



Land Use Change and Mountain Biodiversity

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Books

The Amenity Migrants— Seeking and Sustaining Mountains and Their Cultures

Edited by Laurence A.G. Moss.
Wallingford, United Kingdom: CABI,
2006. ix + 329 pp. £55, US\$100.
ISBN 0-85199084-3.

This is a comprehensive and highly worthwhile volume for those interested in contemporary developments and change in mountain environments. While there is a growing body of research and literature on both mountain tourism in general and second-home tourism, this is probably the first book that takes a holistic view of the large and complex phenomenon of amenity migration in mountains. With increasing welfare, the last few decades have seen new migration patterns in many parts of the world, as people seek new places to live that have desirable natural and social conditions. This has grown into a more or less global societal phenomenon with significant implications for mountain environments and cultures. The fact that people travel to and seek places for their beauty and pleasant conditions is not a new phenomenon. But what partly defines and distinguishes amenity migration from tourism is the fact that large groups of people not only visit, but move to these areas and remain there more or less permanently. There are several reasons for these changes, such as changing demographics, increasing affluence, changes in public values, flexible work patterns, and communication technologies. These and several other reasons are explored in depth.

The book is divided into 5 sections and 21 chapters. Since it compiles a range of different case studies and combines this with an over-

arching analysis and thoughts about the way ahead, there is something for everyone interested in the subject. However, with 17 case studies essentially exploring more or less the same concept, some of the problem statements and discussions become somewhat repetitive. On the other hand, there is a wealth of information about amenity developments and conditions around the world, and anyone dealing with mountain development, tourism, second homes, and regional economic development will find this book very useful.

It is clear that the editor and authors all share a concern about what is happening in mountains throughout the world. The book states clearly that mountains are vulnerable and subject to rapid change, and that amenity migration is one of the most important current processes unfolding in mountain regions. There is little question that there is reason for concern about negative environmental and social impacts, but several chapters also discuss and document important positive effects on communities, economies, and management. As such, this volume is a very timely contribution, providing a comprehensive coverage of patterns of amenity migration and its effects at international as well as regional and local levels.

The 3 introductory chapters outline meta-themes in amenity migration. In the first chapter, Laurence Moss provides an overview of the phenomenon; why people come to mountains in increasing numbers; what facilitates and drives the migration; ecological, economic and cultural effects; why a mountain focus is so important; and some of the actions taken to date to deal with this development. This chapter sets the stage for the rest of the book and defines the key concepts. I particularly enjoyed the term “trophy home,” now easily recognized in many affluent mountain communities around the world. The next

chapter converses nicely around the fascinating spiritual dimension of moving to the mountains. Harvey Locke balances aptly between the more factual analysis of spirituality as it relates to human migration to mountains, and self reflection. Personally, I would have liked him to expand this chapter, but there are other texts that do this for the keenly interested. In Chapter 3, Linda McMillan takes the reader, albeit quickly, through mountain recreation history in the USA since approximately the 1950s. The main contribution of this chapter is to show the significant impacts of recreation users on mountain environments, and how access, interest and impacts have grown considerably in the last couple of decades. She identifies 2 types of recreation users—traditional and non-traditional—and traces their different behavior, values, and impacts on mountain ecologies. The optimistic stance is that some recreation users are emerging as important stakeholders who can strengthen the protection of mountain environments.

The next 3 sections are structured around contributions on amenity migration in the Americas, Europe, and Asia and the Pacific. The first section is the most comprehensive, due to the comparatively larger amount of amenity-related research conducted in this part of the world. Eight different chapters cover various locations and contexts which have felt the impacts of amenity migration. These include the linkages between amenities and migration at different geographic scales in the USA, the effects of 20 years of amenity migration in New Mexico, and the failures of policymakers and planners to deal with this development. Other chapters discuss transportation issues, changes in job markets following migration patterns, the skills and assets brought to a community by in-migrants, the transformation of communities from one-season to

four-season, impacts on indigenous people, planning challenges, second-home development, the dynamics between mountain amenity communities and larger metropolitan areas, and the perceptions of various stakeholder groups.

The European section opens with a comprehensive overview of the trends in amenity-seeking in the European Alps, thus covering the patterns in a number of countries, as well as including a discussion on some of the regional dynamics in Europe. Northern Europe is represented in chapters on second-home tourism in Norway and on the relationships between tourism development, in-migration, and labor markets in rural Sweden.

Relatively little research exists so far on amenity migration in Asia and the South Pacific, but this book includes 3 chapters that reflect a small portion of the incredible cultural and environmental diversity found in this part of the world. Although this region houses large populations of very poor people, there are also examples of increasing amenity migration in several places. Major challenges and pressures often spark innovative responses, as in the chapter on multiple-scenario strategic analysis in a bioregional context in the Philippines. A chapter on Australia builds on a creative data analysis, compiling different types of data sets to provide evidence for complex patterns of amenity migration, while in New Zealand it is shown that second-home development and tourism are major factors in developing amenity migration.

In the final section, Laurence Moss attempts to look into the future and tie some of the many themes in the book together. There is an element of urgency and warning here as he describes some of the plausible characteristics of future amenity migration in the mountains. This is a complex book, and the final chapter does a nice job of sorting out the most important issues. As a many-faceted documen-

tation of relatively recent (in a historical perspective) global phenomenon, the book raises more questions than it answers. However, it does provide multiple insights into the phenomenon of amenity migration in widely different environments and contexts. It could well serve as a platform for designing more specific research programs into migration patterns in mountains. Planners and policy-makers should also find the book highly useful as a source of thinking and documentation around a major contemporary mountain issue.

