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Web Sites on Religion and Development

The topic of religion and development is well documented on the Internet. The following list presents a small selection of what is available. Although there are no specific web sites on religion and development in mountain regions, mountains are the focus of several projects presented on web sites dealing with religion and development generally. There is a wide range of web sites run by religious organizations (Catholic, Jewish, Muslim, Adventist, etc) active in international cooperation. They have not been included in this list owing to the difficulty of making a coherent selection, but many are included in the "Links" sections of some of the sites listed below (eg, WFDD). Web sites that focus on the environment rather than development have also been included.

World Faiths Development Dialogue (WFDD)

http://www.wfdd.org.uk/

Focusing on the relations between faith and development, the WFDD seeks to encourage dialogue among communities of believers in different faiths, as well as between believers and actors in international cooperation. This web site offers a wide selection of material such as news bulletins, occasional papers, workshop reports, etc. It also features a series of case studies by religious organizations or groups working in international cooperation. The WFDD does not specifically focus on mountains, but there are several case studies from mountain regions. An interesting example from Guatemala:

An experience of development: A Christian and Mayan focus. The case of Awakatán

http://www.wfdd.org.uk/programmes/case_studies/awakatan_eng.pdf (English)

http://www.wfdd.org.uk/programmes/case_studies/awakatan_esp.pdf (Spanish original)

Development Dialogue on Values and Ethics

http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/PARTNERS/EXTDEVDIALOGUE/0,,menuPK:64193238~pagePK:64192526~piPK:64192494~theSitePK:537298,00.html

The "Development Dialogue on Values and Ethics" is a unit within the Human Development Network Vice-Presidency of the World Bank. Its web site is concise and merely states the focus of World Bank efforts concerned with faiths and development. However, it also provides several links to other web pages, for example an interview on "Religion and International Development" with Katherine Marshall (former director of the Development Dialogue on Values and Ethics, currently working as a specialist at the Berkeley Center for Religion, Peace and World Affairs).

http://pewforum.org/events/index.php?EventID=100

Religion and Development Portal Site

http://www.religion-and-development.nl/

Supported by the Dutch Ministry of Foreign Affairs and a group of NGOs, the "Portal Site" is the home of 2 important units: the Knowledge Centre for Religion and Development, and the Knowledge Forum for Religion and Development Policy. The Portal Site as a whole explores connections between religion and religious organizations, and between sustainable development, international politics, conflicts, etc. It also features a news section, an agenda, country information, various documents (partly in Dutch), and a closed section for registered users only.

Alliance of Religions and Conservation (ARC)

http://www.arcworld.org/

This site focuses on environmental conservation: the ARC, a secular organization, supports the development of environmental programs that conform to the teachings and traditions of various religions. ARC collaborates in a wide range of diverse projects, several of which focus on mountain regions, such as the "Sacred Mountain of Emei Shan" and "Mountain of Five Peaks" programs in China. The ARC also cooperates with the World Bank within its "Faiths and Biodiversity Project."

Forum on Religion and Ecology (FORE)

http://environment.harvard.edu/religion/

The broadest international and multireligious project of its kind, the Forum on Religion and Ecology explores various religious worldviews in order to achieve a better understanding of the complex nature of current environmental concerns. Along with information about the Forum, this web site also provides information on the various religions and relevant cross-cutting disciplines, as well as teaching material and various other publications. A search for the keyword "mountain" led to information about relevant projects:

The Mountain Institute (TMI): Sacred Mountains Program (listed under "Christian engaged projects")

http://environment.harvard.edu/religion/religion/christianity/projects/mt_inst.html

Zen Mountain Center (listed under "Buddhist engaged projects")

http://environment.harvard.edu/religion/religion/buddhism/projects/zen_mt.html

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Spirit Rock Meditation Center (listed under "Buddhist engaged projects")

http://environment.harvard.edu/religion/religion/buddhism/projects/spirit_rock.html

Islam, environmental education, and conservation

http://www.macp-pk.org/macp_success_story2.htm

Part of the web site of Pakistan's Mountain Areas Conservancy Project (MACP), this page documents the success of a sub-project aiming to sensitize local religious leaders about environmental problems. Along with workshops and discussions on the topic, the project also features a publication entitled *Conservation and Islam* to assist Islamic scholars in briefing communities on the importance and necessity of the sensible use of natural resources, as set out by Islamic teachings. The web page provides a link to this publication, along with other links.

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Books

Dangerous Harvest: Drug Plants and the Transformation of Indigenous Landscapes

Edited by Michael K. Steinberg, Joseph J. Hobbs, and Kent Mathewson. Oxford, United Kingdom: Oxford University Press, 2004. viii + 325 pp. £18.50, US$35.00. ISBN 0-19-514320-5.

This collection provides a panoramic look at the world's drug plants, their cultivation, harvesting, marketing, and use. It also considers in some detail the social, economic, political, and, to some extent, environmental effects of drug-plant cultivation on the lands and peoples involved. It is a useful if depressing catalogue of the usually dismal impacts upon rural peoples of one of the world's older and bigger businesses.

The book has 13 chapters. The first is a general introduction and orientation, and the last is mainly a summary of salient points made throughout the book. The second chapter is a 90-page history of efforts to regulate international drug traffic and the production of drug plants, chiefly within the last 100 years. The author, Alf McCoy, is extremely critical of US and UN efforts to combat drugs, arguing that these have been at best worthless and often counterproductive. He gives particular emphasis to the last 50 years and to the Cold War deals made between the CIA and unsavory kingpins in southeast Asia and Afghanistan. If half of what McCoy says is true, it amounts to an indictment of CIA methods, as well as a sad lesson in unintended consequences. To make trouble for communist China and the USSR, the CIA made common cause with warlords in remote areas of Burma and Afghanistan, provided them with guns and money, and turned a blind eye (or worse) as the warlords became drug lords to help finance operations. McCoy argues further that efforts to eradicate the drug trade, when temporarily successful, normally relocated and expanded production because of the stimulus effect of heightened prices. So fighting the Cold War (by the CIA's chosen methods) and fighting the various wars on drugs exacted an enormous human price from peasants in Burma and Afghanistan, as well as from junkies in Rome, Glasgow, and New York.

The balance of the chapters is devoted to regional and local studies. Laos, Afghanistan, Bolivia, Peru, and Mexico are represented, as one might expect. But so are marijuana production in southern Belize and nineteenth-century Bengal, peyote in South Texas, kava in Oceania, and opium suppression in the early years of Mao's China. These regional chapters have variable emphases; the editors apparently did not insist on much uniformity in the writing of the chapters. But together they give a large-scale, if pointillist impression of the issues involved in drug-plant cultivation. The chief plants in question are coca and the opium poppy, although marijuana appears prominently in three chapters as well.

