project their grievances in their fight against the domination of the mainstream/lowlands. To this one can add the gradual emergence of a mountain constituency manifested by mountain states/governments/NGOs.

Inseparability of the long-term development prospects of lowlands and highlands

Increasingly,it is being realised that there are limits to separating the ecosystem and economic linkages of the highlands and lowlands, and none can be developed in isolation from the other. Hence, the urgent need for an integrated approach to highland-lowland development.

Permanent under-investment

The debate in mountain areas often links their poverty and underdevelopment to permanent under-investment in mountain areas and the inappropriateness of top-down interventions, which in turn are attributed to the unequal economic and institutional linkages between the highlands and lowlands.

Global liberalisation - new challenges and new opportunities

Mountain areas, like other areas, despite their poverty and the dominance of a subsistence-oriented production system are unable to escape the impact of emerging market-driven global liberalisation. As a positive development, globalisation has helped to bring the 'mountain issue' out into the open. Once such a window is opened, it is up to the mountain constituency to take advantage of it (as discussed later).

On the other hand, the primary apprehension about this change is that, being driven by market forces that help the stronger party in exchange transactions, globalisation could accentuate the historical bias of economic linkages against the highlands. Furthermore, since markets favour selectivity and efficiency based on specific criteria, the selected niche opportunities of the highlands may be subject to overextraction by external agencies at the cost of a diversified, local perspective and opportunities

focused on needs. At the same time, at the national level, promotion of liberalisation may encourage entry of formal private sector entities with their capital and enterprise – to promote enterprises and their links with lowlands. Thus such a change could greatly alter the complex of highland-lowland linkages. The way negative and positive repercussions of globalisation for mountain areas and communities take shape would, however, depend on the match or mismatch between the imperatives of mountain conditions and features of the rapid globalisation process. A few of these issues are described in the next section.

20.4 Globalisation and Fragile Mountain Areas/ Communities

Put simply, the globalisation process implies adoption of market-friendly economic policies and programmes specifically directed to liberalisation of trade and exchange policies, reorienting development and investment priorities, and restructuring of rules and provisions guiding economic transactions as well as the roles of different actors in the process, as dictated by the pressures and incentives generated by global economic forces and their legal and institutional instruments (UNDP 1999). The key implication relevant to the present discussion is the fact of according primacy to global perspectives and external concerns while dealing with local problems and, in the process, disregarding local perceptions and practices. The mechanisms through which global perspectives could be imposed at micro-level (or in the mountain context) are commodity trade and associated use of resources and changing production patterns, restructuring of property rights and access to resources, dismantling of existing regulatory provisions and their enforcement mechanisms, curtailment of welfare and promotional support for the needy, and promotion of preferred technologies and support systems through a range of investments, taxes, and price incentives, as dictated by market requirements which in turn are insensitive to both social and environmental concerns (Norgaard 1999). Mountain areas and communities are likely to face a range of problems in the context of such mentioned changes and pressures which may accentuate the circumstances promoting poverty discussed earlier.

The presumed virtues of globalisation, such as increased gains from the free flow of resources and products ensuring more efficiency, as well as the increased growth of wealth and welfare at global level, and assigning of the development and distribution business to market forces, which through transactions driven by incentives can perform 'more efficiently' (World Bank 1999), present a number of questionable assumptions (South Centre 1996). The latter become more clear when the process of globalisation is seen in the micro-level context, e.g., with reference to the mountains and their communities.

Globalisation and mountain areas

To begin with, the process of globalisation tends to create circumstances that are beyond the control of communities in mountain areas. This can marginalise the nature-

based economic niche of mountain areas. It forces them to interact as a the weaker party in a competitive world market. The process is governed by driving forces that are insensitive to the concerns of fragile ecosystems and their residents. Furthermore, the process is so rapid and overpowering that the communities affected have neither sufficient lead time nor the capacities required to adapt to rapid changes. If the scattered evidence emerging is any indicator, as a final consequence, globalisation may increase the exclusion of local communities from the specific resources as well as the pace and pattern of rapid economic transformation in mountain areas. It may accentuate the inequities associated with highland-lowland economic linkages. In particular, the process of exclusion could cause the loss of local access to resources and promote degradation of them; leading to the marginalisation of well-adapted production options and practices which in the past helped environmental sustainability and maintained the standards of living of people in mountain areas (Jodha 1999). More specific and interrelated contexts for understanding the potential repercussions of rapid globalisation on the mountains and their dependent populations are elaborated upon below.

One can understand the possible consequences of globalisation for the mountains by putting its key features in the context of circumstances characterising mountain areas into different categories: (a) visible incompatibilities between the driving forces of globalisation and the imperatives of specific features of mountain areas; (b) the possibility of globalisation accentuating the negative impacts of past interventions; (c) the erosion of practices and provisions imparting resilience and protection to mountain communities (including welfare programmes); and (d) the loss of niche and access to opportunities, an emerging 'exclusion' process. Based on the above understanding, one can also think of (e) indicative approaches or possible ways to influence and adapt to globalisation in mountain areas. Table 20.5 summarises the details.