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Development with Identity: Community, Culture and Sustainability in the Andes

Edited by Robert E. Rhoades.
Wallingford, United Kingdom: CABI Publishing, 2006. xv + 325 pp.
US\$120. ISBN 0-85199-949-2.

In the scientific discourse on development research in indigenous farming communities in the Andes there is widespread agreement on the necessity for a genuine participatory community research approach. However, it has often been difficult to successfully implement and operationalize this postulate. In some instances, western-based scientific concepts and methods could not be harmonized with the value or knowledge systems of small peasant families and the wisdom and experiences of indigenous populations. Quite often, scientists intruded or were “parachuted” into environments and communities without being invited, and then left the region without sharing their findings with local populations. It is

obvious that a partnership approach leading to sustained dialogue and cooperation between researchers and local communities requires a considerable amount of patience, listening skills, and respect.

Taking this into consideration, the “Local Development and Democratic Participation Model” formulated by the Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM CRSP) has made a significant contribution to “agricultural sustainability and the management of natural resources in indigenous and peasant communities” (p xi) in the Andean realm. This book presents the results of 7 years of joint research and cooperation between the SANREM team and UNORCAC, the indigenous organization of the Cotacachi region of the northern Ecuadorian Andes, the native mayor of Cotacachi, and the Kichwa people of Cotacachi. It is skillfully compiled and edited by the reputed anthropologist Robert E. Rhoades, who coordinated this multidisciplinary and cross-cultural research program—and it is also available in Spanish (Rhoades 2006).

While the natural and social research was largely based on the principles and concepts of “western” science, the importance of the wisdom of ancestral indigenous knowledge and of traditional livelihoods, agricultural systems, and social organizations was recognized. The major objective of the study was to make “a contribution to understanding the intersection of two emerging concerns in international development: sustainability and self-determination of indigenous communities” (p 1). In addition to the scientific goals of the research, it was hoped that this work could contribute to the search for solutions to pressing environmental and social problems and provide guidance for local decision-making, planning, and resource management for a better sustainable future.

The multi-year focus on a single specific environment and community takes into account the fact that a genuine partnership approach requires a gradual and patient mutual understanding and learning approach and reflects the need for in-depth locally-based research and development strategies: "... the pursuit of sustainability is a local undertaking not only because each community is ecologically and culturally unique but also because its citizens have specific place-based needs and requirements" (p 1). The process of mutual learning and understanding was facilitated by "repatriating" the findings back to the local community in the form of an extensive local data bank, a "Digital Atlas of Cotacachi Canton," a multilingual text, a "memory bank," and the assistance given in making a "County Natural Resources Management Plan."

It is a particular merit of the book that it accounts not only for the positive experiences and success stories of the researchers, but also for their limitations and difficulties. Major lasting results of this long-term and interdisciplinary research have been its outstanding contribution to the understanding of sustainable rural development in the Andes, to our grasp of the complex interconnections between local identities and global processes and forces, and to recognition and respect for the heritage and wisdom of an indigenous community. Beyond these scientific results, it is the applied merit of this participatory research that it has contributed to enabling or encouraging the Cotacacheños to take "their destinies in their own hands without turning insular" (p 7).

The participatory scientific approach is also reflected in the presentation of the research results and the organizational structure of the book. A total of 31 contributors present their findings and experiences in 21 chapters and a fore-

word. The latter is written by the reputed mayor of Cotacachi County, Auki Tituaña Males, who underlines the community's full support for the research project based on the "Local Development and Democratic Participation Model," and appreciates the fact that the research team has made the "customs and traditions and ways of being in nature" (p xii) a central part of their studies.

In an introductory chapter, the editor discusses the objectives of the research program, the research partnership approach and methodology and the operationalization of the research procedures. Part I, on "Time and Landscape in Cotacachi," discusses the processes shaping the local landscape, the historical ecology of the region, climate change, and the land use changes in the Cotacachi region, and the "Cotacachi Landscape of Memory." Part II addresses various aspects of the biological diversity and agrobiodiversity of Cotacachi, the importance of home gardens, and the links between biodiversity, food, and culture. Part III focuses on the vital importance of soil and water for the sustainability of Cotacachi, particularly the crucial factors of water availability, water quality, watershed management, and community-based water monitoring.

The last part of the book is a synthesis of its central theme, "Negotiating Development with Identity." Going beyond the Cotacachi focus but based on the local empirical experiences, a comparative analysis of agricultural change and intervention in Northern Ecuador is presented. In addition, the topic of circular migration and community identity is discussed, as well as the important issues of "Social Capital and Advocacy Coalitions." A summarizing chapter by Robert E. Rhoades and Xavier Zapata Ríos attempts to enlarge the participatory research experience in Cotacachi, proposing a "Future Visioning Method" which "com-

pares scientifically generated Land Use Change (LUC) scenarios based on robust, predictive models with visions of the same landscape created by local people" (p 299). The authors emphatically state that "scientists must recognize that local people will live by the consequences of planning and outside scientists will not," and that "highly rational and 'scientific' external models of the landscape resources may prove to be meaningless or irrelevant to local people" (p 299). This method can therefore present "alternatives to the future from both scientific and local perspectives and establish a clear platform for debate and planning" (p 299). In the concluding chapter, the editor summarizes the experiences gained from the research program, discussing in particular the relevance, objectives, contents and methods of "Sustainability Science in Indigenous Communities" (p 307). He underscores the need for reconciling local and global agendas in sustainability research and for rural development initiatives in the Andes.

