Rangelands and Pastoral Development: An Introduction

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In terms of land area covered (about two million sq.km.), rangelands encompass more territory than any other ecosystem in the Hindu Kush-Himalayan-Tibetan Plateau region (Table 1). Rangelands are also unrivalled in terms of diversity. Extending from splendid, subtropical savannahs in the Siwalik foothills to lush, alpine meadows in the Himalayan mountains and stretching for 1,200 kilometres north across the spacious steppes of Tibet to the cold, dry deserts of the Kunlun mountains, rangelands of the Hindu Kush-Himalayan and Tibetan Plateau region display a diverse assortment of plant communities, wildlife species, and various, distinct human cultural groups.

Table 1: **Area of Rangelands in the Hindu Kush-Himalayan-Tibetan Plateau**

Country	Area (sq. km)	Per Cent of Total
China (Tibetan Plateau)	1,250,000	60.80
Pakistan	400,000	19.42
Afghanistan	200,000	9.71
India	180,000	8.71
Nepal	20,000	0.97
Bhutan	7,000	0.34
Myanmar	760	0.04
Bangladesh	290	0.01
Total	2,058,050	100.00

Rangelands in the Hindu Kush-Himalayan-Tibetan Plateau region are important for a number of reasons. First, rangeland ecosystems are the headwaters' environment for the major river systems in the region, and what takes place in these upper watersheds has far-reaching effects on downstream areas. The water from these rangelands will be of increasing importance for hydropower development in the future, as well as for agriculture at lower elevations, which is based on irrigation. Second, rangelands provide habitats for numerous wildlife species, many of which are endangered, and for a wealth of plant species. Many plants are of medicinal value and other species may provide important genetic material for future economic use.

Most of the protected mountain areas in the region are dominated by rangeland vegetation. Conserving the rich biological diversity of these lands is crucial for sustainable economic development, yet grazing-related issues are often the major management concern in protected mountain areas. Third, these vast grazing lands provide forage for grazing livestock. Since cultivated agriculture is not possible on the rangelands, grazing by domestic animals enables herding communities to convert otherwise unusable plant biomass into valuable animal products that are either consumed by the

pastoralists themselves or sold for income. Fourth, rangeland ecosystems in the mountains are becoming increasingly popular as tourist destinations. Tourism has the potential to not only improve the livelihoods of the local people, but also to contribute to overall economic development. Finally, the rangelands are home to millions of people who have been neglected by development efforts, to a great extent, due to their remoteness and to the fact that government policies failed to appreciate the importance and potential of mountain rangelands.

In recent decades, profound changes, with implications for the future of rangeland resources, pastoralists, and their production systems, have taken place on the rangelands of the Hindu Kush-Himalayan-Tibetan Plateau region. These changes include the modernisation process itself which has brought improved access and services to previously remote pastoral areas; the expansion of agriculture into rangelands; transformation of traditional pastoral production systems; disruption in traditional trans-Himalayan trade networks; and, what appears to be, a general desiccation of Alpine rangelands due to climatic changes which are modifying vegetation composition and reducing plant productivity and carrying capacity. These political, social, economic, and ecological transformations have altered previous, well-established links between the pastoral population and their rangeland environment.

The lack of concern for rangelands and misconceptions regarding pastoral ecosystems have led to a general downward spiral in the productivity of many rangeland areas, loss of biodiversity, and increased marginalisation of pastoral people. Reversing these trends should be a priority for governments and development agencies. Rangeland degradation can no longer be regarded solely as a localised problem since the implications are more widespread, affecting national, regional, and international interests.

Despite their extent and importance, the dynamics of the rangeland ecosystems in the Hindu Kush-Himalayan-Tibetan Plateau region are still poorly understood. Scientific data on ecological processes taking place throughout different types of rangeland are limited. Questions concerning how rangeland vegetation functions and the effect of grazing animals on the ecosystem in these mountain rangelands remain unanswered for the most part. The socioeconomic dimensions of the pastoral production systems are also not well known. This lack of information limits the proper management and sustainable development of rangelands. Where research information is available, it is seldom shared among other researchers in the region. As a result, there is often a duplication of research efforts, and this is a misuse of scarce resources.

Recognising the importance of rangelands in the Hindu Kush-Himalayan-Tibetan Plateau region and the lack of attention to rangelands, ICIMOD organized a workshop on rangelands and pastoral development in Kathmandu, Nepal, from November 5-7, 1996. The workshop brought together specialists from both the region and elsewhere to share their knowledge and experience. It would be hard to assemble a group of people.from the region more knowledgeable about rangeland ecosystems and forage development. These proceedings are the outcome of that workshop and present case studies and research findings on rangeland resources, forage development,

wildlife, and pastoralism. Most of the contributors are range and forage specialists, but also represented are specialists in wildlife, biology, sociology, and anthropology; as the papers show, all contributors have had extensive field experience in the Hindu Kush-Himalayan-Tibetan Plateau region and share a concern for the present situation on the rangelands. In compiling these proceedings, ICIMOD aims to stimulate reflection on and greater consideration for issues relevant to rangeland management, biodiversity conservation, forage improvement, and pastoral development in the Hindu Kush-Himalayan-Tibetan Plateau region.

