International Centre for
Integrated Mountain Development

ISSN: 1027-0027

Issues in Mountain Development 1996 to 1999: Collected Abstracts

The series 'Issues in Mountain Development' (IMD) was introduced in the last quarter of 1996. This issue lists and provides abstracts of the 25 IMDs published from 1996 to 1999.

1999

99/6 Integration of GIS and Remote Sensing for Crop Acreage Estimation: An Information System Development Approach - This paper presents an approach to the development of a Geographic Information System (GIS) for crop acreage estimation to support the crop forecasting system at regional level. The research adopted the Structured System Development Methodology (SSDM) to develop a GIS that includes complex processes and data models. The overall aim of the system design was to support crop area estimation through Area Frame Sampling (AFS), Remote Sensing (RS), and a combination of both. However, a detailed design was carried out to support AFS only. Two prototype systems were designed: based on a system that can support AFS survey design, field work, data processing, and assessment of the quality of data entered, CAEIS-I and CAEIS-II. CAEIS-I was developed using the Arc Macro Language (AML) of UNIX based Arc/Info, and CAEI-II was developed using MS Access '97 in a PC environment.

Author: Sushil Pradhan (sushil@icimod.org.np), GIS Analyst, Mountain Environment and Natural Resources' Information Systems' Division, ICIMOD

99/5 A Place in the Sun: Options for Space Heating in the Mountains - Cold climates and harsh living conditions associated with rapid deforestation and indoor air pollution make the prospects of using solar energy exciting. The text examines the availability of solar energy in the Hindu Kush-Himalayan region and the options for its application. Issues arising and a legislative framework are also discussed along with recommendations for its promotion.

Author: Dr. Kamal Rijal (krijal@icimod.org.np), Renewable Energy Specialist, Mountain Enterprises and Infrastructure Division, ICIMOD

99/4 Integration of GIS, Remote Sensing and Ecological Methods for Biodiversity Inventory and Assessment - Inventory and assessment of biodiversity have become essential for short-term management strategies as well as for developing and testing scientific hypotheses. Geographic Information Systems (GIS) and Remote Sensing (RS) both have special advantages in preparing inventories of species based on ecological parameters. Remote sensing can help procure valuable information on types of habitat, structures of vegetation, landscapes, and fragmentation, basically to assess the extent of diversity in biological species and make a record of the species extent. The significance of Geographic Information Systems is in assessing the relative values of richness of species, dominance, fragmentation, porosity, and so on. Methods and parameters are described briefly with the use of tables to define some of the parameters. Useful reference material is given for those interested in pursuing this topic in depth.

Authors: Dr. Moe Myint (moe@icimod.org.np), GIS Specialist, **and Pramod Pradhan** (pramod@icimod.org.np), Division Head, Mountain Environment and Natural Resources' Information Systems' Division, ICIMOD

99/3 Application of GIS to Mountain Land-use Planning - Geographic Information Systems (GIS) have often been presented as a tool of great value for planners and decision-makers because they enable 'rational' or 'scientific' planning processes. However, increasing experience in the operational use of GIS has taught us that the value of GIS in planning is not so much in making 'rational' decisions but rather in providing a technical platform through which data from diverse origins can be visualized, integrated, and managed, e.g., from different sectors, different planning approaches, and different sources.

Author: Peter Bitter (peter@icimod.org.np), Remote Sensing Specialist, Mountain Environment and Natural Resource Information Systems' Division, ICIMOD