Visible incompatibilities between the driving forces of globalisation and the imperatives of specific features of mountain areas

According to Table 20.5, section (a), the globalisation process is driven by market forces that (guided by short-term profitability and external demand) promote selectivity and narrow specialisation in the choice of production activities, encourage indiscriminate, and heavy use of resources, and lead to overextraction of niche opportunities/ resources with little concern for their environmental and socioeconomic consequences. These orientations are directly in conflict with the imperatives of specific conditions of the mountain areas rooted in their high degree of fragility, marginality, diversity, specific niche, and so on. These specific features create objective circumstances that favour diversifying resource use and production activities, balancing intensive and extensive uses of land resources as well as production and protection needs facilitating environmental and livelihood security in fragile ecosystems. Evidence of the above process at farm level is already visible in the focus on selected high-value crops, including horticultural crops, with heavy

Table 20.5: Potential sources of adverse repercussions of globalisation for mountain areas and communities and approaches to adapt to them[a]

Potential Sources	Elaboration/Examples
(a) Visible incompatibilities between: (i) driving forces of globalisation and (ii) imperatives of specific features of mountain areas (fragility, diversity, and so on)	(i) Market-driven selectivity, intensification of resource use and overexploitation induced by uncontrolled external demand versus (ii) Induced by fragility-marginality balancing of intensive and extensive resource uses; diversification of production systems, niche harnessing in response to diversity of resources Consequence Environmental resource degradation; loss of local resource-centred, diversified livelihood security options; increased external dependence
(b) Accentuation of negative side effects of past development interventions through globalisation due to their common elements (approaches, priorities) with adverse effects on mountain areas	Common elements between the past public interventions and market driven globalisation (i) Externally conceived, top-down, generalised initiatives (priorities, programmes, investment norms) with little concern for local circumstances and perspectives or involvement of local communities (ii) Indiscriminate intensification at the cost of diversification of resource use, production systems and livelihood patterns, causing resource degradation (e.g., deforestation, landslides, decline in soil fertility, biodiversity) (iii) General indifference to fragile areas/people, excepting in the pockets with high potential, creating a dual economy/society; overextraction of niche opportunities (timber, mineral, hydropower, tourism) in response to external (mainstream economy) needs, with very limited local development Consequence Environmental degradation and marginalisation of local resource-use systems, practices, and knowledge, likely to be enhanced due to insensitivity of the market to these changes and gradually weakened public sector
(c) Globalisation promoting erosion of provisions and practices imparting protection and resilience to marginalised areas/ people (including disinvestment in welfare activities)	(i) Traditional adaptation strategies based on diversification, local resource regeneration, collective sharing, recycling, likely to be discarded by new market-driven incentives and approaches to production, resource management activities (ii) Shrinkage of public sector and welfare activities (including subsidies against environmental handicaps) depriving areas/people from investment and support facilities (except where externally exploitable niche opportunities exist) Consequence Likely further marginalisation of most of the mountain areas and people

[a] Table adapted from Jodha 1999

Table 5 Cont.....

(d)	Loss of local resource access and niche-opportunities through the 'exclusion process' emerging	Niche resources/products/services with their comparative advantages (e.g., timber, hydropower, herbs, off-season vegetables, horticulture, minerals, tourism) and their likely loss under globalisation through the following. i) Market-driven overextraction/depletion as a result of uncontrolled external demand ii) Focus on selective niche, discarding diversity of niche, their traditional usage systems, regenerative practices; indigenous knowledge iii) Transfer of 'niche' to prime mainstream areas through market-driven incentives, greenhouse technologies, infrastructure, and facilities (e.g., honey, mushrooms, flowers produced more cheaply and abundantly in greenhouse complexes in the Punjab plains compared to naturally better suited Himachal Pradesh) iv) Acquisition and control of access to physical resources: forests, waterflows, biodiversity parks, tourist attractions by private firms through sale or auction by government, depriving local's of access, destroying customary rights, and damaging livelihood security systems <u>Consequence</u> Loss of comparative advantages to fragile areas or access to such gains for local communities
(e)	Adapting to the globalisation process, possible approaches to loss minimisation	i) Sharing gains of globalisation through partnership in primary and value-adding activities promoted through the market; building of technical and organisational capacities using NGOs and other agencies, including market agencies, to promote the above ii) Promotion of local ancillary units (run by the local people) to feed into final transactions promoted by globalisation; this needs institutional and technical infrastructure and capacity building iii) Provisions for proper valuation of mountain area resources and compensation for their protection, management by local people for use by external agencies iv) Enhancement of sensitivity of market-driven initiatives to the environment and local concern to be enforced by the international community and national governments v) All the above steps need local social mobilisation, knowledge generation, and advocacy movements; as well as policy-framework and support <u>Consequence</u> If the above steps are followed, there are chances of influencing the globalisation process and reducing its negative repercussion on mountain areas/people

use of chemical inputs, in the hills (Nagpal 1999). The impacts on the environment and productivity of monoculture or reduced diversification are also increasing (Kreutzmann 1995, Jodha 1997c). Over-extraction of resources (timber, mineral, hydropower, herbs) with its negative side effects is also well recognised.

Possibility of globalisation accentuating the negative impacts of past interventions

It may sound strange, but as far as the mountains are concerned, most of the past development interventions by the public sector and the new market-driven processes under globalisation have a number of elements in common (Table 20.1 part 'b'). They include extension of externally conceived and designed, very much standardised and pronounced top-down interventions into mountain areas with little concern for local biophysical and social circumstances; indiscriminate intensification of resource use with little concern for fragility and diversity; overextraction of niche resources to meet external demands, and imposition of external perspectives, institutions, and technologies, marginalising the traditional well-adapted systems (Jodha 1998). These elements have been the source of negative side effects from development interventions in fragile areas (Ives and Messerli 1989, Banskota and Jodha 1992). Globalisation processes, governed by external market forces (and being much less sensitive to local circumstances), are likely to accentuate the above trends. A weakened state, yielding to the incentives and pressures of the globalisation process, will find it increasingly difficult to act against the accentuation process.