The book contains useful and not always easily accessible references for each chapter—an impressive total of 426 titles in Spanish and English. Unfortunately, no recent literature in German and no references in French have been included, although a number of relevant contributions in these languages exist. The volume is richly illustrated with 127 figures, 4 color plates, and 53 tables. Given its rather high price (though the Spanish version is available for US\$ 18), a larger number of maps and photographs in color would have been welcome. An extensive index facilitates browsing through the book.

In summary, this volume must be considered a pivotal contribution to interdisciplinary rural sustainability research, with an exemplary partnership approach between scientists and local stakeholders, and as a guideline for the design of, and methodologies for,

rural development initiatives. The research team, authors, and editor have to be congratulated for their success. Despite its rather high price, this book merits a wide circulation in the academic world, within the international NGO community, and in government circles. The publisher should consider the publication of a more affordable paper edition and/or a CD-ROM version.

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Sustainable Rural Development in Mountainous Regions with a Focus on Agriculture in the Tibet Autonomous Region

Edited by Pema Gyamtsho, Nyima Tashi, Karl Kaiser, and Jürgen Richter. Feldafing, Germany: InWent gGmbH (Capacity Building International), in collaboration with ICIMOD. 2005, xviii + 260 pp. Available from ICIMOD upon written request. ISBN 3-937235-70-1.

This volume contains the edited papers, attendant discussions, and a summary of the activities of an international conference held in the Tibet Autonomous Region of the People's Republic of China (PRC) from 26 to 30 July 2004. This conference, which was hosted in Lhasa by the Tibetan Academy of Agricultural and Animal Husbandry Sciences, was the fourth in a series of conferences on poverty and development in the mountain regions of High Asia. The first of these took place in 1992, when

experts met to discuss "Anti Poverty Experiences in China's Himalayan Region." That conference was followed in 2000 by another in Kathmandu focusing on "Growth, Poverty Alleviation, and Sustainable Resource Management in the Mountain Areas of South Asia" (Banskota et al 2000) and a 2002 conference in Chengdu, Sichuan, PRC, on "Poverty Alleviation in the Mountainous Areas of China" (Jodha et al 2004).

The conference summarized in the book under review focused on the Tibet Autonomous Region (TAR) as one of China's least developed regions. The book contains an introductory chapter in which the volume editors provide an overview of the entire conference's 5 sessions and conclude with 42 specific recommendations. It then presents 13 substantive chapters and a summary of the experiences of the personnel of aid agencies operating in the TAR.

The first session of the conference included several papers that defined the types and causes of poverty of the TAR. From the start, conference members emphasized that poverty is not simply economic deprivation, but also includes inadequate social, cultural, and ecological resources; hence, even "those who were rich economically might be socially and culturally or ecologically poor," as noted in the introductory paper (p 4). Although absolute poverty, like inadequate food supplies, has declined significantly over the last 20 years in Tibet, as several of the papers demonstrate (eg income increased 5-fold, agricultural output 14-fold, manufacturing 17-fold, and revenue 30-fold between 1978 and 2002), large areas of Tibet retain problems like those found in remote parts of the entire Hindu Kush-Himalayan-Tibetan region: lack of employment opportunities, inadequate health care, lack of running water, absence of effective human waste disposal, and long walks to road access. Papers in this session include a description of the

EU's Panam Integrated Rural Development Project (Kaiser and Dui), a general review of the 4 main production systems in Tibet and the extent of poverty and development within them (Tashi and Partap), an assessment of the differences between urban and rural regions in Tibet (Lu, Wang, and He), and an empirical study of incomes and lives in villages of the Shigatse and Lhasa areas (Goldstein).

The second session provided an overview of the attempts to alleviate poverty in other regions of China, as well as Nepal and Pakistan. These case studies describe development efforts in Mongolia (Wierer and Nyamdorj), assess the success of conservation efforts in the headwaters of the Yellow and Yangtze rivers (Wang and Yang), evaluate the Agha Khan Rural Support Program in Pakistan's Northern Areas and Chitral (Malik), and describe the results of opening Upper Mustang in far-northern Nepal to high-end tourists in far northern Nepal (Banskota and Sharma).

The third session dealt with the challenges facing development efforts. The papers focus on improving the pastoral production system (Zhao and Chen), expanding agricultural and livestock exports to international markets (Tudeng and Huang), analyzing how to mitigate the impacts of globalization markets on Tibetans (Gyamtso), and suggesting national strategies for developing the TAR (Zhou).

The fourth session used the papers of earlier sessions to identify policies which would lead to sustainable development in the TAR. The recommendations are standard development rhetoric: Government officials must change their philosophy to promote improvements in social, cultural, ecological as well as economic conditions by creating new institutions which engage local people in participatory planning in order to facilitate self-help projects. These plans and projects must be compatible with local social, cultur-

al, environmental, and technological conditions, but at the same time need to be designed to reduce rather than accentuate regional disparities and to keep rural people from emigrating to urban areas within and beyond the TAR.

The final session summarized the recommendations formulated by the conference participants. Of the recommendations, 24 were aimed at developing the TAR and alleviating poverty; 7 at coping with globalization while integrating into a market economy; 5 at narrowing urban-rural disparities; and 6 at strengthening institutional capacity for implementing development.

This book is strongest in its summary of statistical information about the TAR. With the exception of the chapters on the other regions of China and Hindu Kush-Himalaya, only the paper on the Panam project and Goldstein's paper seem to be based on extended fieldwork. A useful overview of the general situation in Tibet comes in the third paper by Tashi and Partap. I was irritated that the book contains no map of the TAR with its borders, cities, and regions.

