International Centre for Integrated Mountain Development

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Impact of ICIMOD

One of the key questions I am often asked is the level and kind of impact that ICIMOD has on sustainable development in the Hindu Kush-Himalayas (HKH). The great challenge we face is well reflected in ICIMOD's primary mandate *"to promote the development of an economically and environmentally sound mountain ecosystem* [stretching over more than 3,500 km] *and to improve the living standards of* [120 million] *mountain people"*. It is clear that ICIMOD is not able and will never be able to reach out in such a way as to directly impact the livelihoods of all these 120 million people. However, out of the numerous studies; hundreds of workshops, seminars; and training courses; and the increasing number of field demonstration sites in which ICIMOD is engaged, three major types of impact have emerged.

Policies

ICIMOD has been a prime mover over the last few years in promoting policies that specifically address the mountain-specific problems and opportunities of its regional member countries. A good example is Agenda 21 for Sustainable Agricultural Development in Xizang (Tibet) Autonomous Region, which was presented at the Second Round Table on China Agenda 21 last month. This document, which was formally adopted by the government of Xizang Autonomous Region and included in the Priority Programme for China's Agenda 21, is now the primary policy document on sustainable agriculture in the Autonomous Region. ICIMOD, in collaboration with the Institute of Geography, Chinese Academy of Sciences, played a facilitating and supportive role in the process of preparing the document. ICIMOD, in equally effective ways, played a decisive role in Nepal's Agricultural Perspective Plan, Himachal Pradesh's Tourism Policy, and other mountain development concerns throughout the region in which "ICIMOD" concepts have been used.

Technologies

Institutions in the region also look to ICIMOD as a source of information on technologies that are adapted to mountain-specific situations. Mountain risk engineering, developed and promoted by ICIMOD, is one such technology. It helps to limit the risks to man-made disasters so often associated with building roads, irrigation channels, and other infrastructure. The technology and training packages developed by ICIMOD are highly appreciated and are being increasingly adopted throughout the region. Similarly, the technologies for soil conservation, soil fertility improvement, and rehabilitation of degraded lands that are currently being tested on some 15 sites under different conditions are providing hope that the trend of physical deterioration in the environment can be reversed. The introduction of Geographic Information Systems' technology has provided national and local institutions with a powerful tool for regional planning and a basis on which other decisions can be made.

Awareness and Capacity Building

The most important impact ICIMOD has had is perhaps the accumulation of knowledge and experience that has been built up in ICIMOD's partner institutions throughout the region about many different aspects of sustainable mountain development. Over the years, hundreds of professionals have been exposed to the mountain perspective of their particular profession or sector through which crucial amount of expertise is now available throughout the region.

File Photo

School and work - improved livelihoods?

Improved Livelihoods?

Through these various processes we are confident that, eventually, the livelihoods of individual households can be improved. ICIMOD is the first to acknowledge that it cannot do so on its own. It is only through national and local institutions, both government and non-government, that change can be accomplished. Bringing the integrated mountain perspective into local and national development plans and programmes will need continuing refinement, adaptation, and commitment. ICIMOD is willing to do this. The 120 million custodians of and dependants on the HKH environment deserve our continuing efforts to realise a positive impact of our work on their livelihoods.

Egbert Pelinck
Director General

In this issue

Water Resources' Management for Mountain Households in the HKH

S.R. Chalise

S. R. Chalise

Water storage near crop lands

Despite the fact that the Hindu Kush-Himalayas are the largest storehouse of fresh water at lower latitudes, for the bulk of people inhabiting these mountains, year-round availability of water is a major problem. They receive either too much during the few months of monsoon or too little for the rest of the year. They have faced these seasonal excesses and scarcities of water since time immemorial.