Globalisation can strengthen another feature of past interventions, namely, coexistence of the policy-makers' general indifference to mountain areas along with their intense focus on niche that can be exploited for the mainstream economy. The significant niche resources (timber, hydropower, herbs, minerals) offer attractive opportunities, through globalisation, for market agencies to exploit the resources with limited benefits for local populations and with most of the gains going to the mainstream economy outside these regions. Because of unequal highland - lowland economic linkages, this may increase the already substantial uncompensated flows of resources and products from the mountains to the lowlands (Jodha 1997b, Banskota and Sharma 1999).

Erosion of practices and provisions (including welfare programmes) imparting resilience, protection, and security of livelihood

There are two broad categories of provision and practices that have helped mountain people in the past. First, their traditional adaptation strategies to ensure both protection and use of fragile and marginal resources as well as security of livelihoods. These are manifested through diversified and flexible resource use, resource recycling, common property resources, and various risk-sharing arrangements (Jodha 1998). Despite their decline in recent decades, these practices are still an important part of their economic and social transactions. To this, one can add the gains from local harnessing and exchange of petty niche products with comparative advantages for the highlands.

Second, despite their limitations, public policies, through welfare programmes and subsidised development interventions, have been helping mountain people to compensate for the natural and other handicaps faced by them. The public sector plays a crucial role in these activities.

The above protective provisions and practices are likely to decline as a result of the pressures generated by globalisation (Table 20.1 part 'c'). Accordingly, traditional practices, despite their continued rationale and utility, are likely to be disregarded and marginalised by market-driven processes triggered by globalisation. We have already alluded to such traditional practices and arrangements, and they will be subject to a serious backlash from the new short-term, profit- centred production and resource management systems driven by external trade and dominated by external perspectives. There is a strong possibility that a dual system consisting of rich and resourceful groups/pockets participating in the change process and the bulk of the poor left with limited options will emerge. This is already visible in the gaps between the progressive and transformed areas participating in market processes and the bulk of mountain areas that are still outside this process (Jodha et al. 1992).

Similarly, with rapid shrinkage of the public sector and the deminished role of the state and a change in efficiency and productivity norms for resource allocation and performance assessment under strong 'market-dominated regimes', both welfare and subsidy supported development programmes are likely to be de-emphasised. The consequent lack of investment in welfare and protective programmes is already emphasised by structural adjustment plans (Reed 1996, Roy 1997). Yet another major negative consequence of globalisation is seen in communities in fragile zones losing their niche resources and opportunities. This is part of the 'exclusion process' discussed below.

Loss of niche and access to opportunities: an emerging 'exclusion process'

Mountains are endowed with unique environmental and resource characteristics that have potential for products and services with comparative advantages. As already mentioned, timber, hydropower, off-season vegetables, seed production, valuable herbs, minerals, and tourism constitute niche for mountain areas. Under market-driven compulsions and facilities, these areas may lose their niche. The process is likely to include the following (Table 20.1 Part d).

Production and trade-related exclusion

First, the survival and sustainable use of niche resources is closely associated with protection concomitant with use and their interlinkage with diversified, resource-based activities. Neither of these conditions would be likely to be satisfied in the face of external market driven pressures and incentives for selective overexploitation and indiscriminate intensification of resource use.

Second, the globalisation process would bring in new sets of incentives, technologies, infrastructure, and support systems which, in response to high demand and profitability, might facilitate creation of facilities made by people for production of items outside mountain areas in which the latter hitherto had a comparative advantage. Already there are several examples of this. For example, products such as honey, mushrooms, flowers, herbs, off-season vegetables, and quality crop seed, hitherto mainly produced in mountain areas such as Himachal Pradesh (India) are now produced more cheaply and in larger quantities in massive greenhouse facilities in the plains of Punjab. There is yet another development encouraged by trade policies that could marginalise the 'niche' opportunities of mountain areas by substituting their products with cheap imports. Thus, facilities made by people (circumstances) tend to increase the comparative advantages to the plains over the naturally endowed advantages of mountain areas. The negative impact of OGL - open general license for imports in India - on apples from the hills is one example (Sharma 1999).

Resource-related exclusion

The exclusion process related to production and trade indicated by the above possibilities is accentuated by resource-based 'exclusion'. This implies alienation of the local communities from their niche resources and associated niche opportunities. Accordingly, there are situations in which, as a result of physical or economic inseparability of niche from their spatial location, the marginalisation of niche opportunities in the mountains is not possible through production and trade mechanisms. In this situation, a different way of depriving the local communities of their niche opportunities is emerging in the HKH region. This involves external agencies (e.g., private firms, rich individuals) acquiring ownership or exclusive access and usage rights to landscapes and specific resources in mountain areas. Disregarding the customary rights and local control and access to such resources and products, large areas are given by the state to private companies in the name of developing resources and harnessing products. Auctioning or leasing of so-called 'wastelands', areas for mining or development of herbal farms, rights to water flows for hydropower, forests for timber, enclosures for parks and biodiversity, and prime spots for tourist resorts (and private dwellings for the rich) are among the examples of changing ownership and access to resources seen in different countries of the HKH (Jodha 1999). These developments alienating local communities from their own resources are complemented by the well-known global initiatives manifested by global treaties and conventions in which enlightened national and international policy-makers, including donors, rather than market forces, play the key role in alienating people from their own resources, e.g., in conservation areas, sanctuaries, and parks (Zerner 1999).

Possible ways to influence and adapt to the globalisation process

The overall situation described above portrays a rather bleak future for mountain areas and their communities. At the same time, in view of the realities unfolding at

national and international levels, it is not possible to wish away the process of globalisation. The best option lies in eliminating or minimising its negative repercussions for mountain areas, and in harnessing the positive gains of globalisation.

This in turn calls for influencing and modifying the said processes and adapting to the changes led by globalisation (Table 20.5 part 'e'). The way to achieve the above objectives should include a context-specific mixture of steps. The specific focus of the steps could be on minimising economic losses, preventing exclusion, ensuring local participation in the decision to harness resources, and creating compensatory mechanisms for environmental services offered by mountain areas and their people to the rest of the society and the economy. Some thinking on these issues is presented below.