ISSUES IN MOUNTAIN DEVELOPMENT is a series released from time to time to brief planners, development workers, researchers, and donors on recent trends, findings, and issues affecting mountain development. The papers in this series can be quoted with due acknowledgement. They can also be accessed on ICIMOD's World Wide Web pages on the Internet at:

http://www.icimod.org.sg

Comments are Welcome

99/2 Trends and Prospects of Sustainable Mountain Agriculture in the Hindu Kush-Himalayan Region: A Comparative Analysis - This paper analyses the time-series' data of three integral components of mountain agriculture: food-grain crops, horticultural crops, and livestock of selective mountain provinces/states/regions of Pakistan, India, and Nepal. The purpose is to examine the changes taking place in mountain agricultural systems over the past several years with implications for the future. The results indicate the increasing role of horticultural crops in the agricultural economy of mountain households. Nevertheless, declining productivity has raised concerns for long-term sustainability. On the other hand, the production of cereal food-grain crops has remained relatively stable although the area has not increased. In livestock, buffaloes and goats are increasing, thus providing opportunities to mountain households to generate cash income. Based on the present trends, the implications for future development of mountain agriculture are discussed.
Author: Dr. Pradeep M. Tulachan (tulachan@icimod.org.np), Farm Economist, Mountain Farming Systems' Division, ICIMOD

99/1 Social Institutions, Local Governance, and Social Capital Foundations of Sustainable Development and Poverty Reduction - In the past, interventions focussed on a top-town approach. Such interventions have not been successful. The current focus is based on facilitating social capital through small group formation and well directed, non-intrusive economic interventions. This paper examines the changing concepts of institutional development interventions and their positive and negative impacts, with examples from the Hindu Kush-Himalayan region (HKH). At the end, the author poses some research questions and pertinent issues as part of the framework of an institutional governance and social capital approach to poverty reduction and sustainable development in the HKH.
Author: Dr. Zahir Sadeeque (sadeque@icimod.org.np), Social Scientist, Mountain Enterprises and Infrastructure Division, ICIMOD

1998

98/8 Market and Small Towns in the Hindu Kush- Himalayas: Alternative Modes of Urbanisation - The last few decades have witnessed an increasing dichotomy in the spatial organization of population and economic activities in the Hindu Kush-Himalayan (HKH) region. At one extreme are large, often primate cities such as Kathmandu, Lhasa, or Dehradun that are growing at rates that double the population of these cities every 10 to 15 years or so and, at the other extreme, are the vast rural areas which suffer from the paucity of basic services, where outmigration has evolved as a survival strategy, and their niche-based comparative advantages cannot be harnessed because the conditions for doing so in terms of accessibility, services, and other forms of institutional support are absent. This paper examines (a) the potential functions of market and small towns; (b) their current state in the Hindu Kush-Himalayas; and (c) strategic issues in their promotion and development thereby proposing it as a resolution to the dichotomy of spatio-economic growth in the mountains and emphasising the urgency to give it a policy and programmatic focus.
Author: Dr. Pitamber Sharma (pitamber@icimod.org.np), Regional Planner, Mountain Enterprises and Infrastructure Division, ICIMOD

98/7 Bioterracing & Soil Conservation: Experience with Contour Hedgerow Planting in Parts of the Hindu Kush-Himalayan Region - In the Hindu Kush-Himalayan region, agriculture is the main occupation of about 80% of the population. Due to limited arable land and increasing population growth, farming encroachment on ecologically fragile and marginal mountain lands will continue. Unless sustainable farming alternatives that conserve soil are sought, developed, and implemented, land degradation and the impoverished living conditions of resource-poor upland farmers are bound to worsen with time. Hence, it is urgent to seek new options for farming sloping lands that can enhance crop yields and conserve soils to an acceptable level and which can further improve soil conservation on and the soil fertility of bench terraces. Work carried out by ICIMOD in parts of the Hindu Kush-Himalayan region shows that Contour Hedgerow Technology might be one answer to these problems.
Author: Dr. Tang Ya (tangya@icimod.org.np), Agroforestry/Soil Conservation Specialist, Mountain Farming Systems' Division, ICIMOD