For readers of this journal, the most interesting feature of the book is the frequency with which mountain areas have lately become the setting for the cultivation of drug plants. This is mainly a response to their prohibition, which in broad terms is about 100 years old. As an illegal activity, drug production has shifted to remote areas, areas easily defended by a small militia, and areas where law enforcement is feeble or easily corruptible. For the opium poppy, this has meant a gradual relocation from the plains of Bengal, Anatolia, and China to the mountains of Laos, Thailand, Burma, and Afghanistan. The geography of opium production shifted from time to time in response to the local effectiveness of prohibition efforts and to larger political changes (such as the breakdown of the USSR). The coca plant is a little fussier in its ecological requirements and historically has only done well on the foothills of the eastern Andes, but production zones have also shifted among Bolivia, Peru, and Colombia in accordance with political and market factors. Mountain peoples found that opium and coca were among the few crops that carried sufficient value per unit of weight to make economically worthwhile the long voyages to distant markets. But they also often found themselves in

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the middle of crossfires conducted by ruthless militias and armies. So there is a good deal here, little of it cheerful, on the mountains and mountain peoples of southeast and South Asia, and the central and northern Andes.

The research behind these chapters is often impressive. As one who has done a tiny bit of research concerning kif production in northern Morocco, I have a profound respect for the dangers involved in this sort of work, and marvel at those who have done it well in places such as Laos in the early 1970s or Afghanistan in the 1980s. For the research alone, this collection is a valuable one. Its wide-ranging coverage adds further value. Oxford University Press did not outdo itself in producing the maps and photographs, nor is the index done to a high standard. But if you want to know about the consequences of the cultivation of the opium poppy or coca leaf, this is the book to read.

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Die Alpen! Les Alpes! Zur europäischen Wahrnehmungsgeschichte seit der Renaissance / Pour une histoire de la perception européenne depuis la Renaissance

Edited by Jon Mathieu and Simona Boscani Leoni. Berne, Switzerland: Peter Lang, 2005. 455 pp. CHF78.00, €53.80, US$59.95. ISBN 3-0391-0774-7.

Die Alpen! Les Alpes!, edited by Jon Mathieu and Simona Boscani Leoni, is surely one of the most interesting books published recently about the European Alps, for both the abundance and the variety of the contributions it includes, and for the themes addressed. As underlined by the editors, the project originated with two ideas that eventually led to the book: first, that the description of the nature of the Alps and of their population is an auto-representation of the authors, determined by their social milieu; and second, that there are Alpine voices which have been neglected by research until now. Thus, the editors aimed to stimulate research on how people from the mountains received and, in their turn, elaborated the mountain discourse produced by visitors from the lowlands.

Both ideas, to be fully developed, require reference to a variety of points of view, spanning many disciplines, national cultural traditions, and also research traditions. The first idea in particular—to regard description of the Alps as auto-representation—implies a potential for national differentiation in how perception of the Alps changed over time, which the editors thought could be much greater than commonly recognized in previous literature. This "need for voices" has almost inevitably led to a marked plurality in the book's contributions, which is apparent when looking at its overall structure. The volume is composed of 25 essays—the fruit of a series of conferences hosted between 2001 and 2003 by the Institute of Alpine History (Università della Svizzera italiana, Lugano) which the editors helped to organize. However, their own research project (shared with Reto Furter) preceded and followed the conferences, which surely accounts for the book's being so rich and well-developed.

Each of the 25 essays is written in one of three different languages—Italian, French, or German—according to the nationality of the contributor. This choice, while underlining the cultural wealth of the Alpine environment, could obviously represent a problem for a reader who is not exceptionally linguistically talented. Wisely enough, the editors provide a very good introduction in German and French which, together with abstracts of all essays in German, French, and English, considerably assists the reader in understanding the book and enjoying it to the fullest. Nevertheless, longer abstracts would have been very useful (the ones included are a brief half page each), as well as an introduction in English. Furthermore, with 10 essays written in Italian, the inclusion of an introduction and abstracts in Italian would have made sense. However, it is easy to imagine the publisher's understandable concern over going to such lengths.

The 25 essays are organized in a more or less chronological order, with the book divided into four sections: 1) "From the Middle Ages to the Modern Age" (with contributions by Murielle Brunschwig, Luca Mocarelli, Paola Giacomoni, Aleksander Panjeck, Simona Boscani Leoni); 2) "Enlightenment and Romanticism" (Holger Böning, Raffaello Ceschi, Robert Hoffman, Matija Zorn, Luca Ciancio, Marianne Clerc); 3) "Industrial Age" (Tanja Wirz, Marco Cuaz, Dagmar Günther, Daniela Vaj, Jonas Römer, Thomas Hellmuth); 4) "20th Century" (René Favier, Anne-Marie Granet-Abisset, Rémy Pithon, Rinaldo Rinaldi, Clà Riatsch, Walter Leimgruber). These sections are effectively introduced by two essays, one (by Jon Mathieu) tackling the delicate question of the periodization of Alpine history, and the other (by Reto Furter) offering some essential background information on the whole of the Alps, with impressive maps of indicators such as urbanization and trans-Alpine traffic and of their evolution between 1500 and 1900.

The problem of periodization requires further explanation, as it

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represents a kind of third key idea underlying the entire volume. In the existing literature on Alpine discourse there is no shared opinion about the chronology of changes in perception of the Alps. *Die Alpen! Les Alpes!* does not provide any simple answer to this question either, neither in the contributions nor in the introductory essay by Mathieu, who actually underlines how different periodizations can coexist. For example, while in the 18th century perception of the mountains definitively changed from "fog-laden and somber" to "luminous and magnificent," it is in the 16th century that they were first discovered by sportsmen and geographers, only to be forgotten in the 17th century and then re-discovered in the late 18th and early 19th centuries. Mathieu, who is also the author of an impressive history of the Alps (Mathieu 1998), is clearly best suited to outline this complex picture of different and partially overlapping chronologies, which is essential to a full understanding of the book.

With regard to the other contributions, while written by scholars of quite diverse disciplines and specializations, nearly all of them share a common perspective: cultural history. It is impossible to give a full or at least adequate account of all essays, or of what all of these very interesting voices that build up such an engrossing chorus actually say. Suffice it to say that every reader—certainly the specialist, but also the simply curious—will find this book both interesting and enjoyable, provided that they possess the linguistic skills necessary to master at least most of the volume.