- ***Partnership and sharing of gains*** — To begin with one should focus on a mechanism that can help mountain people share the gains of globalisation through their share in primary and value-adding activities based on opportunities in mountain areas promoted by globalisation. This implies their participation in a market-driven process of change. To facilitate their participation, the local people would have to be equipped with the requisite skills and capacities. This in turn would require social mobilisation and technical as well as organisational/management training. Several NGOs are already attempting this in scattered locations and activities (Preston 1997). Private firms entering mountain regions could be involved in the process by demonstrating to them the utility of local participation in market-driven initiatives. Local perceptions could prove immensely useful in dealing with the environmental implications of the new resource-intensive ventures likely to be encouraged by market forces in fragile ecosystems.

  One of the most effective ways to ensure local participation in external initiatives in mountain areas would be to associate the local communities through ancillary activities with supporting the main ventures in production/ harnessing resources as attempted in China (Rongsen 1998). In such instances, one would have to guard against ancillary activities becoming exploitative of local participants.
- ***Compensating mechanisms*** — Yet another means for local communities to share in the gains of globalisation would be by providing adequate compensation for their losses through various 'exclusion processes' as discussed above. The recognition of customary rights and related practices and protection of intellectual property rights (IPRs) are other issues that could form part of the compensation or the basis for local partnership in market-driven initiatives (ICIMOD 1999).

  The biggest factor requiring compensation relates to the current pattern of uncompensated flow of resources and products from the mountains to the mainstream, lowland urban economy. There is an urgent need to devise and use a valuation procedure to assess the real worth of resources (timber, water, hydropower, environmental services, tourism, and other specific natural products) (World Bank 1996) that are mostly protected and regenerated through the

management practices of communities in fragile areas. Thus, it is through their efforts and investments that environmental resources and services are available to the mainstream economy. If this task were performed well and appropriate compensation measures worked out, the mountain areas would not have to look for charity and subsidies from any agency. If the globalisation process were made accountable for externalities and induced to compensate fully for the resources and services used, the loss caused by the shrinking public sector and disinvestment in welfare activities could be compensated for sufficiently. Nepal's focus on tourism for local development is a worthy example to follow in this respect (Sharma1999).

- ***Sensitising market-driven decisions/actions*** — The second strategic step for influencing or modifying the globalisation process would be to sensitise the market-driven decisions and actions to the environmental concerns in fragile areas. Since globalisation normally follows the signals provided by market forces, the sensitisation proposed would be not an easy task. Yet, if the international community were serious about the concerns presented in different forums, some strict limits would have to be imposed on extraction of resources and manipulating the environment; and these should arise from the discourses and decisions of international agencies (e.g., World Trade Organisation [WTO], United Nations Environment Programme [UNEP], World Bank) and national governments. However, as alluded to earlier, these agencies themselves, as promoters of global treaties and conventions affecting mountain areas, are too indifferent to the imperatives of specific features of mountain ecosystems such as fragility, marginality, and diversity and their interlinkages, and advocacy based on knowledge would be required at national and international levels to influence them.
- ***Mobilising diverse stakeholders*** — This task requires the mobilisation of local communities and sympathetic external voices from NGOs, environmental activists, academia, donors, and sensitive government agencies. In the age of the information revolution and communication technologies, linking the voices and concerns from multiple agencies and locations should not be difficult. Besides, the official or semi-official agencies dealing with issues of global warming and climatic change, biodiversity conservation, and desertification have considerable clout to influence governments and international agencies. Their awareness and convictions about the consequences of globalisation could surely draw the attention of policy-makers at the highest level. However, in all this, the mobilisation of voices and views would have to start from the mountain areas themselves.

However, to evaluate, improve, and add to the above suggestions, to build a strategy that could be implemented, an overall guiding framework and a support structure would have to be provided by the policy-makers dealing with mountain areas and their sustainable development. To facilitate this, the same issues could be projected for policy-makers.

20.5 Indicative Policy Challenge and Choices

Even this rather sketchy account of the emerging situation on the repercussions of globalisation for mountain areas and communities and the possible approaches to address them could help to identify steps that policy-makers could promote to minimise the negative consequences and harness positive opportunities associated with globalisation for mountain areas.

A sound information base and understanding

- The first task that policy-makers should undertake is to facilitate a better understanding of the emerging impacts of globalisation (i.e., the policies, programmes and procedures involved) on mountain areas and communities. To begin with, this would be an information intensive activity. A systematic research effort should be initiated into understanding the repercussions of globalisation, particularly the percolation of impacts at micro-level.
- The framework, focus, and design for such a research effort could be built around the issues discussed in this paper. The issues to be addressed could be placed into two categories: (a) issues of a conceptual nature such as the degree of incompatibility between imperatives of mountain specificities and the driving forces and operational mechanisms of globalisation elaborated upon earlier; and (b) complementing the conceptual issues are other aspects that illustrate the operational dimensions of the former. The latter include inferences from the field evidence on specific changes such as the changing status (i.e., marginalisation) of mountain niche, exclusion of mountain communities, increased inequality of highland-lowland economic linkages, and the efforts emerging to adapt to negative and positive impacts of globalisation. They could constitute the sub-themes for operationally oriented research efforts.

Strategies and approaches: strengthening mountain niche

Building upon the relevant database and analysis, the operational strategies to harness gains of globalisation and minimise its backlash effects on mountain areas and communities could be developed around two focal areas, namely, (i) limitations and weaknesses of mountain areas/communities vis-à-vis the mechanics of globalisation and how to convert them into positive aspects and (ii) strengths and facilities associated with globalisation, the harnessing of which can help mountain areas. This is explained below.