The harsh environmental conditions of the TAR, the apparent scarcity of detailed knowledge about production systems, and the residual bureaucratic intransigence of government agencies all hinder development. Moreover, it will be difficult to balance the contradictions between opening to the global market and the need for government nurturing of TAR production of comparative advantage crops such as organic meat and medicinal plants. Similarly, promoting eco-cultural tourism at a time when traditional production systems are being modernized will present a challenge. This volume shows how Chinese and TAR officials and expatriate development agencies are searching for ways to overcome the biophysical and social restraints of the TAR, but also identifies the difficulties that inevitably accompany that task.

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Illustrated Atlas of the Himalaya

By David Zurick and Julsun Pacheco. Lexington, KY: The University Press of Kentucky, 2006. 211 pp. US\$50. ISBN 0-8131-2388-7.

The authors have produced the first full-color atlas of the land, life, and cultures of the Himalaya. There are more than 130 color photographs, the great majority taken by Zurick—a worthy and remarkable offering in its own right, with individual photographs from impressive double-page spread to ample miniatures. Their geographical and aesthetic content is outstanding, and they are exploited to the full in terms of both artistic layout and excellence of reproduction. They form a superb counterbalance to the equally impressive maps, sketches, and tables that establish Pacheco as a top-flight cartographer. The atlas ranks equally as a serious contribution to the cartography and geography of the Himalaya and as a decorative coffee-table showpiece. The modest retail price, facilitated by significant subsidies, should ensure extensive distribution.

The atlas is arranged in 5 distinct sections: regional setting; the natural environment; society; resources and conservation; exploration and travel. The large amount

of statistical and cartographic data was foreshadowed by the earlier publication entitled *Himalaya: Life on the Edge of the World* (Zurick and Karan 1999); the 2 works make a valuable couplet and establish Zurick as one of today's leading Himalayanists.

Anyone with experience of both research in complex mountain landscapes and the production of atlases will realize that the authors have faced an enormous challenge. This is rendered the more intractable by the very shape of their chosen region: roughly 3000 km by 200 km horizontal by 8 km vertical. For the most part, Zurick and Pacheco have dealt with the problem quite well by organizing much of the essential cartographic data by administrative unit: by country and by state within India. However, in several instances (eg, pp 102–104 and 127), the chosen scale approaches illegibility.

The authors appear to have had some difficulty in delimiting the northwestern boundaries of their chosen region: they define “the Himalaya” strictly as stretching from the Indus gorge in the northwest to the Yarlung-Tsangpo-Brahmaputra gorge in the east (ie, approximately from Nanga Parbat to Namche Barwa). The Pakistan Himalaya receives scant treatment, and Nanga Parbat is placed variously in the Karakorum and the Himalaya (the latter is correct).

There are a number of errors, some merely typographical, but in a publication of this kind all warrant correction. Page 12, for instance, carries the statement: “Arching westward, the Himalaya leaves Pakistan ... and enters Indian Jammu and Kashmir” (eastward); on page 15, the area of Nepal is given as both 140,800 km² and 145,000 km². Page 17 indicates that the population of Bhutan is 1,951,965; the government of Bhutan has provided widely varying totals according to the political expedience of the moment, and

the actual population is probably closer to one million (Hutt 2003). The table on page 83, captioned: "Indian Himalaya: Rural Population (1991)" erroneously includes Nepal and Bhutan. Furthermore, Bhutan's rural population is listed as "17,567,000 (est.)"!

The Karakorum cannot be "included in the Himalayan chain" (p 35). Page 35 provides a geological map of Zaskar and the Indus Valley; the legend includes "ophiolite," but there is none shown on the map, and the land cover data map (pp 36–37) has no legend. Two conflicting rates of land uplift appear (pp 46 and 50): $-200 \text{ m}/200,000 \text{ yr}$ and $1,500 \text{ m}/20,000 \text{ yr}$. Bhutan (p 77) is characterized as overwhelmingly Buddhist, yet the Lhotsampa minority (predominantly Hindu) is probably 50% of the total (Hutt 2003).

The sub-section on communications (p 89) makes no reference to the Internet. While access to e-mail and the web is dependent upon electricity, Mountain Forum's increasingly widespread impact is surely worthy of mention. The graphs (p 123) showing stream flow in 3 rivers carry a caption reading as if the summer peak for the 2 Nepalese rivers was due to "meltwater from snowfields and glaciers": as if the summer monsoon were not a factor. Maps showing routes of first ascents of 8000-m peaks (p 173) credit Austria with the first ascent of Lhotse in 1970; in fact, the Swiss reached the summit in 1956.

One topic that deserves much fuller treatment, although absolute data are difficult to obtain, is that of outmigration from the Himalaya. This involves off-season search for wage labor in peninsular India as well as temporary and permanent migration, not only to India, but also to North America and Europe. Even Ottawa has approximately 60 Nepalese-Canadian and landed-immigrant families (estimated 200 to 300 persons).

While the authors have made a creditable effort to identify sources in the appendices ("Sources of Illustrations," etc), some standard information is lacking. Frequently this involves dates. The otherwise useful and compact boxes ("Fact Files") would have been more instructive if the year of the actual censuses had been provided. It is also unfortunate that the dates of the photographs are not given; many would likely have provided benchmarks for future photo-replication studies of landscape change. In the same vein, the maps and discussion pertaining to forest cover change are limited by the absence of information on the origin and date of benchmark surveys. Gautam and Watanabe (2004), for example, have demonstrated that, for specific areas, the standard benchmark survey of Nepal in 1978 (LRMP 1986) is extensively flawed, yet it continues to be used (as recently as 2001) as a basis for determination of forest loss. This leads to significant exaggeration, undermining objectivity of the entire debate concerning changes in forest cover.