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Empowering the Past, Confronting the Future: The Duna People of Papua New Guinea

By Andrew Strathern and Pamela J. Stewart. New York: Palgrave Macmillan, 2004. xi + 190 pp. US$23.95. ISBN 1-4039-6491-2.

Empowering the Past, Confronting the Future is an anthropological study of change among a relatively isolated population in the central cordillera of the nation-state of Papua New Guinea. The Duna were not contacted by the outside world until the mid-20th century. Despite some involvement with government officials, missionaries, and petroleum and mining exploration parties, the Duna have maintained a subsistence-based lifestyle and have not experienced many of the socioeconomic changes that other cultures have throughout the developing world. This does not mean, however, that the Duna remain mired in "tradition" and are resistant to changes brought about by globalization and modernity. The relationship between a so-called "traditional" past and a "modern" future is, in fact, what structures the authors' analysis of Duna society, and provides a means for them to discuss sociocultural changes without relying on dichotomous understandings of tradition and modernity.

A central concern in anthropology in the 21st century has been to write about how local, indigenous cultures negotiate the transformations wrought by a world that is increasingly becoming globalized. While many people have been quick to associate globalization with cultural homogenization, research by anthropologists has indicated that, contrastively, there has been substantial cultural heterogeneity associated with globalization. As such, globalization and modernity take different forms depending on the historical and cultural situations they encounter. However, what has proven to be difficult in anthropology is to find a means to write about and analyze these changes without reconstructing a false notion of a traditional, unchanged culture that begins to transform once it enters into global political and economic systems. In this book, Strathern and Stewart provide a mechanism to break out of this analytical quandary by insisting to focus on

> the *contemporary*, and its involvement with both the past and the future, ... rather than a standardized set of ideas about *modernity* as such. Modernity, in this view, is not an epoch: it is a shifting and multiple horizon of patterns, expectations, and disappointments generated in the total process of historical change. (p 2, emphasis in original)

In the concluding chapter, they revisit this idea by arguing that modernity "simply refers to 'now' time in contrast to 'then' time, where there is a sense of historical change or difference between the two" (p 160).

To understand the difference between "now" time and "then" time, the Duna continually look to their past (their myths, rituals, origin stories, and so forth) to negotiate the promises and disappointments of their present and future. They do so as a creative means to provide agency for their current circumstances, and thus their use of the past is a form of empowerment. Strathern and Stewart write, "People empower their past when they want to invoke it as a means of legitimizing or achieving their current aspirations" (p 139). The authors also provide several useful examples that illustrate how the past itself is open to cultural reworking as contemporary events can either reshape the ways that people understand their own historical endeavors, or provide contexts for dormant historical or mythical themes

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to re-emerge. One such example was deployed by the Duna in the context of riverine pollution from mining: a spirit associated with the river had never been mentioned prior to pollution, yet by the late 1990s was a common topic of discussion, paralleling the extent to which mining waste affected the riverine system.

The authors also point out that they are not writing an ethnography of the Duna experience with modernity as a kind of meta-narrative about change and globalization. Rather, they focus on the people of a single valley, the Aluni Valley Duna, in order to write a "microethnography" that mediates the "macroprocesses" of globalization, to better understand how local people themselves are also social scientists who study their world and attempt to interpret it. Nor do the authors provide an exhaustive ethnography of Duna culture; instead, they examine key aspects of social organization, leadership, Christianity, witchcraft, court cases, and myths to track the trajectory of change that the Aluni Valley Duna have experienced. These concerns occupy the first 5 chapters of the book. In the last 4 chapters, the authors set the Duna materials in a regional context, looking at both Melanesian and other Papua New Guinean peoples' experiences of change. Strathern and Stewart also re-engage with the politics of tradition literature to reframe some of their arguments about how to move past the tradition–modernity dichotomy.

From this reader's perspective, the only (and minor) shortcoming of this book stems from the limited audience that will find it appealing. The book suffers from a deficit of introductory information that non-specialists of Papua New Guinea anthropology would (most likely) need in order to fully appreciate the ethnographic materials. However, in the 162 pages of text, the authors write in a non-jargony manner that anyone interested in issues of change and history would find beneficial. As such, the authors' theoretical and methodological treatment of historical analysis and change blazes new avenues for future researchers to follow.

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El declive demográfico de la montaña española (1850–2000). ¿Un drama rural?

By Fernando Collantes Gutiérrez. Madrid, Spain: Ministerio de Agricultura, Pesca y Alimentación, 2004. 364 pp. €15. ISBN 84-491-0639-7.

The history of population change in 20th-century Europe has focused on demographic transition and, in particular, on how trends in fertility and mortality have led to periods of population growth followed by stagnation and even decline. Although migration is recognized as a key factor in the demographic system, demographers in general have shown less interest in the distribution of population as opposed to overall trends in the dynamics of population growth. Yet for researchers and students with a particular interest in mountain communities this focus is misplaced, as the overriding theme characterizing the demography of mountain communities in most parts of Europe during the last century is one of population decline brought about by outmigration. This dramatic demographic shift poses particular problems for these communities, as Fernando Collantes Gutiérrez describes in this book on mountain communities of Spain.

Gutiérrez's approach is to investigate the dynamics of demographic and economic change in mountain communities in Spain. The impact on Spanish society is not insignificant, with 36% of the country classified as mountainous. Yet, as Gutiérrez argues, in order to understand the causes and consequences of population change in Spain, it is far too simplistic to see this change as the inevitable outcome of industrialization and economic growth; rather, he shows that each mountain community responded differently to the economic and social challenges of the 20th century. Hence, while the broad pattern of population decline in Spain is clear, with mountain villages losing between 20% and 25% of their population from 1850 to 2000, there is considerable variation in the timing and intensity of this decline. Gutiérrez examines this variation by comparing the experiences of 4 distinct mountain regions: the north (Cantabria, Asturias, and Galicia); the Pyrenees; the interior region (mountain ranges to the north of Madrid including those in Burgos, La Rioja, and Soria); and the south (the sierras of Andalusia).

