

## **Shifting Agriculture in Asia: Implications for Environmental Conservation and Sustainable Livelihood**

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## Shifting Agriculture in Asia: Implications for Environmental Conservation and Sustainable Livelihood

Edited by K.G. Saxena, Luohui Liang and Kanok Rerkasem. Dehra Dun, India: Bishen Singh Mahendra Pal Singh, 2007. xvi + 460 pp. Rs 1495, US\$ 50.00–75.00. ISBN 978-81-211-0602-3.

This volume, which is likely to be of interest primarily to specialists on the northeastern hill region of India, is a conference proceedings masquerading as a book. It presents a diverse collection of 33 chapters; most are focused on some aspect or another of shifting cultivation, but some deal only with forests or homegardens. Three-quarters of the chapters are about India; three of the remaining chapters are on Yunnan, China; two cover Laos; and one each discusses Burma and northern Thailand, while a concluding chapter examines some key problems relating to shifting cultivation. Given the unbalanced geographical coverage of this collection, it would have been more fair to prospective readers if its title had clearly indicated that the volume was mostly devoted to shifting cultivation in the northeastern hill region of India, with a few chapters on other randomly selected places in montane mainland Southeast Asia.

The volume would have been greatly improved if the editors had exercised a heavier hand, since there is considerable redundancy in the chapters dealing with northeastern India. Does the reader really need to be repeatedly informed that shifting cultivation is a “primitive system,” that shifting cultivation is synonymous with slash-and-burn or swidden agriculture, or that “*jhum*” is the local name for shifting cultivation in northeastern India? These chapters also present sometimes contradictory

estimates about the area of the land that is impacted by shifting cultivation and the number of people who depend on it for their livelihood. It would have been a service to readers if the editors had summarized such statistical information in an introductory chapter.

The individual chapters are mostly short and vary greatly in quality: a few are quite interesting; many are rather tedious case studies of shifting cultivation in specific local communities, mostly based on government statistics, household surveys, and Rapid Rural Appraisal (RRA)/Participatory Rural Appraisal (PRA); and several might better have been omitted. None of the chapters makes a particularly innovative contribution to our understanding of shifting cultivation as an agricultural system, although some do present useful new information about the cultivation practices of specific ethnic groups. For example, the description of the “*bun*” system employed by the Khasi ethnic group in India’s Meghalaya state (see Chapter 24 and Box 2 in Chapter 7) will be of interest to those seeking ways to intensify swiddening. This is an innovative modification of slash-and-burn cultivation, adopted in response to growing land scarcity and shortening fallow periods. After the slashed vegetation in a newly cleared field has dried, earth is piled on top of it before it is burned. This process makes more efficient use of the limited energy content of the small available supply of biomass to heat the soil, which is then used to grow vegetables in raised beds. Yields are good, but, unfortunately, because the beds run vertically up and down hillslopes, erosion is unsustainably high. The *bun* method seems to resemble the “burnt earth” method employed by Chinese market gardeners in Malaysia, in which heating the soil increases the availability of phosphorous to the crop plants. The authors do not mention whether this process generates charcoal, which can also enhance soil fertility, as in the case of the “terra preta” anthropogenic soils in the Amazon that are

currently attracting considerable scientific attention. Indeed, the potential of modifying slash-and-burn techniques to maximize the yield of “biochar,” which can both improve crop yields and sequester carbon to help control global warming, is a topic deserving of further investigation.

A few other chapters seem to this reviewer to be worthy of special note: Chapter 12, by Shimrah et al, presents an interesting comparison of how different types of agroecosystems (paddy, swidden, plantations, natural forest) within the same landscape ecosystem in Arunachal Pradesh state of India differ in terms of sustainability and risks; Chapter 22, by Yimyam et al, reports on some promising farmer innovations to intensify swidden productivity in northern Thailand; Chapter 30, by Tanaka et al, examines the differential impacts on shifting cultivation of land allocation in several communities in northern Laos; and Chapter 32, by Kerkhoff et al, reviews the often conflicting impacts of multiple government forest conservation policies in India’s northeastern hill region.

In their concluding chapter, the editors and associates present some interesting thoughts about shifting cultivation in relation to environmental conservation and the livelihoods of local communities. They point out that, in many parts of northeastern India and montane mainland Southeast Asia, shifting cultivation is complementary to other land uses (eg paddy fields, homegardens, forests) within a single complex landscape system, rather than being a wholly separate agroecosystem that exists in opposition to these supposedly more advanced forms of land use, as is often thought by government officials. Such “composite swiddening,” as I have elsewhere labeled this complex type of agroecosystem (eg Rambo 1998), is actually quite widely distributed in the mountains of northern Vietnam, Laos, and Myanmar. The editors also make the counterintuitive point that traditional fixed field agriculture

may be every bit as dependent for its sustainability on natural ecosystems as is shifting cultivation. Thus, maintaining the productivity of a permanently cultivated field of 1 ha in the Himalayas requires fodder collected from 9 ha of forest to feed the livestock that produce the manure needed to maintain crop yields, whereas a relatively sustainable swidden system in the same area would have 1 ha under cultivation with 9 ha under forest fallow, so that the ratio of cultivated land to uncul-

tivated land is identical in the two systems. Finally, they examine some weaknesses of both indigenous innovations and development policy interventions in shifting cultivation areas. It is clear from their review, as well as many of the individual chapters, that there are no “magic bullets” to solve the problems associated with shifting cultivation in Asia.

#### REFERENCE

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northwestern mountains of Vietnam. In: Patanothai A, editor. *Land Degradation and Agricultural Sustainability: Case Studies from Southeast and East Asia*. Khon Kaen, Thailand: Southeast Asian Universities Agroecosystem Network and Khon Kaen University, pp 43–64.

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