98/6 Mountain Women of the Hindu Kush-Himalayas: The Hidden Perspective - Despite their important role in production systems of the mountains, very little data exists on the situation of mountain women and analysis of gender relations in the Hindu-Kush Himalayan region. Scanty information can be gleaned from anthropological ethnographies, but, otherwise, studies on the status of women in the countries of the region are by and large focussed on women from lowland and urban environments. What is clearly missing is a description of their situation told by mountain women themselves. To learn of this 'hidden perspective', 17 female researchers from eight countries of the Hindu Kush-Himalayan region (Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan) were involved in the collection of information on the status of women in mountain areas during 1996 and 1997. The issues discussed are based on the findings of this research.
Author: Jeannette D. Gurung (jeannett@icimod.org.np), Gender and Development Specialist, Mountain Farming Systems' Division, ICIMOD

98/5 Livestock Development in Mixed Crop Farming Systems: Lessons and Research Priorities - In the past three decades or so, considerable efforts have been expended in livestock research and development in the Himalayan region of India and Nepal. Development efforts have been geared towards improving animal breeds to increase the incomes of mountain farmers. It is crucial to examine which animals are gaining economic importance and what have been the development experiences of institutional programmes. To do so, this paper reviews and analyses: 1) the temporal changes that took place over the past years in terms of livestock population and composition and 2) the institutional programmes for developing the livestock sector. Finally, it draws implications on these experiences for livestock planners and policy-makers and raises several research issues related to livestock sector development.
Author: Dr. Pradeep Tulachan (tulachan@icimod.org.np), Farm Economist, Mountain Farming Systems' Division, ICIMOD

98/4 Sustainable Energy Use for Mountain Areas: Community-level Energy Planning and Management - Increasing difficulties and drudgery are faced in mountain areas because of diminishing resources of rural energy caused by inefficient use of fuelwood, increasing reliance on biomass, and a consequent loss to agriculture when crop and animal wastes are used as fuel. Lack of proper mechanisms means that a significant increase in the use of renewable energy technologies has not occurred, although some governments have attempted wide-scale introduction of such. People's participation and decentralised community-level action programmes are one approach to assessing energy needs, determining appropriate technologies, and promoting their use. Integrated efforts from all stakeholders are an essential given. So far, energy programmes have had a negligible effect on unsustainable energy use patterns in the mountains.
Author: Dr. Kamal Rijal (krijal@icimod.org.np), Energy Specialist, Mountain Enterprises and Infrastructure Division, ICIMOD

98/3 Environment, Culture, Economy, and Tourism: Dilemmas in the Hindu Kush-Himalayas - Tourism is not a completely new phenomenon in many parts of the HKH mountains. What is relatively new is the perception of tourism as an activity with a comparative advantage afforded by the physical and cultural environment upon which mountain economies could rely for expanded and increased income and employment opportunities. What is very new is the perception that tourism could be a means of economic transformation of often remote, inaccessible, and historically marginalised mountain areas and communities. What is also new is the recognition that tourism can be its own cure, i.e., the environmental, cultural, and economic problems and ills associated with tourism can also be addressed through the infrastructure and resources built through tourism. The dilemma of tourism is a result of the differing perceptions of the impact of tourism. The attempt here is to highlight some of the important themes of this dilemma emerging from our understanding of tourism in relation to the wider concern for mountain development.
Author: Dr. Pitamber Sharma (pitamber@icimod.org.np), Regional Planner, Mountain Enterprises and Infrastructure Division, ICIMOD

98/2 Intellectual, Biological, and Cultural Property Rights in the HKH - The notion of property is being extended to indigenous knowledge, cultural traditions, and biological diversity. Mountain communities have evolved a tremendous range of practices to suit their diverse ecological and socioeconomic environment and are so positioned with strength. However, their interests are not adequately addressed in many of the recent trade agreements; although they find a place in some of the non-binding principles such as Agenda 21. The issue of intellectual property rights (IPRs) over bio-cultural resources is a matter of great concern in this respect. This paper attempts to introduce issues and developments in the arena of IPRs and implications thereof upon the local mountain communities in the HKH region.
Author: Ajay Rastogi (ajay@icimod.org.np), Assistant Coordinator, Ethnobotany Project, Mountain Natural Resources' Division, ICIMOD