The book is based on analysis of macrosocial data, mainly demographic and economic indicators. Gutiérrez begins with an overview of population decline in the mountainous regions of Spain, and describes how this is associated with both aging and masculinization of the population. The second chapter focuses on the relationship between depopulation and economic change, in which Gutiérrez challenges the accepted view that, prior to the 1950s, Spain's mountain communities were characterized by subsistence farming, with little opportunity for market practices. In this largely theoretical chapter Gutiérrez describes how many mountain economies were far more complex than this, and argues that, rather than being self-sufficient and self-contained, many mountain communities did engage in market practices and a certain degree of diversi-

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fication. Moreover, practices of temporary migration were common among many families; even before Spain's economic boom, migration was an important way in which some mountain communities responded to economic conditions. Yet, as is the consistent theme of the book, the author also describes how different mountain regimes responded to the challenges of industrialization, with the northern region leading the way in terms of diversification away from agriculture and into industry.

Chapter 3 provides a statistical analysis of how mountain economies developed from the mid-19th to the mid-20th century, with particular focus on the development of agriculture and how this differs between the livestock-based system in the north and the predominantly arable system—the classic Mediterranean trilogy of cereal, livestock, and vines—in the south. Gutiérrez relates the different types of agricultural systems to climatic factors, although he does also consider, to a limited extent, the importance of sociocultural factors, including patterns of land ownership, family structure, and patterns of inheritance. The chapter ends with an overview of standards of living in mountain communities up to the mid-20th century which clearly reveals the rural penalty in the mountain communities of the south.

Chapter 4 considers how mountain economies diversified during the 20th century, comparing both the timing and the intensity of diversification. This again reveals how the south lags behind mountain regimes further north. The earlier diversification of economies in the north and the Pyrenees was facilitated by transport networks, as well as the availability of minerals and hydroelectric power, but also by an established culture of diversification. This chapter concludes with an analysis of contemporary standards of living, and of how diversification in the north and the Pyrenees is associated with a much less marked "mountain" penalty compared to the south. The final chapter provides an overview of the dynamics of population and economic change in the different mountain communities, and, in particular, of how the timing and intensity of population decline reflect changes in the structure of mountain economies, which in turn are determined by geographical and sociocultural characteristics.

The strength of the book is in its comparative approach—although this also raises the question of what lessons can be learnt from the Spanish case, if, as Gutiérrez argues, the timing and intensity of population change is determined by characteristics of mountain communities. Moreover, the analysis is quite simplistic and relies strongly on two-way analysis of different demographic and economic variables. There is no attempt to integrate different dimensions in order to unravel some of the complexities of the socioeconomic structure of these communities. Gutiérrez does not draw on any anthropological and historical research on mountain communities and family life in Spain, and his account of population decline is very strongly based on environmental explanations.

Reading the book, I was struck that conditions in the south, particularly greater poverty and a larger population of landless laborers, would have provided ideal conditions for massive outmigration, and it is interesting that nevertheless, population decline has been less dramatic there than in the more prosperous regions to the north. Yet I was not wholly convinced by Gutiérrez's explanation, which associates these facts with geographical factors and conditions. Finally, the maps are not well drawn and contribute very little to the text. For some reason the legends are descriptive, which might make them slightly harder to interpret for a non-Spanish reader. While the book will be of considerable interest for students and researchers of Spanish socioeconomic history—as the main conclusions refer to the specificity of different mountain communities in Spain—its appeal to a wider readership with an interest in mountain communities will be more muted.

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Environmental Management and Sustainable Development at the Crossroad

By Ananda Raj Joshi, Surendra Lall Shrestha, and Kunjani Joshi. Kathmandu, Nepal: AnKuS, 2003. US$40. 302 pp. ISBN 99933-53-55-8.

Development economics and environmental science are the approaches taken in this book's treatment of sustainability management issues. The authors provide a set of historical perspectives and case studies from Nepal's development experience to chart the progressive adoption of environmental agendas in its 5-year plans, and to identify constraints and opportunities in evolving development practice. The rationale of the book is that better integration of knowledge from different development sectors applied in pro-poor participatory initiatives can direct bureaucratic processes towards more effectively managed sustainable outcomes.

As professional practitioners, the authors give informative and factually oriented reviews of the state of play in matters such as wetland conservation, hydropower schemes, road programs, trail-bridge technologies, traditional uses of plants, and the application of Environmental Impact Assess-

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ment methods. From their insider perspectives, a huge amount of statistical and technical data from gray literature is assembled to give the reader a sense of the kinds of knowledge that inform environmental management in Nepal. The idea of a "crossroad" is brought in at the conclusion of the book to signify a new, globally interconnected scenario for thinking about environmental problems, beyond the old framework of land degradation, biodiversity loss, and natural disasters.

The book suffers from a number of shortcomings. There is no sustained, linking argument, or clarity about its purpose. The quality of copy-editing is far from meeting international standards. Lax and inconsistent spelling, including of local terms and botanical species, is abundant, and there is little flow between the various chapters. But more seriously, there is no attempt to address the fact that, over the last half-century, critical thresholds in our knowledge of the environment of Nepal have been passed. As an example, figures on rates of soil erosion (p 8), taken as valid for today, are all derived from studies carried out in the 1970s, at the height of the crisis perspective that forecast erosion and deforestation at a level of severity that never materialized. Discussion of the 5-year plan (1985–1990) refers to "the population problem" (p 19), without picking up on what was signified by this kind of phrasing, which packed a host of assumed causal relationships between demography, illiteracy, poverty, and often minority ethnic status, into a generalized human threat to ecological integrity. Beyond the book's fascinating consideration of green roads, footbridges, and its equivocal position on benefits left behind by tourism, its overwhelmingly technocratic slant fails to recognize the value that knowledge of Nepal's irreducibly distinctive geography, biodiversity, and sociocultural mix can offer for thinking creatively about sustainable development.

As someone on the sociocultural end of the development–environment spectrum, I see it as an important task for the prospect of a sustainable future in Nepal to be able to negotiate the interface between globally powerful generic concepts and categories of environmental management, and the local, uniquely configured relationships that shape perceptions and the interests people have in particular environments. Let us look at this through the example of the book's chapters on rural ethnobotanical knowledge. Here we find "tradition" and "wisdom" of extensive plant "lore" attributed to village people's "constant association" (p 192) with wild food plants as "resources." In the lexicon of the villagers under discussion (from the Tamang ethnic group), there is no equivalent for "resource," or for that matter "environment." To translate people's manifold relationships with the plant world into the strictly economistic frame of "resources" only perpetuates a gulf of misunderstanding between generic environmental protection measures and villagers' intimate ecological associations. The authors frequently refer to indigenous knowledge as not having been comprehensively "documented" (p 165), but this implies that some kind of full inventory could be made, rather than appreciating that the knowledge in question does not operate simply as a body of information, and derives from patterns of human–environmental interaction that are poorly grasped by the terms available to mainstream development thinking. In the dense tangle of meanings and assumptions about people's biotic associations and the view of resources as prone to degradation, recognition needs to be given to both local and global cultural perspectives, and to their limited abilities to acknowledge other ways of seeing the world. In particular, this concerns the questions of what is to be protected and who will benefit. The authors do identify this as a policy component that has been inadequately implemented (p 57), but the reasons may lie deeper than finding an appropriate incentive mechanism, and require more attention to the cultural politics of translating sustainability to arrive at effectively devolved environmental management.

