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## Managing Renewable Natural Resources in Mountains – Generic Issues and Programme Approaches

Photo:

**Woman carrying manure**

Hilde Helleman, 2003

# 1 RENEWABLE NATURAL RESOURCES MANAGEMENT FOR MOUNTAIN COMMUNITIES – Editors' Introduction

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## Introduction

The renewable natural resources of mountains and hillsides are fragile and precarious and this makes them sensitive to changes imposed by human land use, local environmental conditions, and external factors such as conflicts and political instability. The Hindu Kush-Himalayas (HKH) is a prime example of how harsh biophysical conditions combined with political uncertainty and poverty can create significant challenges to development.

In Nepal, more than 12 million people in the mid-hills subsist on hillside-terraced land-holdings of less than 0.5ha. Heavy rainfall and poor soil and water management practices are eroding the soil and soil fertility is declining as nutrients are lost through leaching. If farming livelihoods are to be protected then alternative farming practices are urgently needed that help to conserve water, soil and fertility in these marginal and fragile hillside environments. These are not new problems, yet current research, knowledge and practices have not solved them. The technologies are available but many farmers have not adopted them in spite of their demonstrated effectiveness in reducing runoff and controlling erosion.

These challenges are not insurmountable. A conference<sup>3</sup> on natural resources management on hillsides in 1999 helped to set a new agenda for research. It laid the foundation for a major change in emphasis from developing new technologies to understanding and promoting the conditions for their uptake and impact on livelihoods and poverty through better management of natural resources. There is now a growing body of research experience in the HKH to show that renewable natural resources on mountains and hillsides can be managed effectively and sustainably and this is supported by comparative research in the Andes and the African highlands.

To address these issues, the Natural Resources Systems Programme (NRSP) of the Department for International Development (UK) (DFID) and the People and Resource Dynamics in Mountain Watersheds of the Hindu Kush-Himalayas Project (PARDYP) of the International Centre for Integrated Mountain Development (ICIMOD), based in Kathmandu, organised two events.

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<sup>3</sup> Hillsides Conference at Silsoe College, Cranfield University, UK in 1999. The proceedings were published in *Mountain Research and Development* 19(4).

The first event was a 2-day public symposium on Renewable Natural Resources Management for the Hindu-Kush Himalayas held on 24-25 February 2003 in Kathmandu, Nepal. The objectives were to:

- bring together key stakeholders (policy makers, aid agencies, researchers and related professionals) in renewable natural resources research in Nepal from various agencies and institutions and to provide a forum for comparing experiences in other countries;
- disseminate the major findings and policy implications of renewable natural resources management investigations conducted in the HKH region from ICIMOD and NRSP sponsored research; and
- compare the findings with those from hillsides research undertaken in mountainous areas in Africa and South America.

The second event followed immediately after the public symposium. This was a 3-day research workshop on Natural Resources Management for Mountain Communities held in Pokhara, close to the Nepal Agricultural Research Council Agricultural Research Station at Lumle. The objectives were to:

- examine the ICIMOD and NRSP research agendas for mountains and hillsides;
- present and compare research methodologies and results related to renewable natural resources management; and
- identify further investigations needed to deliver outputs that meet the needs of all stakeholders.

Hanspeter Liniger



Sheep on hillside terraces

This workshop was primarily for researchers interested in sharing experiences and discussing a new agenda for research. The core of the workshop was a 2-day visit to sites in the western mid-hills of Nepal where participants interacted with local villagers and were able to see the results of a NRSP funded project on soil and water management on land terraces at Bandipur and Landruk.

## Symposium and Workshop

The symposium and research workshop provided opportunities to disseminate key research findings to interested stakeholders, nationally, regionally, and internationally, and to discuss future agendas in renewable natural resource management with a view to informing current developmental debates on sustainability, livelihoods, poverty reduction, food security, and environmental change. These are not only biophysical problems but also challenges to society to promote the social and economic conditions whereby local people can manage their resources more effectively.