- One of the key limitations of mountain areas with reference to the present discussion is that, in the past, these regions have relied mainly on niche or comparative advantage provided by nature. Facilities made by people to improve the niche for local development and favourable terms of trade in their external exchange have not emerged. Hence, the key challenge for agencies interested in the prosperity of mountain areas in this era of globalisation is how to strengthen their old niche and identify new niche opportunities through R&D, infrastructural support, private sector partnership, and people's participation.

- In the short run, using globalisation's own norms or tools, e.g., product differentiation, a number of niche opportunities could be created by 'branding mountain products' (as organic products and eco-friendly products to fetch high prices and exclusive markets). Introduction of value-adding for local processing of mountain products, e.g., herbs and fruit, could be another area. Some NGOs and self-help groups are already attempting such measures. Research and development (R&D) in the mountains could be focused on the 'quality aspect' of niche products as, for example, in Himachal Pradesh (Sharma 1999) and many parts of China (Rongsen 1998). However, institution building and infrastructural development efforts need a strong impetus and substantial investment. Mutual learning between different mountain areas could be another rewarding step in this direction as demonstrated by ICIMOD's multi-country projects (Papola 1998, Sharma 1999).

Arresting the 'exclusion process'

The issues of 'exclusion of mountain communities' in terms of both access to resources and participation in newly emerging, high pay-off activities are closely linked to the capacities, skills, and resources in the command of mountain people. Having lived largely with the support and management of nature-endowed options, the mountain communities find themselves completely lost in the face of challenges and opportunities created by globalisation in which human interventions play the dominant role.

- To address this problem, the essential steps would be information and awareness generation, skill formation, and institutional arrangements to strengthen the capacities of mountain communities for new tasks. As already mentioned (in discussing adaptations to change), associating local communities with private agencies promoted through globalisation is one promising area in which to involve and strengthen communities for new tasks. These capacity building efforts would help to ensure local participation in globalisation-generated options for mountain areas. Some initiatives have already been undertaken by NGOs and self-help groups. These efforts now need to be complemented by public policies and programmes. Despite the shrinking role of the public sector, the above-mentioned measures, being part of social overheads, will have to be a focus of the state.
- The 'exclusion process' through alienation of mountain communities from their resources and products is a clearer case for policy attention. Besides restricting the indiscriminate transfer of land resources from the local community to others, as guided by market forces, other obligations for the buyers or lessees need to be provided for in the overall approach in this field to ensure access to resources and ownership on the part of mountain communities. A few areas where policy-thinking and action could be focussed include: partnership or gainful involvement of local communities in the enterprises built upon the aforementioned transfers of property or access rights; legal or related provisions to guide the establishment

and operation of new agencies acquiring resources and their obligations to ensure alternative earning options for the people alienated from local resources through the changes.

Advocacy of 'local' responsibilities of global stakeholders

The moment national or international private corporations become involved in mountain areas directly as users or suppliers of resources, products, and services or indirectly through influencing development decisions and actions, they become stakeholders in the present and future of mountain areas. Being stakeholders, they also have responsibilities towards mountain areas. However, the awareness and execution of these responsibilities continue to be a major gap. Policy-makers could address this gap by initiating action on the following lines.

- Lobbying agencies setting the global agenda and promoting liberalisation about the special problems and issues of mountain areas, as a result of inaccessibility, fragility, marginality, and diversity which call for regulation of market-driven initiatives that otherwise marginalise the mountain niche and enhance 'exclusion' of mountain communities. This also calls for compensatory mechanisms in terms of well-focused financial support or application of modified norms for investment returns and performance in mountain areas. This is essential because, in view of the biophysical constraints , mountain economies are seriously handicapped when they participate in the competitive market (Messerli *et al.* 1997).

  It should be added that provisions for support facilities need not be a matter of charity or extra favours for the mountains. In fact, if systematically worked out, such resource transfers would account for a small fraction of the uncompensated resource and product flows from the mountains to the rest of the world (Jodha 1997b). To explain this, all local efforts towards conservation of land, water, and biodiversity have several externalities offering more benefits to the downstream regions than to mountain people. At least some compensation for such services would justify the suggested special treatment of the mountains, which otherwise would not be possible as a result of the rapid marginalisation of the public sector and rising primacy of market forces in guiding economic transactions.

  A related point is the need for realistic valuation of mountain resources (forest, water, biodiversity, minerals) and environmental services, currently acquired and used at arbitrarily low prices. Methods for valuation of natural resources and environmental services are already available (Ahmad et al. 1989). Market forces/ agencies must be sensitised to this aspect. This has both economic and ecological justifications.

  The regulatory framework for market agencies harnessing or developing mountain resources should also include measures to sensitise them to environmental problems in order to facilitate their acceptance of restrictions on the free play of market forces.

- Partnership between mountain communities and agencies of the global process (private firms) producing, processing, and marketing mountain products and services is another mutually rewarding area which should be advocated and focused upon to ensure gains from globalisation for mountain areas. This aspect has already been discussed earlier in different contexts. This needs both a policy framework and an operational programme in mountain areas.
- New sources are needed to relax mountain constraints. As indicated earlier, most of the constraints in mountain areas are a product of conditions associated with high degrees of inaccessibility, fragility, marginality, and diversity. Despite knowing about them, these problems have persisted because of the policy-makers' indifference towards them or because of a lack of resources to address them. The globalisation process has improved the access to and availability of investment resources as well as relevant technologies to handle the above problems to a great extent. Hence, involvement of global or national agencies in activities such as building physical infrastructure could be another area for harnessing the benefits of globalisation. A systematic reduction in remoteness or isolation itself could go a long way towards enhancing the mountain economy's competitiveness in global markets. However, a side issue to enhancing the facilities and harnessing mountain resources by external agencies is their sensitivity to environmental concerns in the mountains, most of which have been ignored even by public-sector development interventions in the past. Under the new arrangement to be promoted by the private sector (through globalisation) this aspect should to be explicitly addressed.