Lastly, the Maoist People's War over the last 10 years receives scant mention. Much development activity has been curtailed as a result, and an ever greater sociopolitical split has opened up between the Kathmandu valley and the rural hinterland. The crossroad facing Nepal is whether capacities for managing social and environmental change can bridge this geographically expressed divide between those who have and those who have not benefited from development funds, sustainable or otherwise.

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Water Balances, Floods and Sediment Transport in the Hindu Kush–Himalayas

By Juerg Merz. Geographica Bernensia G 72. Berne, Switzerland and Kathmandu, Nepal: University of Berne and ICIMOD, 2004. 339 pp. CHF25, US$20 (developed countries); US$15 (developing countries); US$10 (ICIMOD member countries). ISBN 3-906151-75-1 and 92-9115-751-1.

The author has provided a major compilation of data relating to all aspects of watershed functioning and management in the middle mountains of Nepal. This includes

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climatological, hydrological, soil science, sediment transfer, and socio economic data. It embraces his own research during a 5-year secondment to ICIMOD together with the accumulation of a vast array of data from across the entire region of the Hindu Kush–Himalayas, and their analysis. There are numerous sketch maps, graphs, flow diagrams, and data tables (233 Figures and 175 Tables), probably exceeding by far any comparable compendium.

The author's primary concern is focused on 2 small watersheds that have been intensely studied over many years as part of ICIMOD's People and Resource Dynamics in Mountain Watersheds of the HK–H (PARDYP) Project. A series of models is developed and applied in the larger regional context.

While this study provides more of the much needed factual information for the continuing discourse on environmental degradation of the region and its causes, its main objective is to determine water availability, water usage, water need, and future projections. It builds firmly on the work of the very few earlier researchers who have attempted instrumented field investigations (eg Alford, Gardner, Gerrard, Hofer, Schreier, Valdiya, and Wymann von Dach).

The general conclusions support much of the earlier work that refutes the *Theory of Himalayan Environmental Degradation* (THED):

1. Little sediment is transferred out of the mountain watersheds into the second and third order drainage system.
2. "As the correlation between floods and the agricultural land [area] is rather low, it is suggested that they [presumably the mountain farmers] only contribute marginally to floods."
3. "For improved flood management and protection downstream, flood plain planning and in-channel conditions are far more important . . ." than land use in the mountains.
4. " . . . human activity of the rural population of the middle mountains in Nepal overall support the stabilization of the hydrological system."
5. Future water shortage in the middle mountains should not become a significant problem assuming careful management.

Given the high relevance of this excellent study to the discourse on the THED, this reviewer will confine himself to a single cautionary comment. The author's first paragraph, quoting Zurick and Karan (1999), categorizes Ives and Messerli (1989) as one extreme of a debate, with Eckholm (1976) forming the other. He goes on to explain that Zurick and Karan object to generalization in a region of great complexity. I am concerned that this is an insupportable simplification, as Ives and Messerli (1989) repeatedly assert the fallacy of generalization because of the very complex nature of the region. The major generalization that they made in this context was that the mountain farmer should not be blamed for mountain environmental degradation, let alone for downstream siltation and increased flooding. The current study admirably supports that contention.

The work is a vital contribution to an understanding of watershed dynamics in the Himalayan region. The author is to be congratulated for his enormous persistence and scrupulous attention to detail. Nevertheless, this makes for a very dense text that will demand considerable concentration on the part of the reader.

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Mountain Ecosystems: Studies in Treeline Ecology

Edited by Gabriele Broll and Beate Keplin. Berlin and Heidelberg: Springer, 2005. xiv + 354 pp. €99.95, US$129.00. ISBN 3-540-24325-9.

Ecosystems at high altitudes and high latitudes have attracted the interest of researchers for many decades. Particularly the treeline ecotone is probably one of the most studied distributional boundaries on a global scale. Continued advances in understanding why trees cannot develop above a certain altitudinal limit derive from accumulated knowledge of the abiotic and biotic environmental factors that become limiting for tree growth with increasing elevation. This book gives an excellent overview of the current state of the arts regarding interactions between climate, vegetation, soil and fauna within high mountain ecosystems. The 12 chapters, grouped into 4 sections, provide a synthesis of the general aspects of soil and vegetation in cold environments (Section 1, Chapters 1–3) and focus on treelines in America (Section 2, Chapters 4–7), Europe (Section 3, Chapters 8–10), and Asia (Section 4, Chapters 11 and 12).

Chapter 1 provides general guidelines for describing soil profiles in mountain ecosystems, taking account of their great heterogeneity due to microtopography, vegetation, etc. The focus is mainly on soil parameters that are crucial when considering soil plant interactions. Plant life in cold environments, for

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example in polar regions, is mainly limited by heat deficiency due to low temperatures and short growing seasons. In such environments, the need for plants to maximize their metabolic efficiency gives rise to specialization and physiological and morphological adaptations. Chapter 2 of the book focuses on physiological limits and genetic responses, based on the fact that barriers to distribution always present an evolutionary challenge. On the other hand, the Earth's climate has warmed significantly during the past decades, and the observed increase in surface temperature appears to be most pronounced in ecosystems at high altitudes and high latitudes. Observed climate-induced changes in the altitudinal distribution of plant species and communities in the treeline ecotone, as well as at the upper altitudinal limit of plant life, are described in Chapter 3.

Chapters 4 to 7 deal with regional treeline studies in America. The regeneration of whitebark pine at the timberline in the North American Rockies, along with relationships between landform and seedling recruitment, are discussed in Chapter 4, while Chapter 7 explores the impact of the Clark's nutcracker on whitebark pine. Species composition and structure of *Nothofagus* forests at the timberline in the southern Andes are described in Chapter 5. The influence of the pocket gopher, a subterranean herbivore rodent, on soil and vegetation patterns on Niwot Ridge in the Colorado Front Range is reported on in Chapter 6.