The treatment of Bhutan, albeit scattered throughout the atlas in the appropriate sections, is taken up here as a special case. In this reviewer's opinion, there is a significant bias that provides unwarranted, if unwitting, support for the Government of Bhutan's treatment of its minority citizens. This is of particular concern in an atlas that is likely to achieve widespread distribution and thereby extensive influence, given the tendency of the Western news media to support the myth of Shangri-la and the "hype" about Gross National Happiness (p 90). Claims by both the Bhutan government and the Lhotsampa refugees (Bhutanese of Nepalese descent) regarding demographics and dates of immigration have become a highly sensitive political issue since 1990. The Bhutan government wants the

world to believe that Nepalese immigration was a smaller rather than larger phenomenon, that it began later rather than earlier, and that many of those living in refugee camps in eastern Nepal are recent illegals, or even have never been to Bhutan but appeared in the camps just for the convenient handouts. The Lhotsampa leadership and the Nepalese officials hold to an exactly contradictory account. It is well documented, however, that immigration and land clearance was extensive, began in the mid- to late-19th century (long before establishment of the current monarchy in 1907), and was officially encouraged, initially by the British Raj, but subsequently also by the Buddhist elite. The early Drukpa encouragement was in part due to the fact that tax revenue from the new "citizens" was proving to be the prime source of cash for the governing bodies (compare with pp 77 and 110 in the atlas).

Reference has already been made to the authors' statement that Bhutan is overwhelmingly Buddhist (p 77). The maps showing distribution of schools, hospitals, and other public facilities (pp 92 and 94) display a concentration along the southern fringe of the country in Lhotsampa territory; practically all were closed in 1990, and many destroyed. On page 93, there is a reference to a shortage of teachers that was temporarily met by importing Indian professionals (Hindi, Nepali, and English), yet by 1991 all teaching in Hindi and Nepali was prohibited, and the children of Bhutan's largest minority were thereby deprived of education.

Given the politics of development and research, this internationally illegal treatment of minority citizens has been swept under the rug by many "donor organizations." The prevalence of self-censorship makes it all the more urgent for solid work on the topic to be highlighted. Thus Michael Hutt (2003), who

raises the implication that “crimes against humanity” have been perpetrated, provides an impressive scholarly and neutral assessment. The authors do conspicuously and repeatedly refer to the tragic political, social, and military turmoil that is occurring throughout the Himalayan region. Nevertheless, a more thorough treatment would have been valuable—at least a map showing areas affected by various types of “unrest.”

Regardless of the criticisms, the *Illustrated Atlas of the Himalaya* is a vital contribution to any appreciation of the Himalaya, whether for scholar and student, administrative and development agency, trekking and tourist visitor, or the people of the region themselves. It is to be hoped that a folio of all the maps at enlarged scales is being made available for permanent deposit in a selection of regional archives. An earlier, shorter edition of the atlas was published in 2005 by ICIMOD (International Centre for Integrated Mountain Development) as *Atlas of the Himalaya* (Zurick et al 2005), with B. Shrestha and B. Bajracharya as co-authors. This reviewer has not seen a copy so that no comparative remarks are possible.

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Land Use Change and Mountain Biodiversity

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Human activities have significantly influenced high-elevation landscapes and hence also the biodiversity of high-elevation pastures and rangelands all over the world. During the last 5 decades, however, such anthropogenic highland biota often experienced dramatic alterations due to changes in land use. This book gives an excellent overview of the effects of land use change on biodiversity within high mountain ecosystems.

The 26 chapters, selected from the presentations given at 2 Global Mountain Biodiversity Assessment workshops (Tanzania, 2002; Bolivia, 2003) are organized into 6 parts. These provide a synthesis on the general aspects of anthropogenic highland ecosystems (Part I, Chapter 1); address the effects of fire (Part II, Chapters 2–7) and grazing on mountain biodiversity (Part III, Chapters 8–17), the effects of grazing on mountain forests (Part IV, Chapters 18–20), and socio-economic aspects (Part V, Chapters 21–24); and give a synthesis of the impact of human activities on highland and mountain biodiversity (Part VI, Chapters 25–26).

Chapter 1 provides a general overview of the importance of biodiversity and ecosystem functioning in non-forested anthropogenic highland ecosystems. The focus is on the importance of quaternary history, land use, topography, microclimate, and soil properties for ecosystem functioning and biodiversity in high-elevation ecosystems.

Chapters 2 to 7 deal with the effects of fire as a driving force behind mountain biodiversity. The influence of fire on the diversity and

ecology of the ericaceous belt at the treeline in the Bale Mountains, Ethiopia, is discussed in Chapter 2. The impact of fire on plant biodiversity in low Afroalpine grasslands on Mount Elgon and in low- and high-altitude forests on Kilimanjaro are addressed in Chapters 3 and 4, respectively. The effects of fire on the diversity of geometrid moths in mountain forests on Kilimanjaro is discussed in Chapter 5. Chapter 6 deals with the influence of fire on small mammals in a sclerophyllous forest at a high-elevation site in Andringitra National Park, Madagascar. In Chapter 7, attention is given to the influence of fire on species composition, vegetation structure, and biomass dynamics in mountain grasslands in northwest Argentina.