98/1 Poverty - Environmental Resource Degradation Links: Questioning the Basic Premises - The mainstream view on poverty-environmental resource degradation (P-ERD) links focusses on the immediate causes rather than the key driving forces dictating the resource users' behaviour. The author questions the premises on which these are based and considers them largely manifestations of erosion of the past grass roots' level practices. He illustrates this with the help of situations studied in fragile mountain areas and recommends possible remedial approaches based on three key elements of traditional resource management systems of community resources.
Author: Dr. Narpat Singh Jodha (jodha@icimod.org.np), Policy Analyst, Mountain Enterprises and Infrastructure Division, ICIMOD

1997

97/8 Highland - Lowland Economic Linkages - Highlands and lowlands have multiple and diverse ecological and environmental linkages. This note, however, is confined to the economic linkages that are influenced by the biophysical conditions of the highlands (mountains) and lowlands (plains). In this context, the author examines and highlights the importance of the relationship between highlands and lowlands, proposes a framework to identify economic flows, and presents approaches to operationalise the framework. Issues that should be addressed on a priority basis are posed as questions at the end.
Dr. Narpat Singh Jodha, (jodha@icimod.org.np) Policy Analyst, Mountain Enterprises and Infrastructure Division, ICIMOD

97/7 Power, Equity, Gender, and Conflicts in Common Property Resources in the Hindu Kush-Himalayas - Presenting the historical perspective and political economy of common property resources' management and its associated issues, the author concludes that the last decade has seen increased commitment by the state to community-oriented resource management. The current issues in the context of power, equity, gender, and conflicts are then analysed with some interesting examples. The urgency to mainstream conflict resolution in policy, laws, procedures, operational guidelines, and human resource development is emphasised.
Author: Anupam Bhatia (anupam@icimod.org.np), Common Property Resources' Management Specialist, Mountain Natural Resources' Division, ICIMOD

97/6 Management of Water for the Prevention of Environmental Hazards
The paper points out that the HKH is inherently vulnerable to environmental hazards that often lead to disastrous consequences. Despite the fact that climate and hydrology are the principal causes of, as well as contributing factors to, natural hazards, research and data sharing in these fields have been limited. The paper concludes that management of environmental hazards essentially depends on management of water and calls for regional cooperation towards this end.
Author: Prof. Suresh Raj Chalise (chalise@icimod.org.np), Water Resources Specialist, Mountain Natural Resources' Division, ICIMOD

97/5 Mountain Accessibility and Rural Roads: Innovations and Experiences from Nepal - The main problems encountered with mountain roads have been their escalating construction and maintenance costs, negative environmental consequences, and limited economic impacts. This paper highlights some of the recent experiences in road building in the mountain areas of Nepal and discusses the achievements in terms of costs, the environment, and economic benefits, at the same time highlighting the problems encountered especially on the management side.
Author: Dr. Mahesh Banskota (mahesh@icimod.org.np), Deputy Director General, ICIMOD

97/4 Geographic Information Systems and Remote-sensing Technologies for Mountain Development - Geographic Information Systems (GIS) and Remote-sensing (RS) technologies are essential tools that facilitate the spatial decision-making process. These tools are being used extensively but there are hurdles in the implementation of these technologies, especially in the Hindu Kush-Himalayan region. This paper discusses these constraints, including the role of ICIMOD in disseminating these tools throughout the region.
Authors: Pramod S. Pradhan (pramod@icimod.org.np), Division Head, and **Basanta Shrestha** (basanta@icimod.org.np), Systems' Specialist, Mountain Environment and Natural Resources' Information Systems, ICIMOD

97/3 Habitat and Hazards in the Himalayas of Nepal - The mountains present more hazards than the plains because of their verticality and fragility. Taking examples from Nepal, this paper establishes that current, increasing interventions have augmented the magnitude of damage incurred in the mountains. Hence the need to take environmental impacts into account when planning infrastructure in mountain areas. This would imply a knowledge of the structure of the terrain on the part of the builder.
Authors: Dr. B.N.Upreti, Head of Geology, Tri Chandra Campus, Tribhuvan University, Kirtipur, Nepal, & **Greta Rana** (greta@icimod.org.np), Senior Editor, Documentation, Information, and Training Service, ICIMOD