Regional treeline studies in Europe deal with humus forms and reforestation of an abandoned pasture in the Swiss Central Alps (Chapter 8), explore a tree-ring record from 320 to 1994 AD from Norway (Chapter 9), and conclude with a discussion of woodland recolonization and postagricultural development in Italy (Chapter 10).

The two final contributions deal with isolated mountain forests in Central Asian dryland areas (Chapter 11) and provide a review of geographical and ecological aspects at the upper timberline in the Himalayas, Hindu Kush, and Karakorum (Chapter 12).

As noted by the editors, this collection of studies carried out in mountain ecosystems is dedicated to Prof. F.-K. Holtmeier—who "infected" many of his students with the "mountain virus" before retiring in 2004—as a thank you for his excellent supervision of research on a cold, but nevertheless fascinating environment. However, it is the compilation of information and insights that make this textbook a significant contribution to literature on high mountain ecosystems.

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Secrets of Manang: The Story behind the Phenomenal Rise of Nepal's Famed Business Community

By Clint Rogers. Kathmandu, Nepal: Mandala Publications, 2004. ix + 204 pp. US$15.86. ISBN 99933-10-24-7.

Part of any monograph is the advertising and promotion that goes along with it, conventionally conducted by the publisher on behalf of the writer. While anyone who has written a book would support a fellow author in an honest attempt to generate a little hype on the back flap of their first book, some such "blurbs" go a little too far. Clint Rogers has regrettably fallen into this trap. Deploying words such as "striking" and "extraordinary" about the community whose economic opportunism he documents, the book is inflatingly described as a "must-read" with "beautiful photographs" of "perhaps the most enigmatic … valley in the high mountains of the Himalaya." While all too many monographs fail to live up to their back cover summaries, the blurb accompanying *Secrets of Manang* does at least give the reader a sense of what is coming: back-slapping good cheer about the entrepreneurial acumen of the businessmen of Manang.

Rogers contends that the Nyishangte (people of Manang) are a uniquely successful Himalayan community, particularly from an economic perspective. The group's historical economic success, he suggests, "largely boils down to its members having been fortunate opportunists who aggressively took advantage of privileges afforded them by the central government to develop and exploit certain commercial interests" (p 185). It may be on account of Rogers' background in two disciplines (business as well as geography) that he is comfortable using terms such as "opportunist," "aggressive," and "exploit" with no disapproval intended, but these word choices leave me, as the reviewer, slightly uncomfortable. The book wavers precariously between ecological determinism (all is explained by good fortune and location) and economic triumphalism (it is what you make of the cards that you are dealt, a rags to riches narrative), and simply fails to convince.

There are essentially three problems with this book. First, Rogers is inclined towards a form of Nyishangte exceptionalism which is as historically unfounded as it is analytically weak for explaining the phenomena that he encounters in Manang. He contends that Nepal "is painfully short of entrepreneurial communities with a track record of economic success" (p 1), but what then of the Newar, Sherpa, and Thakali, each of whom have every reason to be called "entrepreneur-

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ial" and who have received considerable attention for their economic acumen? It is incorrect to suggest, as Rogers does, that "Nepal's Himalayan highlands are generally characterized by a low level of commercial activity" (p 68). Second, while deeply immersed in Manang's socioeconomic history, Rogers appears ill-versed in wider Himalayan scholarship. How else can we explain his suggestion that "it is not certain whether the use of Gurung and Ghale surnames [by the Nyishangte] actually reflects historical origins or whether these surnames were adopted…" (p 14; they are without a doubt adopted), and his statement about the word Bhotia as a term which "derives from Bhot, an old Hindu word for Tibetan" (p 88; Hindu is not a language, and Bhotia derives from written Tibetan bod)? Third, Rogers' 204 pages offer little data or analysis that can be termed genuinely new or different from earlier writings such as those by von Fürer-Haimendorf (1975 and 1983), van Spengen (1987 and 2000), and Watkins (1996). *Secrets of Manang* reads like the master's or doctoral dissertation that it is, in which the author positions himself in the field and recapitulates a lot of old ground. When Rogers rhetorically asks, on page 63, "before we begin delving into the subject of entrepreneurship, it seems reasonable to ask the question, 'why bother?'," I feel compelled to agree.

I am a committed advocate of publishing the products of academic scholarship in the countries where the research was conducted. The publishing industry of Nepal has weathered the country's recent social and political turmoil and continues to grow from strength to strength. Alongside old favorites such as Ratna Pustak Bhandar, new publishing houses sprung up in the democratic 1990s, often along with family-run bookshops, such as Himal Books and Mandala. The latter imprint now has an impressive backlist of monographs and edited collections written by foreign scholars working in the Himalayas, including the work presently under review. While the benefits of publishing in Nepal are transparent—cost, availability, and speed—there can be drawbacks, namely a questionable review process and variable quality.

Secrets of Manang occupies an uneasy middle ground, somewhere between sober academic scholarship on the one hand and more popular, even romantic, travel writing on the other hand. If readers are attracted to this style, or have found it hard to locate the far more significant works cited above, then Rogers' book has something to recommend it, if only as an overview to the socioeconomic structures of the Manangba community. If, however, readers are seeking an insightful and original commentary on one of Nepal's trading communities, they will surely be disappointed.

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Personal Views

Farming Systems Research: A Retrospect

The beginning

During the early 1970s Roberto Gonzáles, Germán Escobar, and Hiriam Tobón from the Colombian Agricultural Institute (ICA) were investigating the management of associated crops of maize, potatoes, and beans in Cáqueza (Cundinamarca) and Río Negro (Antioquia). At the time, the research process of Puebla Plan in Mexico was well underway, and actively involved groups of corn and bean farmers in their studies. Agricultural research in Latin America was now focused on the world of small-scale peasant farmers.

Many miles away, Richard Bradfield, the famous agronomist from Cornell University in the United States, had recently returned to Los Baños, in the Philippines. He demonstrated that, in tropical soils and environments, the production of cereal grain equivalent could reach 20 t/ha, a stunning amount if placed in the context of European or North American land. It was then that David Hopper, at the time President of the recently created International Development Research Center (IDRC) in Canada, and who had done his thesis research on India's Green Revolution, decided to support the initiatives of Bradfield and the ICA. He sent agricultural economist Gordon Banta to the Philippines to put Bradfield's results to the test and the scrutiny of the Batangas province farmers. The diagnostic studies and field trials that were started in the International Rice Research Institute (IRRI) station and in the Batangas farmers' fields were taken by Richard Hardwood and transformed into IRRI's Multiple Cropping Department. Thelma Paris, who later led IRRI's Women in Rice Farming Systems program, was one of the team members working in Batangas.