Chapters 8 to 17 focus on the impacts of grazing on the biodiversity of high mountain ecosystems. After an overview of *páramo* vegetation biodiversity and its relation to anthropogenic impacts in Colombia in Chapter 8, the impact of grazing on vegetation structure, species richness, and biomass production in the Venezuelan *páramos* is discussed in Chapter 9. Chapters 10 to 13 deal with studies on vegetation and grazing patterns in several Andean environments of Argentina, Bolivia, Peru, and Venezuela. Chapter 14 highlights grazing history in the rangelands of the Changthang plateau in eastern Ladakh, India. The impacts of grazing on the degradation and stabilization of alpine ecosystems in the Snowy Mountains of Australia are discussed in Chapter 15. Regional studies carried out in the mountains of Tajikistan address the effect of land use on desertification problems in the Pamir Mountains (Chapter 16) and discuss the effects of grazing on biodiversity and soil erosion of alpine pastures (Chapter 17).

Studies on the effects of grazing on mountain forests deal with species diversity, forest structure and tree regeneration in subalpine woodland pastures in the Swiss Alps

(Chapter 18); discuss patterns of forest recovery in grazing fields in the uppermost montane forests in the subtropical Mountains of the Sierra de San Javier in northwest Argentina (Chapter 19); and report on climatic and anthropogenic influences on the density and the distribution of *Prosopis ferox* forests in arid environments of Argentina (Chapter 20).

Land use and mountain biodiversity should also be seen with respect to socioeconomic aspects. Controlled grazing managed by locals can prevent overgrazing and thus promote biodiversity, as shown for the Maloti-Drakensberg of South Africa in Chapter 21. The impact of livestock grazing and resource harvesting on the biodiversity of alpine pastures in Nepal is discussed in Chapter 22. Relationships between agricultural dynamics and water resources in a *páramo* environment in Venezuela are examined in Chapter 23, and the impact of human management strategies combined with the complexity of the terrain in a central Andean valley in Peru on biodiversity is highlighted in Chapter 24. The 2 final contributions give a synthesis of human impacts on biodiversity in mountain areas (Chapter 25) and an outlook on future research on biodiversity in highland biota (Chapter 26).

As pointed out by the editors, upland grazing, often facilitated by fire management, is most widespread in mountain terrains. Cultivation of formerly pristine high-elevation areas for agricultural use is often associated with a loss in biodiversity, especially in the tropics and subtropics. Thus, it is the compilation of information and insights that makes this textbook a significant contribution to the literature on high mountain ecosystems.

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Strategic Innovations for Improving Pastoral Livelihoods in the Hindu Kush–Himalayan Highlands

Edited by Camille Richard and Kate Hoffmann. Kathmandu, Nepal: ICIMOD, 2004. Volume 1: Workshop Proceedings, xvi + 137 pp. Volume 2: Technical Papers, xiii + 184 pp. Price per volume: US\$15 (developed countries), US\$10 (developing countries), US\$7.50 (ICIMOD member countries); for both volumes together: US\$22 (developed countries), US\$15 (developing countries), US\$11 (ICIMOD member countries). ISBN 92-9115-846-1 (Vol 1) and 92-9115-863-1 (Vol 2).

This 2-volume publication is the result of an international workshop on “The Changing Face of Pastoralism in the Hindu Kush–Himalayan–Tibetan Plateau Highlands,” held in Lhasa, Tibet Autonomous Region (People’s Republic of China) as a contribution to the International Year of Mountains (IYM) 2002. Volume 1 consists of the workshop proceedings, and Volume 2 includes a dozen technical papers.

Volume 1 contains almost 40 short contributions of 2–4 pages each, organized into 6 chapters, each with a synthetic overview. Chapter 1 mainly presents ICIMOD’s Regional Rangeland Program (RRP). Chapters 2 to 4 summarize the individual oral presentations, while Chapter 5 presents the results of the 5 working group discussions and Chapter 6 the overall outcomes and recommendations.

Chapter 1, which provides rather detailed information about the RRP, is very informative and useful—especially with regard to some of the more recent literature used as a reference. The chapter points out a general lack of understanding of the economy, the way

of life, and the environment upon which the marginalized pastoralists of the Hindu Kush–Himalaya depend. Their extensive and opportunistic system of livestock mobility is based on a rich heritage of local knowledge, from which they have developed elaborate mechanisms to collectively manage resources. However, this system is increasingly threatened by modernization and marginalization. The authors also note that many well-meant development programs are driven by a general disdain vis-à-vis the pastoral way of life, and underestimate the efficacy of pastoral production systems and rangeland ecology. Emphasis is placed on the need to explore innovative institutional arrangements for implementing effective pasture and rangeland management. The RRP approach of promoting co-management in order to create self-sustaining partnerships among stakeholder groups requires changes of attitude and behavior among the organizations involved. This chapter mentions the conditions and agents of change experienced through the RRP. It also contains interesting information about the conceptual framework applied, the implementation strategy followed, and the outcomes achieved during Phase 1 of the RRP. It ends by describing the objectives and approaches that formed the basis for the Lhasa workshop as well as the Rangeland Roundtable at the Bishkek Global Mountain Summit (BGMS, 29 October to 1 November 2002).

The contributions in Chapter 2 deal with integrated research on pastoral production systems based on a multidisciplinary perspective on the challenges and issues at stake. Among the experiences presented there are several studies from northern Pakistan, including, for example, one concerning the impact of development change on local livestock enterprise (Wright et al) and another on

human and economic issues linked to livestock production (Clemens).