Development and management of water resources in the Hindu Kush-Himalayan (HKH) Region have been, so far, primarily focussed on power generation and/or irrigation water for the plains and urban and industrial supply. Hence, major investments so far have been directed towards the construction of mega- or medium-scale hydel plants and irrigation systems. Accordingly, the systems and institutions that have developed for the storage and management of water resources, as well as knowledge and technology for harnessing water resources, have been primarily concerned and geared towards the ever-increasing needs of the plains and urban areas. Although the importance of mountain areas as primary sources of water has been accepted, the priority given to the plains in development planning have largely ignored:

- **the water requirements of the mountain communities** in the headwater regions as well as the need to provide them with a fair share of the benefits flowing out of water resource development projects, and
- **the need to improve understanding of the hydrology of the headwater regions** which not only influence the natural hydroclimatic and biogeophysical processes but also the human activities in the upper watersheds.

A closer look at the performance and life of water resource development projects in several countries of the HKH has revealed various problems. These include lower than projected performances and benefits as well as reduced lifetimes. Many of these were not anticipated and could be attributed to ignorance of the above two aspects while designing them. For example, throughout the HKH, higher than estimated rates of sedimentation in the reservoirs have seriously affected their storage capacity as well as the performance of water resource projects. Such higher sedimentations are found to be contributed by both natural and human processes, although exact quantification of their individual contributions has been difficult.

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Nevertheless, depending upon available resources and local ingenuity and skills, mountain communities have developed diverse strategies and systems for the management of water, in order to meet their needs for water for household consumption and irrigation in accordance with their local climates and biogeophysical conditions. These indigenous systems of water management, though widely variable, from the largely arid west to the mostly wet east of the HKH region, exhibit some common features. They are systems that can respond to the primary and critical needs for water for local community and facilitate strong community participation and/or support in the management of such systems. They are also geared to meet the water needs of individual households in the local community. Thus, local ingenuity and skill have been applied over the ages to store and use water to meet year-round needs and to develop agricultural systems with cropping patterns, as dictated by local water availability. All over the HKH one can see intricate irrigation channels which use both perennial and seasonal sources to meet irrigation needs. These channels are constructed, operated, managed, and repaired by local communities. Similarly, drinking water systems, based on local springs, and groundwater for community consumption are found even in the most remote mountains. Although it is not well recorded how these skills were developed and shared between communities inhabiting different parts of the HKH, the presence of water mills with horizontal wooden turbines, which are still in use in many parts of the HKH, indicates that skills and knowledge of use and management of water were widely shared by the mountain communities across the mountains.

Most of these indigenous systems have coped with and survived through the inter-annual variation of climate, particularly changes in the intensity of rainfall, as well as social and economic transformations which have occurred locally. However, mountain communities in the HKH have been undergoing rapid social and economic transformations, particularly over the last four decades. Excessive increase in population has occurred, along with growing accessibility to surface and air transport and consequent changes in settlement patterns; usually movement to lower altitudes and settlement on lands prone to flooding and vulnerable to landslides and debris flows. Growing accessibility of mountain areas, and uncertainty about the possible impacts of global warming and climate change on local water resources, have made indigenous water management systems not only more vulnerable but also grossly inadequate in the context of meeting the present and future water needs of mountain people. It is also seen that people living in small watersheds are more vulnerable and unable to cope with the disasters unleashed by extreme weather events (particularly intense rainfall) which cause widespread damage to existing water management systems, triggering landslides or debris flow or flooding. It is also seen that the frequency of such disastrous weather events is on the increase in the HKH.

For example, according to a recent ICIMOD study, the upper watersheds of the Bhotekoshi and Sunkoshi in Nepal experienced major disasters due to intense rainfall in 1981, 1982, 1987, 1988, 1990, 1993, 1995, and 1996. Intense and continuous rainfall (521 mm, 90% of the annual) between 4 and 5 August 1996 in the Taihang mountains in Hebei Province caused widespread loss of life and property and damage to infrastructure. Reports expressing increasing occurrences of extreme weather events and the consequent damage caused by flood, landslides, and debris flow are available from many parts of the HKH. Considering the impact of such events on the hydrological regime of the upper watersheds, it is also extremely important to develop an adequate understanding of the hydrology of such watersheds, so that future programmes and projects for water resource development for mountain communities are developed on a sound scientific footing.