David Hopper had also decided to support Colombia's ICA, an institution that planned to re-focus its research services towards the needs of small-scale farmers. That was the beginning of the Cáqueza Project, dedicated to research on rural smallholder production methods in the Eastern Cundinamarca region and how these methods could be improved. These studies were both technical and institutional, and were the basis for formulating the Integrated Regional Development projects widely implemented in Colombia during the late 1970s and early 1980s.

In 1973, Gordon Banta visited the Cáqueza Project. A year later, in 1974, Richard Harwood and Gordon Banta arranged a meeting at IRRI to organize what was to become probably the first program in farming systems. It was at this meeting that Asian, Latin American, and African experiences were shared and synthesized, a process that drew on lessons from multiple cropping studies and participatory agricultural research in Latin America and Asia.

This meeting also marked the beginning of the Asian Cropping Production Systems Network. Let me remind you of the significance of this programmatic decision. At the time, many national institutions did not allow their researchers to perform their work in farmers' fields. It was not easy to convince research leaders of the need to involve farmers and other groups affected by new technology from the beginning. The fact that environmental conditions in experimental farms, particularly soil conditions, were not representative of those of small-scale farms was not often recognized either.

In brief, the 1970s were the inception point of widespread research on farms, with participation and control by farmers, to a variable degree, and with or without specially devised methodologies for this purpose. An exemplary application of the new methodologies was Peter Hildebrand's fieldwork, which began in Guatemala during the late 1970s. His work combined the well-known "sondeos" or surveys, as a means of diagnosis, with field experimentation, where the Uaxactún community farmers in the Petén actively participated. There was a similar contribution from the CATIE systems group in Turrialba, Costa Rica, but with a much greater emphasis on the inclusion of new technological components. Even though there was great progress in acknowledging the complexity of farming systems, most of the farming systems research was limited to description. Even when experiments were used, farming systems were considered as fixed, and they entered into the equation as external conditioning factors.

The 1980s

This decade saw the greatest progress and experimentation in systems research methods. Land use systems were beginning to be considered as variables in research, and therefore subject to optimization. Experimental designs changed. The concept of the extrapolation domain or recommendation domain as a sampling space changed treatment designs and the placement of replicates. The spreading of the systems approach towards Africa was an important step, as the main objective was no longer to compare treatments in the field, but to estimate their performance in a domain of potential extrapolation. Latin America's contribution to farming system programs was particularly important in the start-up of livestock systems research, such as dual purpose or mixed systems and participative research on agropastoral and silvipastoral systems. The Tropical Agriculture Research and Higher

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Learning Center (CATIE) in Central America and multiple actors in Colombia, Panama, Guyana, and Peru (Pucallpa and Puno) served as centers for methodology development and the training of scientists, many of whom later participated in farming systems work in Africa and Asia.

During the 1980s, farming system programs multiplied; Canadian IDRC (International Development Research Centre), AID in the US, and IFAD (International Fund for Agricultural Development, in Rome) supported many of them. These programs often combined system concepts differently in terms of the way farmers participated, the importance of and methods used for diagnosis, the use of ex-ante and economic analyses, understanding of the market as an important factor in research, the methods for the extrapolation of the results, and the use of simulation of processes and gender analysis. There were also differences in the scope of their objectives, most limiting technology intervention to a certain principal crop. This was evident in systems research based on corn production, "rice based farming systems," and the still existing "rice–wheat system" in Asia. Others concentrated on farm sub-systems, such as cattle farming or complex crop production systems.

This decade also saw a great deal of research done on methodology, such as diagnosis (rapid or long-run); graphic diagnostic methods to better grasp the interaction between system components, subsystems, and external factors of the farm; and methods for the extrapolation of results to other environments. The gender dynamics of rural families played an important part in these diagnoses, and many researchers, among them Thelma Paris (Coordinator for IRRI's Women in Rice Farming Systems), contributed to the inclusion of gender aspects in the analysis. Contributions made by Jacqueline Ashby, Hillary Feldstein, Cornelia Flora, and Susan Poats went beyond the methodological aspect as they established a cohort of female professionals known worldwide for their contribution to farming systems research. The methodology studies to improve users' participation in the research led to significant results, which in the 1990s showed up as Farmer Field Schools, Local Agricultural Research Committees (CIALs), and programs for the participation of contributors to the Food and Market Chain, among others.

It is evident that during this period the support of donor institutions for the research network and for regional and international conferences on farming research had an important impact. The creation by the International Rice Research Institute (IRRI) and national programs of the Asian Cropping/Farming Systems Network (initially crops and later crop/livestock) was an important step, strongly supported by the IDRC of Canada, and the IFAD. The support of US-AID and of the Universities of Florida, Kansas, and Colorado State, was of great help in organizing the series of conferences on Farming Systems Research, which grew out of the Farming Systems Support Program (FSSP). The work of Peter Hildebrand, and of W.W. Shaner and P.F. Phillips contributed to the integration of concepts and the preparation of teaching materials. Beyond that, the regional symposiums in Asia, Africa, and Latin America, and the Global Conferences supported by FAO and IFAD had a similar effect on conceptualization and sharing of experiences. In this process of systematizing experience, the variation of achievements and methodologies, and the variability in the ways in which the networks and conferences were configured, contributed much to the evolution of methodologies, the definition of objectives, and the extension of methods and results. The financing and conceptual support of these networks by IDRC, US-AID, IFAD, and ACIAR (Australian Centre for Agricultural Research) has been essential to the development of these methodologies.

During this decade we also witnessed important early cases of impact from farming systems research (FSR), including the success of the Puebla Plan in increasing corn and bean production; the expansion of vegetable farming and increase of corn and potato productivity in Cáqueza; double-rice cropping and sequential rice–bean crops in Asia; and the improvement of dual-purpose cattle enterprises in Latin America. All benefited more than would have been possible through single crop studies or research on individual farming enterprises. There was also a great impact on the methods of improving varieties and integrated crop management, research areas that were quick to adopt farming systems methods. In fact, we have not done enough to stress the importance of these FSR successes, which are often mistakenly attributed to crop improvement research.