Chapter 3 focuses on integrated development approaches and their quest to improve access to rangeland technologies, markets, alternative incomes, and financial and social services. C. Yuxiang presents outcomes from forage development trials in different ecozones of the Tibet Autonomous Region which have provided a basis for identifying annual and perennial grasses with a potential for future seed development. Another contribution (Goldings) focuses on the most promising and culturally respectful options to improve the cash income of local herders. He argues that the development of European-style cheese made from yak milk as a niche product should be supported, instead of exposing remote herders to direct competition with the more efficient lowland producers of conventional dairy and meat products.

Chapter 4 addresses the issue of enabling institutional and policy changes, focusing in particular on ways to enhance the capacities of government and non-government institutions to facilitate local learning processes and improve the delivery of appropriate services to pastoral communities. Chapter 5 gives a summary of the 5 working group discussions dealing, for example, with the values and pitfalls of participatory development in pastoral areas. Chapter 6 summarizes the discussions held at both the Lhasa workshop and the BGMS, and presents extracts from the outcomes regarding “strategic innovations for improving pastoral livelihoods.” The summary includes a range of identified issues and emerging themes such as: 1) the lack of upscaling mechanisms and strategies to further promote participatory approaches, mainly applied through grassroots efforts to date, and 2) the poor

understanding shown by local-level authorities mandated to implement flexible policies, leading to misinterpretation and ineffective implementation.

The introductory summaries in each chapter proved to be of great help in quickly identifying and selecting the most interesting content. The summaries of the oral presentations are interesting and succinct, but at the same time too short or too condensed and generalized to be directly reusable in my own research activity related to pastoral issues in Central Asia. Nevertheless, Volume 1 raised my interest in many of the topics featured, and I may well contact specific authors to ask for more detailed information or comprehensive reports.

At the same time, this desire has already partially been met by Volume 2, which includes 12 selected full papers. In the first of these, T. Banks addresses the institutional arrangements governing community-based natural resource management among Kazakhs in the Tian Shan and Altay Shan mountains of Xinjian (China). He points out group tenure arrangements and the related high level of social capital among group members. Regarding the enforcement of rangeland boundaries in the study area he concludes that boundaries are rather fuzzy, especially in spring and autumn pastures, where crossing of foreign territory is allowed for migration and for access to scarce water resources. An interesting rangeland management institution is the “year-round stationing of grassland protector households in the major seasonal pastures” of a village. Further institutional arrangements or mechanisms described include the minimization of exclusion costs, economies of scale regarding herd supervision, the abatement of environmental and climatic risks, and the minimization of governance costs. Finally, Banks discusses the

implications for rangeland policy and concludes that group land tenure arrangements could represent a promising pathway towards tenure with regard to time and optimization for all households involved.

The other 11 papers in Volume 2 address tenure and management arrangements for China’s grassland resources (Schwarzwalder et al), resource tenure models for rangeland improvement (Richard and Jingzheng), experiences in supporting community-based livestock and rangeland development (Sidahmed and Rota), participatory approaches in pastoral settings (Bayer and Waters-Bayer), integrated application of technical skills and participation (Qun et al), mitigation of livestock–wildlife conflicts (Wangchuk and Jackson), medicinal plants and pastoral use (Aumeeruddy-Thomas et al), medical practitioners serving pastoral communities in the Himalayas (Bista et al), holistic and community-based approaches for building sustainable livelihoods for Mongolian herders (Enkh-Amgalan), the integration of yak-herding communities into resource management planning processes in Bhutan (Wangchuk), and reflections about organizational learning in natural resource management between pastoralists and the government in Iran (Emadi).

While most proceedings of conferences, workshops, and other meetings tend to be rather disappointing and of little use—especially for those who did not actively participate in the events—these proceedings to me appear to be a pleasant exception, and are well worth reading.

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Renewable Natural Resources Management for Mountain Communities

Edited by M. Stocking, H. Helleman, and R. White. Kathmandu, Nepal: ICIMOD, 2005. x + 312 pp. US\$20 (developed countries), US\$15 (developing countries), US\$10 (ICIMOD member countries). ISBN 92-9115-062-2.

Resource Constraints and Management Options in Mountain Watersheds of the Himalayas

Edited by R. White and S.K. Bhuchar. Kathmandu, Nepal: ICIMOD, 2005. x + 284 pp. US\$20 (developed countries), US\$15 (developing countries), US\$10 (ICIMOD member countries). ISBN 92-9115-143-2.

Although much research has been conducted on land degradation in mountain environments, and especially in the Himalayas, there is still much confusion and uncertainty regarding the topic. This has led to many broad generalizations and some grossly inaccurate statements. Some of the confusion has arisen as a result of attempts to provide general conclusions from narrowly specific and small-scale research projects, but most of it derives from poor linkages between researchers and practitioners—the people who inhabit and manage the land. The 2 publications under review make a substantial contribution to improving the situation. Both essentially report the work of the People and Resource Dynamics in Mountain Watersheds of the Hindu Kush–Himalayas Project (PARDYP), with contributions from the Hill-sides System of the Natural Resources Systems Programme (NRSP), presented at workshops in Kathmandu, Nepal in 2003.

PARDYP, conceptualized in 1996 and arising out of previous, separate regional projects, involves collaborative research in the Himalayas of China, India, Pakistan, and Nepal. It operates in 5 Middle Mountain watersheds: 2 in Nepal (Jhikhu Khola, Yarsha Khola), and 1 each in China (Xizhuang), India (Garur Ganga), and Pakistan (Hilkot-Sharkul). They vary in size from 3456 ha to 11,141 ha, and in maximum elevation from 2200 m to 3075 m. There are also variations in rainfall amounts, land use patterns and population densities; they provide a good coverage of the wide variations of characteristics in the Middle Mountains.