Dr. S. Malik

Donkey work - fetching water

Considering the high risks and uncertainty which have to be faced by mountain communities across the HKH in managing and developing their local water resources, and to ensure supplies of water to individual mountain households in the future, there is an urgent need to identify, develop, and implement appropriate policies and programmes for the management of local water resources in close partnership with local communities. ICIMOD, in close collaboration with UNESCO/IHP (International Hydrology Programme), World Meteorological Organisation, and its Regional Member Countries, has been actively involved, since the early 90s, in developing a better understanding of hydrological processes in small watersheds of the HKH through the establishment of a regional network for hydrological research. These organisations, together with the ICIMOD Member Countries, the German IHP/OHP Committee, and the Slovak IHP Committee, organised a Regional Workshop on Hydrology of the Hindu Kush-Himalayas, on 23 and 24 March 1996, in Kathmandu. The Workshop launched a FRIEND (Flow Regimes from International Experimental and Network Data) type project for the HKH Region, namely HKH-FRIEND, which hopefully will help to develop water resource management systems geared to the needs and priorities of mountain households on a sound scientific basis.

ICIMOD's programme on water resources' management has taken note of and also been guided by the following four principles recommended by the 1992 Dublin Conference on Water and Environment which was a precursor to UNCED 1992.

- Fresh water is a finite and vulnerable resource, essential to sustain life, development, and the environment.
- Water development and management should be based on a participatory approach, involving users, planners, and policy-makers at all levels.
- Women play a central part in the provision, management, and safeguarding of water.
- Water has an economic value in all its competing uses and should be recognised as an economic good.

In addition, ICIMOD is currently engaged in developing a regional programme on the management of water at the community level which is geared to the needs of individual mountain households, and which will be developed and implemented in close partnership with local communities.

A Regional Workshop on Water Harvesting is also planned to be organised in April 1997 in Chengdu, Sichuan, in collaboration with the Chengdu Institute of Mountain Hazards and Environment of the Chinese Academy of Sciences.

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Environmental Repercussions of Development in Pakistan

Extreme Poverty Compels Local Communities to Sell Their Trees

Syed Jamaluddin

Pakistan's forests can be divided into four main categories. Alpine forests are situated in the high mountain region, at altitudes of between 2,000 and 3,500 metres; subalpine forests are those in the foothills of the mountain, in the monsoon zone; riverine forests are located in the Indus plains; and mangrove forests are situated along the coast and in river estuaries. In addition, there are man-made irrigated forest plantations covering over 120 thousand hectares in the Sindh and Punjab provinces and scrub forests and dry tropical forests in the western highlands and desert areas. The alpine or coniferous forests and subalpine forests cover about 30% of the total area. They are mostly under the administration of the Forest Department of Pakistan.

The Forest Act of 1927 (the gift of Whiteman), which is still in force in Pakistan, governs the ownership and use of forests. In addition to the general provisions of the 1927 Act, each class of forests has a separate set of tenure and usage rights attached to it. In the case of tribal forests, they are owned outright by the local community, which has the right to decide, on the basis of a 60% majority vote, how they are to be exploited. However, the Forest Department extracts a royalty on felled timber, half of which goes to the community and half to the department for its management costs. The royalty is paid by the contractors who enter into an agreement with the community. The contractors are also required to replace felled trees with seedlings of the same variety - a rule seldom observed.

The state-owned reserved forests are administered and managed by the Forest Department, which issues permits for their exploitation and levies a royalty on felled trees. Permits may be issued to right-holders for domestic requirements at a lower royalty, or to contractors for other interventions in these forests. The forests which formerly belonged to the feudal rulers, such as those in Swat, Dir, and the feudal princedoms of the Northern Areas, are now owned by the State, but the traditional right-holders are allowed to continue using them as before. Instead of applying to the feudal authority for permission to fell timber, they must now apply to the Forest Department. The department also has the responsibility of managing the forests and for reforestation.