97/2 Development of Mini- and Micro-hydropower: Issues and Constraints - The availability of electricity is a prerequisite for improving the living standards of mountain populations. This paper establishes that mini- and micro-hydropower (MMHP) is the most appropriate energy option for remote and poor mountain areas. However, drawbacks do exist in terms of costs, management, operations, and repairs. MMHP can be made to be more productive and economically viable through proper training, management, and design.
Author: Dr. Anwar A. Junejo, (junejo@icimod.org.np) Coordinator, Mini- and Micro-hydropower Project, Mountain Enterprises and Infrastructure Division, ICIMOD

97/1 Ensuring Local Food Security: An Example from the Mountains of Nepal - Food security in some mountain areas can be improved through cash crop farming based on mountain-specific comparative advantages, such as favourable agroclimatic conditions. However, governments need to play a critical role here - they must focus on improving local capability; on generating appropriate technologies and ensuring that these are transferred to farmers; on developing markets and the necessary linkages to them; and on building appropriate physical-social infrastructures. There is also a need to collate existing data and create a database on the extent of poverty and hunger.
Author: Dr. Pradeep M. Tulachan (tulachan@icimod.org.np), Farm Economist, Mountain Farming Systems' Division, ICIMOD

1996

96/3 Sustainable Mountain Agriculture in the Hindu Kush-Himalayas: Strengthening Education and Research Capacities - This paper discusses education and research by looking at the mountain farming dilemma. Wage labour is replacing subsistence agriculture, but neither provide more than a hand-to-mouth existence. Agricultural researchers have so far not taken into account the impact of their recommendations on the diverse ethnic environments and demographic circumstances of the mountains. Rapidly increasing demands caused by the fast growth in human and livestock populations in mountain areas are likely to threaten all efforts towards sustainability of mountain agriculture. If teaching practices and research methods do not understand or involve the farmer who is the ultimate beneficiary of these activities, then the value of such teaching and research becomes questionable.
Author: Dr. T. Partap (partap@icimod.org.np), Division Head, Mountain Farming Systems' Division, ICIMOD

96/2 Development of Micro-enterprises in Mountain Areas: The Context - Mountain economies have remained predominantly self-contained in the past with most of the needs being met internally and only a limited external input. Over the years, this self-sufficiency or containment has been breaking down owing to two reasons. First, with rapidly growing populations, traditional agricultural systems are proving increasingly inadequate to meet basic needs, leading to compulsions to extend cultivation on to marginal and forest lands, resulting in environmental degradation. Second, improvements in access to other areas and an increased flow of information have exposed the mountain people to the higher and different standards of living elsewhere, resulting in raised aspirations.
Author: Dr. T. S. Papola (papola@icimod.org.np), Division Head, Mountain Enterprises and Infrastructure Division, ICIMOD

96/1 Integrated Planning for Environment and Economic Development in Mountain Areas: Concepts, Issues and Approaches - This paper examines the environment and economic development dilemma in sustainable mountain development. In between the two extreme types of activity, the environmentally-benign and ecologically disastrous, there is a whole range of activities having various potentials in terms of income-generating and environmental impact. Available methods of environmental impact assessment (EIA) and assessment of income potential are inadequate and need to be developed further by natural resource and environment specialists and economists together.
Author: Dr. T. S. Papola (papola@icimod.org.np) Division Head, Mountain Enterprises and Infrastructure Division, ICIMOD

Established in 1983, ICIMOD is dedicated to the cause of poverty alleviation and environmental conservation in the Hindu Kush-Himalayan range of Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. ICIMOD is a focal point for documentation and information exchange, training, applied research, and demonstration on a wide range of issues affecting mountain people.

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DECEMBER 1999