By the end of the decade FSR methodology had reached such a level of acceptance that the great majority of international and regional agricultural research centers had adopted this research focus for most of their programs. The most outstanding was its adaptation as a basis for research programs of the World Agroforestry Center (ICRAF), the International Livestock Research Institute (ILRI), and the World Fish Center (ICLARM). All of these institutions followed the pioneering steps of the International Rice Research Institute (IRRI), the International Maize and Wheat Improvement Center (CYMMIT), and early efforts of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

Although most of the controversies arising from the FSR methodologies had been solved,

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some areas still needed improvement. One was the interrelation between the use of surveys and the associated ex-ante evaluation and on-farm experimenting with alternative systems and their technological components. There were also important challenges in the development of methods for the extrapolation of results, both in the biophysical sense and in the participation of the communities involved. A great many of these subjects were dealt with in the following decade, with advances made in methods for community and institutional participation, a greater capacity for modeling and simulation of complex systems, and the integration of economic evaluation and sustainability concerns in the research process.

The 1990s

The 1990s brought an important change in farming systems research. *The Brundtland Report*, and *Agenda 21* a few years later, boosted a series of analyses and methodological studies to respond to the need to efficiently incorporate environmental issues and the sustainability of use of natural resources into systems programs. With these added requirements, the system under study became so complex and multifaceted that new methodologies and instruments for measuring and optimization were required. Initially, there was a danger of dividing rural development problems into 2 aspects. One was efficiency and productivity and the other was associated with the environment and natural resources. Fortunately, it is now universally accepted that both these aspects form an integral part of responsible development and that they must be treated holistically.

Furthermore, formulation of the ecoregional concept by the Consultative Group on International Agricultural Research (CGIAR) and the International Centers it supports managed to better define the focus for systems research as applied to the use of resources based on predominant ecologies associated with a geographical region, such as the Sahel region in Africa, or the Andean Forest Margin Region (*Ceja de Selva*) in Latin America. This ecoregional concept and the emphasis on natural resources also encouraged consideration of environmental aspects and the way external factors could be internalized as a potential solution to land management.

The Ecoregional Fund, established in the Netherlands under the initiative of Rudy Rabbinge, Johan Bouma, and myself, resulted in conceptual stimulus and financial support for the creation of tools such as "Trade-off Analysis," multiple goal optimization, and methods for the use of remote sensing in combination with process modeling and field trials as part of a systems diagnosis. All of these were significant advances which built on years of Dutch support for the application of analysis and modeling to agricultural systems research in Asia. They led to improvements in the extrapolation of results at different scales as well as the optimization of multiple objectives—eg productivity, sustainability, and health. They are also reflected in the activities of the Consortium for Sustainable Development in the Andean Ecoregion (CONDESAN), in the forms of community participation, decision-making processes, and formulation of policies related to management of biodiversity, soil, and water resources. It is now evident that it is no longer only the farmer's family business that must take part in participatory research; the community, at a social and regional scale, must be included as well.

There have been outstanding study results regarding community participation, including the Farmer Field Schools, the Committees for Local Agricultural Investigation (CIAL), and the participation of contributors to the Food and Market Chain. I am impressed by the evolution in these participatory methodologies towards inclusion of environmental subjects (for example: the Randi Randi Group work done on water resources in Ecuador, the new Global Environmental Facility (GEF)-supported Páramos project), and the incorporation of food and market chains in the analysis. These aspects warrant more attention in the years to come. There is also a need to strengthen methodologies for business development and how to better use food chain analysis for the identification of research access points.

In this context, the International Potato Center (CIP) has stood out in its response to the challenges presented by traditional research systems and the limited participation of the community in the improvement of natural resources management (as, for instance, in the case of integrated pest management or IPM). In the 1970s, CIP used the "Farmer Back to Farmer" model, in the late 1980s and 1990s it stressed the importance of user participation in research (UPWARD). Its IPM and more recent ICM (integrated crop management) programs used the Farmer Field Schools as a mode of participation. For natural resources research and associated policy development, various participatory models were applied, such as the stakeholder round tables (*mesas de concertación*) and harmonizing meetings, at the local government, community, or national level; institutional participation in local and regional consortiums; and user participation in the market chain.

These subjects still make up most of the methodological research and implementation of the results in production systems improvement. Solutions are still required to the institutional challenges presented by ecoregional research methodology. At the regional level there is inefficient use of the installed capacity of academic institutions. Better use

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should be made of the capacities in NGOs and private business ventures. The initiatives in enterprise development and monetizing environmental services taken by CONDESAN are examples of advanced experimentation to address these institutional challenges. Progress in postgraduate farming system programs made at the University of Caldas is an example of the important contributions made by academic participants.

I would like to dedicate a few words to CONDESAN, a still incomplete institutional experiment, but one with very positive initial results. There is still much to be done to achieve effective integration of the International Centers' capacities. Fortunately, the national members are sharing methodologies. I am very pleased to see how, from Pueblo Llano in Venezuela down to Jujuy in Argentina, there is active participation throughout the creation of a new CONDESAN Road Map, along with a subsequent sharing of information and results of this complex task. Here, Consortium members agree on 2 main regional thematic subjects that will be enriched by members' studies and experiences. The themes are "Integrated water resources management" and "Innovations in farming methods that give value to the riches of Andean biodiversity." I believe that this Navigation Chart will pull together contributions by CONDESAN's numerous gifted members to strengthen a multi-institutional consortium of ample scope and participation.

Year 2000 onwards

In the first decade of the 21st century we find other challenges that no doubt will imply changes in methodology and forms of participation. One of these is human health as a main component of the system and its objective structure. Here it is important to stress the links between environmental health and human health (ecosystem health), and their impact on the farm community's production capacity and its ability to manage natural resources. These projects place people more at the center of objectives and research and development activities. Many demand intervention in the area of local and national policies. Ways to get necessary changes in these policies should be based on knowledge acquired through participatory research and stronger institutional alliances.

Other issues that need attention are the study of forms to negotiate, structure, and manage institutional interaction and participation. Experience from the Red de Metodologías de Investigación de Sistemas de Producción (RIMISP) and CONDESAN demonstrates how important it is that participants understand differences in each other's institutional objectives and their commonalities, the importance of having a clear understanding of the rights and obligations of cooperation between members, and accountability to each other and to their institutions. Because of the multi-sectoral characteristics of land management research, the rules of the game need a great deal of attention and we lack a compilation of experience. These institutional studies of ecoregional research programs have received inadequate attention in the past; the absence of successful models is causing a bottleneck in the successful implementation of those programs.

Finally, I see a perfect opportunity for farming systems methodology to support studies of urban and peri-urban agriculture. This is where we find all the multi-sectoral characteristics of production, business, human and environmental health, and group participation in a concentrated form. It is the close proximity of production, waste, health, policy, and environmental processes as well as the dynamics of affected groups, that make the application of systems research approaches highly desirable for these programs.

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