Heavy deforestation has taken place in the past decade in all classes of forest, facilitated by the construction of roads. Uncontrolled exploitation, combined with heavy grazing pressure and the clearing of land for cultivation, has resulted in the almost total depletion of forest resources in Pakistan. The increased demand for timber has meant added pressure on natural forests, and heavy felling has taken place where tracts of natural forest lie close enough to a road to make it profitable.

Uncontrolled exploitation, combined with heavy grazing pressure and the clearing of land for cultivation, has resulted in the almost total depletion of forest resources in Pakistan.

The coniferous forests are the most important in relation to the conservation of both soil and water resources; the maximum amount of soil erosion, which silts up the components of the irrigation and hydroelectricity systems and causes flooding of the plains, takes place in the geologically-unsettled high mountain region. These forests are also the principal source of commercial timber in the country. Riverine forests play a comparable role in preventing silting from agricultural lands in the floodplains of the Indus river and in protecting the river banks from erosion. Similarly, the mangroves protect the coastline and are the nursery of marine life in the delta region. The scrub forests are used locally as fodder for animals and for firewood.

Deforestation in Pakistan

Deforestation in the regions that constitute Pakistan is not a recent phenomenon. However, it has accelerated in the past century, and, in the last 75 years, forest cover has decreased from 14% of the land area to 5.2% . Between 1974 and 1985, timber supplies from state forests declined by 45%. The greatest damage has occurred since the First World War. Efforts at afforestation and attempts at watershed management have not kept pace with increased demand and excessive cutting and overgrazing.

Reasons for Deforestation

Traditionally, in Pakistan, forests have been community property and considered a part of *shamlaat* (community land) or *gowcher* (cultivated) lands. However, through various legislative measures, the colonial state took over the majority of forest areas in the country. When administered by the feudal authority or community organisations, timber from these forests was primarily for the use of community members or their dependent artisan classes. Since traditional rural culture was limited by poverty, and therefore conservationist by nature, wastage was discouraged and needs were modest.

The taking over of large tracts of forest by the colonial state coincided with a considerable increase in the population of the country. After independence, this growth increased even further, especially in the urban areas. To meet the housing and fuel needs of the increasing population, especially in the urban areas, state forests were auctioned to contractors for commercial exploitation. In addition, a capitalist consumer culture was replacing the old subsistence system, and thus timber needs per capita increased substantially.

Forests have been taken over by the communities in line with the break-up of the old social economy; a break-up which led to encroachment and forced occupation of community lands. Forests were also taken over in a similar manner by powerful individuals or groups and their commercial exploitation became possible. This process is continuing in Pakistan and needs intervention by the Global Environment Facility as soon as possible, since private forests supply 78% of the locally-met timber demand. It is indeed alarming.

The development of the canal colonies for cultivation in the provinces of Sindh and Punjab was accompanied by the clearing of hundreds of thousands of hectares of riverine scrub and thorn forests in the Indus plains. Not even a fraction of this loss has been made up by tree plantations along the canals or through the irrigated forest plantations that have taken place. In addition to the clearing of forests for agriculture, large areas of traditional, community-owned grazing grounds have been brought under cultivation as a result of encroachments in the *barani* (irrigated) areas and colonisation through the expansion of the irrigation system. The livestock population has also increased substantially; between 1976 and 1986 alone, livestock increased from 66.1 million head to 87.23 million head. As a result of these two factors, the pressure on pasture land is increasing. This overgrazing is leading to loss of vegetative soil cover, followed by erosion and the loss of topsoil. In addition, excessive grazing of certain species palatable to animals means the selective loss of valuable plant types and their replacement by non-edible competitors. Overgrazing also means that new tree growth is damaged and restricted as goats tear off young bark and leaves in search of fodder.

The extreme poverty and hardship of life in these remote areas have meant that the local communities have seized this opportunity to earn a substantial income in a short span of time by selling their trees to down-country contractors.