A forum for dialogue and decisions

The final point in the above context relates to the fact that, even if the above-mentioned indicative approaches are not readily acceptable to market agencies driven by the globalisation process, they could be persisted with by involving different stakeholders. One positive feature of the globalisation process is that, as an internationally endorsed framework, coordinated by WTO, it is slowly evolving. It provides a platform for dialogue and resolution of conflict through periodical WTO meetings where issues emerging can be presented. Repercussions of globalisation for the mountains and their resolution could be a fit subject for such discussion and decisions. However, such, advocacy has to be supported by detailed information and analysis about the issues. Agencies/NGOs, such as the Mountain Forum, are already in place to promote lobbying for mountain problems. They should also focus on the problems of mountain areas related to gobalisation.

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Annexes

Annex 1
Conference Programme

Sunday 30.01.2000

Registration of Participants
Informal Get Together and Dinner

Monday 31.01.2000

09:00-10:00 Opening

- Welcome by Mr Egbert Pelinck, Director General, ICIMOD
- Address by H.E., Dr K. Barth, Ambassador, Federal Republic of Germany
- Inauguration and Address by H.E., Dr. Ram Sharan Mahat, Foreign Minister of Nepal
- Objectives and Structure of the Conference by Dr Mohan Man Sainju, Conference Chairman
- Vote of Thanks by Mr Jürgen Richter, DSE

10:00 *Tea/Coffee Break*

Photo Session

Plenary Session I

10:30 Overview Paper:HKH Region

11:00 Country Overview Papers

- Bangladesh
- Bhutan
- India

13:00 *Lunch*

14:00 Country Overview Papers

- Nepal
- Pakistan
- China

16:00 *Tea/Coffee Break*

16:30-17:30 Discussion on Country Overview Papers

18:30 *Dinner Reception*

Tuesday 01.02. 2000

Plenary Session II	
09:00	Introduction to the Day (by Chairman)
09:10	Sectoral Papers: Options and Opportunities for Economic Diversification • Diversification of Agriculture – HKH Region – India • Commercialisation of Natural Resources for Sustainable Livelihoods: The Case of Forest Products
10:30	*Coffee/Tea Break*
10:45	Sectoral Papers (cont'd..) • Mountain Tourism • Enterprise Development
12:30	ToRs for Working Groups
13:00	*Lunch*
Parallel Working Groups	
14:00-17:00	Working Group Discussion (Groups AI, AII, AIII, AIV)
Plenary Session III	
17:00	Presentation and Discussion of Working Group I Reports
18:30	*Cultural Programme*
19:30	*Dinner*

Wednesday, 02.02.2000

Plenary Session IV	
09:00	Introduction to the Day (by the Chairman)
09:10	Papers on Access, Resources and Institutions • Land Systems, Land Tenure and Poverty – Asia – Nepal – North East India • Participatory Resource Management: Forests and Water • Women in Mountain Households
11:00	*Coffee/Tea Break*

11:30	Papers on Access etc. (continued) • Improving Accessibility for Mountain Development • Global and Highland - Lowland Linkages
13:00	*Lunch*

Parallel Working Groups

14:00-17:00	Working Group Discussion (BI, BII, BIII, BIV)

Plenary Session V

17:00	Presentation of Working Group Reports
18:30	Briefing on the Field Trip
19:30	*Dinner*

Thursday, 03.02.2000

09-19:30	The whole day spent on a field trip

Friday, 04.02.2000

09:00	Working Group Sessions on Recommendations (AI, AII, AIII, AIV)
10:30	*Coffee/Tea Break*
11:00	Working Group Sessions on Recommendations (BI, BII, BIII, BIV)
13:00	*Lunch*

Plenary Session VI

14:00	Presentation and Discussion on Working Group Recommendations
16:00	*Coffee/Tea Break*
17:00	Main Conclusions and Recommendations
17:30	Closing
18:30	*Reception/Dinner*

Field Trip

A field trip to Kabhre Palanchowk district was organised on 03.02.2000. It is at a distance of 20 km from Kathmandu and requires about one hour's journey from the Conference venue.
At the location the participants split and continued the visit under the following aspects.

General Major Aspects:	Accessibility
Diversification of Livelihood Activities	
Sub-groups looked at:	Livestock, Dairy Production Cash Crops Participatory District Development Tourism

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63. Dr Pradeep Tulachan
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65. Prof. Chen Guang Wei
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69. Ms. Katja Rytkonen
Intern from Finland at ICIMOD

Annex 3
Terms of Reference for the Parallel Working Groups

1. Number and Themes

There were two sets of four groups each.

Set A: Strategies and Policies for Growth and Poverty Alleviation: Economic Opportunities and Options

Group I : Diversified Agriculture
Group II : Enterprise Development
Group III : Forest Products
Group IV : Tourism

Set B: Access, Equity and Institutions

Group I : Land Systems, Land Tenure and Natural Resource Management
Group II : Accessibility
Group III : Gender and Social Equity
Group IV : Highland -Lowland Linkages and Impact of Globalisation

2. Terms of Reference

Based on

- regional and country overview papers
- thematic paper presentation and discussion in the plenary
- discussion in the Groups

The Working Groups will prepare reports for presentation and discussion in the plenaries covering the following aspects of the themes under their respective consideration:

- goals and objectives
- status and trends: general and theme/sector specific
- issues and challenges

- opportunities and successful experiences
- policies, programmes, and institutional mechanisms: status and gaps
- suggestions and recommendations, including roles of different actors: communities, community-based organisations, NGOs, government, private sector, international organisations, and donors

Individual Groups may decide, depending on the themes they are considering, about relative emphasis on different aspects and any additions they might consider necessary and important.