The papers and subsequent discussions presented in this publication therefore, feature a wide range of issues from the generic and programmatic through to techniques and tools arising from natural resources management research. The publication is divided into three parts.

### *Part 1 Generic issues and programme approach*

This part sets out the programme mandates of PARDYP-ICIMOD (Chapter 2) and NRSP Hillside (Chapter 3) and develops their core generic issues.

### *Part 2 Case studies and thematic topics*

The case studies presented in Chapters 4-7 focus on the role of participatory decision-support systems for developing and promoting improved hillside farming strategies relevant to the needs of marginal farmers. They describe the substantial research work undertaken on soil and water management in the mid-hills of Nepal and the participatory techniques for developing more appropriate technologies. Some of this work was pioneered at Bandipur and Landruk – the sites visited during the research workshop.

Chapters 8-10 address thematic topics that come principally from PARDYP and examine a range of natural resource management issues such as water management, common property management, and land rehabilitation. These illustrate both the range and the depth of the research undertaken in the PARDYP research watersheds; although the papers are country specific the aim was to draw conclusions relevant to the HKH region as a whole.

Chapters 11-15 address techniques, tools, and intervention methods used to deal with declining soil fertility as a means for local professionals and rural communities to identify 'best bet' and 'win-win' natural resources-related techniques and target them to poor households. This includes experiences in hillside research from Nepal, Bolivia, and Uganda.



Orchard terrace

Chapters 16-19 investigate approaches and the issues of scaling up pilot research experiences to the wider community and links to policy. This draws on experiences from Nepal, Bolivia, and Uganda.

### *Part 3 Synthesis and looking ahead*

Chapter 20 draws together the main findings of the case studies and the thematic contributions. Chapter 21 looks ahead. Its purpose is to provide a platform for a new generation of research projects devoted to bridging the gaps in the current projects.

## The Sponsors

The symposium and research workshop were sponsored by NRSP and ICIMOD.

The Natural Resources Systems Programme (NRSP)<sup>4</sup> is one of the ten research programmes funded by the British Government's Department for International Development (DFID) in its renewable natural resources research strategy. This strategy aims to generate benefits for poor people by the application of new knowledge to natural resource systems; knowledge which will enable poor people, who are largely dependent on natural resources, to improve their livelihoods and move out of poverty in a sustainable way. NRSP's research covers the social, economic, institutional, and biophysical factors that influence people's ability to use and maintain the productive potential of the natural resource base over a relatively long timeframe.

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<sup>4</sup> [www.nrsp.org.uk](http://www.nrsp.org.uk)

The International Centre for Integrated Mountain Development (ICIMOD) is devoted to the development of economically and environmentally sound mountain ecosystems and to improving the living standards of mountain populations, especially in the HKH region. ICIMOD and NRSP work together on the People and Resource Dynamics in Mountain Watersheds of the HKH Project (PARDYP), whose goal is to contribute to balanced, sustainable, and equitable development of mountain communities and families in the HKH region. PARDYP is funded by the Swiss Agency for Development and Cooperation (SDC), the International Development Research Centre (IDRC) (Canada) and ICIMOD.<sup>5</sup>

ICIMOD and NRSP have complementary interests in promoting sustainable development and tackling poverty and related livelihood issues through the better management of natural resources. ICIMOD has a regional mandate for integrated mountain development and NRSP, within its Hillside systems project portfolio has an emphasis on Nepal, Uganda and Bolivia. ICIMOD and NRSP have accumulated substantial research experience and findings on renewable natural resources management in the HKH region, which includes soils, water, land and associated aspects of people's livelihoods. Similarly, PARDYP focuses on people and their interaction with natural resources, networking and learning from regional experiences.

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<sup>5</sup> [www.pardyp.org](http://www.pardyp.org) and [www.icimod.org](http://www.icimod.org)