It is estimated that 90% of all wood consumed in Pakistan is for fuel. According to the housing census of Pakistan (1980), 79% of rural and 48% of urban households use wood for cooking and heating purposes. Fuelwood alone provides 50% of the domestic sector's total energy requirements. The seriousness of the shortage can be gauged from the fact that fuelwood prices have increased 4.5 times between 1970 and 1980. In addition, by the year 2000, Pakistan's fuelwood needs are expected to increase by 100%. On the other hand, since 1975 private forest production has increased by only 1.3% per year and state forest production by only 1.8 %. Meanwhile, timber imports have increased by 5.2% annually during this period. However, this imported timber is not used for fuel purposes but for construction.

Repercussions of Deforestation

The increase in the price of building timber is already adversely affecting the quality of housing in the country, and the scarcity and cost of fuelwood is becoming a major economic burden on low-income communities. As a result, gas cylinders are in great demand, even in rural areas, as their monthly cost is less than half that of fuelwood. One of the most visible, and perhaps the most significant, impacts of deforestation is soil erosion. The mountain regions where the majority of natural forests are located are characterised by steep slopes, fragile and thin topsoil, and unstable geological conditions. When tree cover is removed, there is nothing to stop the soil from being washed away by even mild rainfall. In addition, landslides and rockfalls, which occur frequently in spring as a result of melting snow and ice, are exacerbated by the absence of tree cover.

Vast areas of the Karakorams and Hindu Kush are naturally arid and barren, and little can be done to prevent or control soil erosion in these areas. But the historically heavy silt load of the Indus, which flows through these mountains, is being augmented now by large quantities of valuable topsoil swept off the slopes of the foothills and lower mountains in the monsoon zone. This erosion has a dual impact on the environment; it leads to desertification of once productive upland areas and silting up of irrigation and hydroelectric systems, lowering their efficiency and shortening their lifespans.

The building of roads is probably the single biggest factor contributing to rapid deforestation. Previously inaccessible mountain areas, like the Kohistan district of the North West Frontier Province of Pakistan, have in the last 20 years been connected to the plains by major roads. Transportation facilities have made the logging of these rich and ancient natural forests a viable commercial proposition. The extreme poverty and hardship of life in these remote areas have meant that the local communities have seized this opportunity to earn a substantial income in a short span of time by selling their trees to down-country contractors.

The Environment Protection Council of Pakistan needs to be more and more alert to see the future of Pakistan in the light of environment in the next 50 years. Timely action can only save us from environmental disaster. Otherwise, we may lose the treasures which we have owned for a very long time.

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Protected Areas in the Mountain Systems of the Hindu Kush-Himalayan Region

Prof. Pei Shengji

Mountains are home to a substantial proportion of plant species, wildlife, and ecosystems which are extremely important to global biodiversity. The Hindu Kush-Himalayan (HKH) Region represents one of the world's highest ecosystems and has many unique lifeforms and taxa in flora and fauna. This mountain ecosystem is rich in biodiversity due to the great variation in altitudinal, climatic, and geological and biophysical conditions.

Status of Protected Areas in the HKH Region

Country	Total land area (sq. km.)	No. of protected areas	Protected areas in percentage of the total land area	No. of protected areas in the HKH region
Afghanistan	652,090	4	0.21	4
Bangladesh	144,000	12	0.8	2
Bhutan	46,500	15	26	15
China	9600,000	700	5.54	56
India	2387,263	426	7.3	96
Myanmar	676,577	26	1.07	10
Nepal	144,800	14	14	14
Pakistan	796,095	201	9	85

Source: ICIMOD: "Banking onBiodiversity: Report of the Regional Consultation on Biodiversity Assessment in the Hindu Kush-Himalayas", edited by Pei Shengji, 1996. 485 pp.

However, this richness of species' communities and genetic materials is undergoing disastrous impoverishment due to human interventions. Biodiversity in this mountain region is disappearing and the process must be slowed down and without delay. Most of the concern has been focussed on lowland tropical rain forests, but mountain wildlands are also important storehouses of biodiversity as the lowlands have been altered by commercial agriculture, industry, and urban settlement. The last stronghold of nature is often still in the mountains.