The papers illustrate and address three main areas of concern on the rangelands: biodiversity, range resource management and pastoral development, and forage development. Discussions held during the workshop focussed on identifying important issues and determining priority actions that need to be taken to address rangeland concerns.

Managing rangelands and planning sustainable pastoral development in the Hindu Kush-Himalayan-Tibetan Plateau region are challenging tasks. Unfortunately, since these rangelands are often remote, at high elevations, subject to harsh climates, and sparsely settled, they have, to a great extent, been neglected by research and development agencies alike. As many of the papers show, however, there is ample opportunity to improve management practices on rangelands, maintain and also enrich biodiversity, increase livestock productivity, and improve the incomes and livelihoods of people dependent upon rangeland resources. Resolving rangeland degradation and pastoral development issues will, however, require modification in current strategies and approaches to development which will need to integrate the ecological processes of rangeland management and biodiversity conservation with the economic processes of pastoral production and integrated mountain development.

Pastoralists on the rangelands of the Hindu Kush-Himalayan-Tibetan Plateau have, over centuries, developed animal husbandry skills and grazing practices adapted to the harsh environmental conditions and perturbations in the ecosystem, but the efficacy of these traditional pastoral practices is not sufficiently acknowledged by development planners. There is also a lack of information on traditional pastoral production systems which makes informed decisions about altering traditional livestock production practices difficult. The 'mainstream view' regarding nomadic pastoralism, which maintains that traditional pastoral practices need to be improved, has largely shaped pastoral development in the Hindu Kush-Himalayan-Tibetan Plateau region, as elsewhere in the pastoral world. The result has been that the pastoralists themselves have been left out of the development process. Papers in these proceedings show that there are a number of researchers who are now giving much more attention to socioeconomic aspects of pastoral production systems. This is encouraging and gives rise to the hope that herders themselves will become more active participants in the pastoral development process in the future.

These mountain rangelands are comprised of a unique assemblage of flora and fauna. Human activities have resulted in the destruction of wildlife habitat and the loss of biodiversity. Numerous national parks and reserves exist in the region, but

significant gaps in the protected area system remain, long-term ecological studies are lacking, and management of these valuable resources is inadequate. The preservation of mountain wild animals and management of their rangeland habitat are essential for conserving biodiversity in the Hindu Kush-Himalayan-Tibetan Plateau. This workshop has stimulated greater interest in biodiversity conservation in rangeland ecosystems and highlighted the need for range and livestock development specialists to work more closely with conservationists.

Sustainable development of rangelands requires appropriate policies. Development policies in the region have largely ignored mountain rangeland areas, and the policies that do exist for pastoral areas have generally maintained that traditional pastoral systems need to be 'improved upon' without any consideration of what may be practical or of value in the existing system. Agricultural and forestry development policies have usually neglected the role of livestock in development and the potential positive contribution that livestock can make to agricultural and economic growth has been overlooked. Rangeland development policies tend to centre on improving livestock production, rather than on multiple-use resource management, which considers uses other than livestock. It is clear that, if sustainable development of rangeland areas is going to take place, policies will need to give more attention to adopting an integrated, natural resource management approach.

The poor perception of rangeland environments and pastoralism and the limited support for pastoral development and rangeland resource management in the region in the past need to be counterbalanced by fresh perspectives and the new information emerging regarding the assessment of range ecosystem dynamics, pastoral production practices, and biodiversity conservation. These perceptions and innovative development paradigms suggest new possibilities for and fresh approaches to designing range management and pastoral development in the future.

Strategies for range management and pastoral development in the Hindu Kush-Himalayan-Tibetan Plateau should aim to maintain rangeland productivity, rehabilitate degraded areas, protect and improve biodiversity, promote sustainable livestock production, stimulate economic growth and create employment among the pastoral population, and improve people's livelihoods. Developing such strategies requires a much better understanding of rangeland ecosystem dynamics, increased knowledge of existing pastoral production practices, more thorough analysis of the issues and opportunities facing pastoralists, and adjustment of the existing policies for rangelands and pastoral areas.

Successfully implementing sustainable rangeland development interventions requires that ecological principles regulating rangeland ecosystem functions be linked to the economic principles governing livestock production and general development processes. However, most of the existing institutions and organizations involved in rangeland ecosystems in the region lack a suitable system for organizing and analysing range resource information relevant to the management of rangelands. Fortunately, there is growing awareness of the need to address rangeland resource issues which, when coupled with insights from fresh perspectives emerging on rangeland ecosystem processes and pastoral development and the new

computer-assisted technology available for processing and analysing information on rangelands, provides good prospects for more sustainable development of rangeland areas in the Hindu Kush-Himalayan-Tibetan Plateau.

As part of ICIMOD's new Regional Collaborative Programme, the development of rangelands will receive high priority in the Centre's Mountain Natural Resources' Programme. ICIMOD's multidisciplinary team of professionals plan to work with rangeland specialists in the region to assess rangeland ecosystems, review traditional pastoral production systems, evaluate previous rangeland development experiences, and identify successful interventions for improving rangeland management practices. A major strength of ICIMOD's multidisciplinary approach is the identification of interdependence across spatial, ecological, sectoral, institutional, and disciplinary boundaries as an important requirement for promoting integrated approaches to sustainable mountain development. This workshop has made an important start towards this.