As noted above, the main aim of the research is to examine the processes of natural resource degradation and to use the results of this research to promote the rehabilitation of degraded lands and inform sustainable management. The contributions presented in both publications have these foci. It is not possible to provide an in-depth review of each contribution, thus this review attempts to provide a general synthesis and assessment. While most of the papers represent research in the Himalayas, there are also contributions from the Central Andes, Uganda, and Bolivia.

Renewable Natural Resources Management for Mountain Communities is divided into 3 sections: Part 1, “Managing Renewable Natural Resources in Mountains—Generic Issues and Programme Approaches” (3 chapters); Part 2, “Case Studies of Natural Resources Management” (16 chapters); Part 3, “Analysis and Recommendations” (2 chapters). As the title suggests, the links between all the contributions are community involvement and participatory methods. The 3 chapters in Part 1 set the scene for the proceedings with a review of the work of PARDYP and NRSP to date and an assessment of the theoretical and political frameworks within which the research was conducted. Many

of these issues are assessed by means of the concept of capital—natural, human, physical, social, and financial—which can be visualized as the 5 corners of a pentagon. The pentagon becomes distorted when dynamic change in one or more of the assets occurs, providing a striking visualization of likely effects. This also stresses that there are important relationships between the asset categories that need study before interventions are proposed.

Chapters 4–7 examine the role of participatory decision support systems for developing strategies that are relevant to marginal mountain farmers. There is much useful discussion on the scaling-up process, an issue that is taken up later. Thematic topics are addressed in chapters 8–10 and derive principally from PARDYP. These chapters examine issues such as property and water management, as well as land rehabilitation. Water availability has decreased over the last 25 years, and there are serious issues of water quality. Much is known about the physical aspects, but the message from these contributions is that more work is needed on the social and institutional aspects that affect water management.

Chapters 11–15 examine techniques, tools, and intervention methods for combating soil erosion and improving soil fertility, with examples from Nepal, Bolivia, and Uganda. Good communications between local professionals and remote communities appear to be essential to fostering sustainable resource strategies. Issues related to the scaling-up process, noted earlier, are examined in Chapters 16–19. Scaling up is an important issue, but has only become prominent in land management strategies in the last few years. Whilst the theory has been quite well developed, there is little knowledge as to how the process can be incorporated into practical strategies. Some of these problems are addressed, with examples from Nepal, Bolivia, and

Uganda. A main conclusion from these case studies is the need for greater community empowerment. With reference to the asset pentagon mentioned earlier, there is a clear need to increase the social capital by developing networks, acquiring membership of formal groups, and establishing trust. Social capital may be the key transforming capital for poor mountain societies. The last 2 chapters, in Part 3, are an overview of the case study findings and a very useful summary of the scaling-up process and how to increase relevant information and knowledge flow.

Resource Constraints and Management Options in Mountain Watersheds of the Himalayas examines many of the issues raised in the first publication, but focuses on Phase 2 of the PARDYP project (1999–2002); Phase 3 of the project commenced in 2003. Following a general overview of PARDYP research, the chapters are divided into 3 sections: “On-Farm Activities” (5 chapters); “Water and Erosion” (6 chapters); and “Common Property Resources” (9 chapters). Although the research has demonstrated many similarities across the 5 PARDYP watersheds, it is not surprising to find that local and regional variations often condition management strategies. As an example, the bulk of the agricultural land in the Pakistan watershed is owned by the Swati ethnic group but is farmed by the Gujars, who keep livestock. A sharecropping system is operated with the landlords. Crop residues are important to the Swati group for their livestock. Attempts to introduce short-straw,

high-yielding grains, although attractive to the landlords, failed because of the poor fodder straw. This relates back to community empowerment and social capital, as emphasized in the conclusions to the first publication. This conflict between general issues and their local manifestation is the major link between all of the contributions, whether relating to water management, soil erosion, and land rehabilitation, or sustainable management. This conflict is seen at its most complex in the question of common property resources. The chapters in Part 3 of this volume provide an excellent insight into these issues.

Taken together, these 2 publications offer a remarkable documentation of the problems facing marginal hillside farming systems in the Himalayas. They combine much relevant, up-to-date information regarding the operation of natural processes and their significance to the sustainable operation of mountain farming systems. The results demonstrate that the widely perceived high levels of soil erosion and land degradation are not as widespread and significant as previously thought. Forest cover in all 5 watersheds of the PARDYP program has been maintained or has increased. However, the research presented here makes it clear that it is often difficult to convince local professionals and community leaders that this is so. Ingrained prejudices are difficult to eradicate. Much of the problem stems from the inability of some researchers to express their findings in a form suit-

able for incorporation into local strategies. This remains a major challenge, in which vertical and horizontal scaling might have a role to play.

Vertical scaling involves dissemination of understanding to other sectors and stakeholder groups and from grassroots organizations to policy-makers. Horizontal scaling aims to extend the geographical spread to more people and organizations in the same stakeholder group. However, the language involved in these processes needs to be accessible to mountain communities. The PARDYP and NRSP programs, represented in these publications, are making a major contribution to improving these conflicts and are highly recommended to anyone with an interest in the sustainability of mountain environments. Although the results relate mostly to the Himalayas, these results and discussions are relevant to many other high-mountain environments.

The publications have been well produced and edited, with numerous tables, maps, illustrations and photographs. The references listed at the end of each contribution will lead the interested reader to a wealth of recent research. Hopefully these publications will get the wide dissemination they deserve and help to dispel some of the current Himalayan misconceptions.

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