For instance, the Chang Tang wildlife reserve, in the Tibetan Himalayas of China, encompasses approximately 300,000 square kilometres and is the second largest protected area in the world and the largest in the world in mountain systems. In this reserve, large herds of Tibetan antelopes still follow ancient trails on their annual migration routes to birthing grounds in the far north. Wild yaks and the Tibetan wild ass have large population across the steppes. The reserve retains a grassland ecosystem largely unaltered by humankind.

Prof. P. Shengji

The Huang-Long (Yellow Dragon) protected area in the Chinese Himalayas (2800masl)

In recent years, the regional member countries of the HKH established their own protected areas. According to available data, 1,400 protected areas have been established in all the eight countries of the HKH region. Among these, only 282 fall in the HKH mountain region, and they constitute about 20 per cent of the total. Taking into account the land area of the mountain systems in the region and its biodiversity, the gap must be reduced by increasing the number of protected areas in order to maintain its diversity and unique natural habitats. For this purpose, ICIMOD is planning to assess and update a regional review of the adequacy of protected area coverage in relation to the major biotic provinces and their biodiversity. Protected areas are considered to be the most important sites for *in situ* conservation.

Another issue that needs to be addressed is how to manage protected areas more efficiently in the context of *in situ* conservation of biological diversity and habitats. In this context, a workshop on Effective Management of National Parks and Protected Areas in East Asia and South Asia was jointly organised by the IUCN-CNPPA East Asia Nature Conservation Research, Monitoring and Training Centre, ICIMOD, the Chinese National Committee for Man and Biosphere, and the Administrative Office of the Jinzhaigou Landscape and Nature Reserve from August 25 - September 2, 1996, in Jinzhaigou protected area, located in West Sichuan in the Chinese Himalayas. The 7-day workshop was attended by over 150 participants from 10 countries. It included a 2-day field trip to the protected area and a Tibetan village. The workshop discussed various management issues concerning protected areas and national parks in the region and called upon officials concerned in the region to pay greater attention to the

Prof. P. Shengji

Suzhen Tibetan Village in the Jinzhaigou Protected Area, an eco-tourism based village

management issues of protected areas in order to guarantee their vigorous and healthy development. The workshop generated a ten-point recommendation on effective management of national parks and protected areas in East Asia and South Asia.

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The Yak

by Cai Li and Gerald Wiener

(FAO Regional Office for Asia and the Pacific, Bangkok, 1995, 237 pp)

Daniel J. Miller
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Book Review

I first saw a yak 22 years ago in Nepal. Since then, I have lived with yak herders and conducted research on domestic yak production systems and wild yaks in the Himalayas and on the Tibetan Plateau. Obtaining research literature on yaks was always difficult. Finally, with the publication of THE YAK, an excellent source of information on many aspects relating to yaks is now available. THE YAK is noteworthy because it makes available in English valuable data that were previously published only in Chinese. THE YAK provides a notable contribution to the knowledge and understanding of an important, yet little-known, animal in Central and South Asia.

Authors Cai Li and Gerald Wiener have organised THE YAK into 12 chapters, with each chapter also including an overview to accommodate the more general reader not interested in detailed information. The layout of THE YAK is attractive and easily readable, with ample use of tables and figures to present detailed data. Black and white photographs are also judiciously used and are very helpful in illustrating the different yak breeds and yak hybrid crosses.

Chapter 1 summarises information on the origin, domestication, and distribution of yaks and includes useful information on the status of wild yaks. Chapter 2 describes different types of domestic yaks and breeds, both on the Tibetan Plateau and in countries other than China. Chapter 3 discusses yak breeding and crossbreeding practices and provides considerable data in easily-readable tables. The unique adaptive characteristics of the yak to the high, cold environment of the Tibetan Plateau are well outlined in Chapter 4. Chapter 5, dealing with yak reproduction, is especially thorough in the amount of data provided from Chinese researchers. Production is especially thoroughly discussed in Chapter 6, which brings together a lot of valuable information previously only available in Chinese. Performance of yak crosses is dealt with in Chapter 7 with detailed data on production aspects of various crosses. Chapter 8 profiles yak management systems and Chapter 9 discusses yak diseases. Products obtained from the yak, such as milk, butter, hair, and wool is described in Chapters 10. Chapter 11 provides information on yaks from countries other than China. The final chapter in THE YAK is especially valuable to yak researchers as it examines the design of experiments with yaks and an analysis of results. Future areas for yak research are also identified.