3. Formation of Groups

Participants opted to join one of the Groups in set A on February 1 and then also for one of the Groups in set B on February 2. In effect each participant was expected to join two groups consecutively.

4. Schedule for Group Discussions

The schedule for Working Groups will be as follows.

Date	Time	Activity	Groups			
01/02/2000	1400-1700	Discussion	AI	AII	AIII	AIV
	1700-1800	Presentation to Plenary	AI	AII	AIII	AIV
02/02/2000	1400-1700	Discussion	BI	BII	BIII	BIV
	1700-1800	Presentation to Plenary	BI	BII	BIII	BIV
04/02/2000	0900-1030	Discussion & Finalisation of Reports	AI	AII	AIII	AIV
	1100-1230	Discussion & Finalisation of Reports	BI	BII	BIII	BIV
	1400-1600	Presentation of Final Reports to Plenary	All Groups			

5. Group Functionaries and Support

Each Working Group will:

- choose a member to present reports to the plenary,
- have a resource person from among ICIMOD staff,
- have a facilitator from DSE to organise the discussion, and
- be provided with a secretary/rapporteur to assist in preparation and production of reports.

6. Composition of the Working Groups

AI. Diversified Agriculture

1. N. Ahmed, Bangladesh
2. M. Iqbal, Pakistan
3. B.G. Baidya, Nepal
4. M. Kirk, Germany
5. B.B. Bajracharya, Nepal
6. H. Kreutzmann, Germany
7. D. Chapagain, Nepal
8. Y. Ruizhen, China
9. R. Chand, India
10. A.K. Sarraf, Nepal
11. Mr. Chhetri, Bhutan
12. H. Upadhaya, Nepal
13. A.A. Chowdhury, Bangladesh
14. W.V. Urff, Germany
15 I. Hassan, Pakistan
16. R. Yadav, Nepal
17. S. Zia, Pakistan

Facilitator: G. Bokeloh

Resource Person: P. Tulachan, ICIMOD

A2. Enterprise Development

1. M. Aziz, Bangladesh
2. A. Khan, Pakistan
3. G.S. Bhalla, India
4. M.P. Lama, India
5. Md. S. Hussain, Bangladesh
6. J.C. Pokharel, Nepal
7. B.K. Joshi, India
8. E.A. Quereshi, Pakistan
9. A. Kamal, Bangladesh
10. D.B. Rai, Bhutan
11. S.P. Kashyap, India
12. R.S. Tolia
13. M.R. Shelley, Bangladesh

Facilitator: G. Balzer

Resource Person: K. Rijal, ICIMOD

A3 Forest Products

1. B. Bhadra, Nepal
2. S.. Pathak, India
3. N.S. Jodha, ICIMOD
4. M. Shrestha, Nepal
5. M. Karki, IDRC
6. G. Thapa, IFAD
7. B.P. Maithani, India
8. P. Tshering, ICIMOD
9. K. Nicholson, NEDA, Nepal
10. S.Z. Sadeque

Facilitator: G. Kreis
Resource Person: A. Bhatia, ICIMOD

A4. Tourism

1. I.Alvi, IUCN
2. W. Namgyel, Bhutan
3. J. Hummel, NEDA, Nepal
4. M.M. Nazeer, Pakistan
5. M. Irfan, Pakistan
6. M.R. Pandey, Nepal
7. M.S.Manandhar, Nepal
8. Katya Rytkonen, ICIMOD
9. S.W. Tenzing, India

Facilitator: A. Schmidjell
Resource Person: P. Sharma, ICIMOD

B. Access, Equity and Institutions

B1. Land Systems, Land Tenure, and Natural Resource Management

1. A. Bhatia, ICIMOD
2. B.P. Maithani, India
3. D. Chapagain, Nepal
4. S. Pathak, India
5. M. Iqbal, Pakistan
6. J.C. Pokharel, Nepal
7. A. Kamal, Bangladesh
8. Y. Ruizhen, China
9. M. Karki, IDRC
10. A.K. Sarraf, Nepal
11. M. Kirk, Germany
12. W.V. Urff, Germany
13. S. Zia, Pakistan

Facilitator: G. Kreis
Resource Person: S.Z. Sadeque, ICIMOD

B2. Accessibility

1. B.B. Bajracharya, Nepal
2. H. Kreutzmann, Germany
3. M. Chhetri, Bhutan
4. M.S. Manandhar, Nepal
5. M. Irfan, Pakistan
6. M.M. Nazeer, Pakistan
7. P. Tulachan

Facilitator: G. Bokeloh
Resource Person: P. Sharma, ICIMOD

B3. Gender and Social Equity

1. M. Acharya, Nepal
2. M.S. Hussain, Bangladesh
3. S.N. Ahmed, Bangladesh
4. A. Khan, Pakistan
5. I. Alvi, IUCN, Pakistan
6. W. Namgyel, Bhutan
7. B.G. Baidya, Nepal
8. E.A. Quereshi, Pakistan
9. A.A. Chowdhury, Bangladesh
10. K. Rijal, ICIMOD
11. I. Hassan, Pakistan
12. Katya Rytkonen, ICIMOD

Facilitator: A. Schmidjell
Resource Person: P. Tshering, ICIMOD

B4. Highland-lowland Linkages and Globalisation

1. M. Aziz, Bangladesh
2. M.R. Pandey, Nepal
3. R. Chand, India
4. D.B. Rai, Bhutan
5. G.S. Bhalla, India
6. M.R. Shelley, Bangladesh
7. B.K. Joshi, India
8. M. Shrestha, Nepal
9. S.P. Kashyap, India
10. S.N. Tenzing, India
11. M.P. Lama, India
12. G. Thapa, IFAD
13. R.S. Tolia, India

Facilitator: G. Balzer
Resource Person: N.S. Jodha, ICIMOD

Annex 4
A Note on the Field Visit

The field visit was organised on 3 February 2000. Kabhre Palanchowk district was selected as the site for the day-long study tour as this district ranks 12th out of Nepal's 75 districts in terms of UNDP's Human Development Indicators and, as one of Nepal's 39 hill districts, it is also representative of the middle mountain areas of Nepal.

The field visit was organised by a team of three local eco-development journalists led by Mr. Binod Bhattarai, Mr. Kedar Sharma and Mr. Mohan Mainali being the other members.

The field visit was divided into two parts. One section of the visit included the larger group. Another part was a three-group programme designed to address the specific interests of the smaller groups. The participants visited altogether seven different sites during the field visit, viz., Dabur Nepal Pvt. Ltd. (for a nursery of medicinal plants), District Development Committee, Kabhre Palanchowk, Hotel Horizon, Dhulikhel (tourism), Ranitar and Umadevi Cooperatives (dairy development), Chandrawati Vegetable Producers Cooperative Ltd., Ramche (vegetable cultivation and integrated pest management), PARDYP/ICIMOD Kubindepakha (community-based solutions), and Goukhureshwor Community Forest, Dhulikhel (community forestry). The visitors were briefed on their activities by the personnel at the site visited.

At Dabur Nepal, the participants discussed, among others, the issues of the potential of growth of different aromatic and medicinal plants in Nepal; species being raised and promoted; the technicalities of raising specific species; the reasons for setting up a nursery; and demand for and supply of saplings. The sites represent an example of private sector initiative in rural development.

At the District Development Committee (DDC), the DDC chairman briefed and discussed with the participants the different development activities underway in Kabhre. The discussions included: how decentralisation is taking place in Nepal-the reality between rhetoric and practice; the DDC's experience with the UNDP-supported Participatory District Development Programme; relationships and linkages between community groups, village and district governance units and central government agencies; and the planning process and development plans of the DDC. During the discussion the issue of the roles of the decentralised democratic institutions and of the departmental line agencies emerged as a challenge to be resolved.

The Mayor of Dhulikhel, and owner of Hotel Horizon, explained how tourism has contributed to local employment generation and creation of a market for local agricultural and dairy produce. A new type of tourism that has brought new hope to Dhulikhel is conference/convention tourism. The issues discussed included disadvantages of being located near the main tourism

stop, namely, Kathmandu; direct benefits of tourism to the local economy; and plans and ways to raise receipts.

Kabhre district is Nepal's largest producer of milk. Of the two cooperatives in Ranitar, both Ranitar cooperative and Umadevi cooperatives were selling less milk than they had sold in the past, mainly due to an extended 'milk holiday', a phenomenon currently common in some parts of Nepal reflecting larger supply potential than demand, primarily due to inadequate processing capacity and uneconomical prices of milk vis-à-vis prices of cattle feed. Participants discussed the issues of the benefits of working as a cooperative; problems resulting from local politics; the organisational and decision-making problems faced by milk-producers; the contribution of income from dairy production to the household economy; the relationship of local cooperatives with the district-level association of cooperatives; and the possibility of setting up milk processing industries locally.

Panchkhal is a major supplier of vegetables to Kathmandu. Successful agriculture has contributed to improving income locally and has also provided farm employment to people from faraway villages. However, the use of chemicals in agriculture in Panchkhal is also among the highest in the world. Another result of the 'successful' agriculture is the increased workloads of women. The Centre for Environmental and Agricultural Policy Research and Extension and Development (CEAPRED) is working to raise the awareness of farmers about judicious use of chemicals in agriculture and alternative farming methods and promotion of integrated pest management (IPM). The participants discussed, among others, the following issues with IPM promoters and farmers: income generation from seasonal and off-season vegetable cultivation; crop diversification and food security; arrangements made for marketing produce; fund-raising, credit, and savings' programme through farmer cooperatives; women's participation in planning and decision-making; impact of increased income on the lives of the villagers; and benefits and difficulties of applying IPM techniques.

ICIMOD's People and Resource Dynamics Programme (PARDYP) has a demonstration site at Kubindepakha, where different interventions are being tested:rainwater harvesting, monitoring small watersheds, alternative pest management, and drip irrigation. Issues related to a local community forest; the geology, soil, and climatic conditions of the research/ demonstration area; and water scarcity, harvesting, and rational use in a given environment were discussed with the field staff of PARDYP.

It emerged from the discussions with the District Forest Office and Chairman of Goukhureshwor Community Forest, Dhulikhel, that farmers are aware of the importance of trees and forests, and there is substantial indigenous knowledge and management capacity. Kabhre is a success story in community forestry. The forestry successes have resulted from both the policy of transferring ownership from government to community groups and the use of organic material for agriculture and dairy production. Today, communities are faced with issues related to use of forest resources, their management, and equitable distribution of benefits. The participants and the hosts discussed the issue of: organisation for forest management; policy issues related to community forestry; and benefits derived by the community.

Evaluating the relevance of the field visit, over 90% of the participants rated it as ‘highly useful”. They noted that there is a serious gap in exchange of information as well as dissemination of similar exercise/projects/programmes within ICIMOD member countries. The group also noted that, although most of the sites and activities visited showed good success and useful lessons, there were still gaps between stated goals and strategies and implementation and achievements.

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