THE YAK also makes an extremely valuable contribution with the exhaustive references' section at the end of the book. Anyone desiring additional information or references on yaks will be especially pleased with this section of the book.

Cai Li and Gerald Wiener have made a valuable contribution to yak development with the publication of THE YAK. This is one book that should definitely be on the desk of anyone working in rangeland management, livestock production, and pastoralism in the Himalayas and on the Tibetan Plateau.

"The Yak" is available from Mr. David Steane, Conservation and Use of Animal Genetic Resources Programme, FAO Regional Office for Asia and the Pacific, 39 Phra Atit Road, Bangkok, Thailand 10200. Fax : (66-2) 280-0759.

Action Research Methods in Beekeeping in Jumla, Nepal

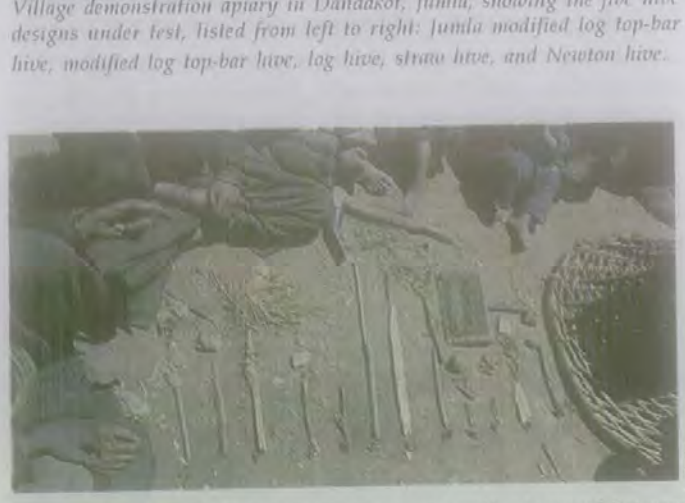
Naomi M. Saville

N. Saville

Learning by doing and by seeing members of one's community doing is an effective way to transfer skills. The top part of the split log forms the hive roof and the lower section of log shown forms the hive body. Top bars, from which bee combs are suspended, are made to fit on the smooth cut surface, changing the traditional fixed comb hive design into a movable comb design.

N. Saville

Village demonstration apiary in Dandakot, Jumla, showing the five hive designs under test, listed from left to right: Jumla modified log top-bar hive, modified log top-bar hive, log hive, straw hive, and Newton hive.



N. Saville

Participatory Rural Appraisal (PRA) exercise with women of Patmara village, Jumla. This collection of materials depicts the relative work load and the nature of the work carried out by women during different months. For example, sticks of varying length represent work load, and the twelve pieces of charcoal below represent months starting with the Nepali month of Push (December-January) on the far left. Activities are represented above the sticks, such as harvesting of wheat (straw), carrying compost (piles of soil), digging potatoes (potatoes), weeding potatoes (local tool called a baasu). Dates for training and workshops are set after discussion of this material and the timing of beekeeping activities in relation to other work can be analysed.

The District of Jumla and Its Problems

Jumla is a remote district in the Karnali Zone, in the mid-western development region of Nepal. Commodities flown in from outside are prohibitively expensive for local subsistence farming people. Freigh costs limit large-scale cash crop production or processing Food shortages and limited access to health services, smok from pinewood open fires, as well as lack of sanitation education, and clothing, lead to a high incidence of infan mortality and low life expectancy. Gender and cast disparity lead to further suffering amongst women an low castes. Altitude and remoteness also influence th relative poverty of communities.

Above the rice growing threshold of altitude 2600m, man villages subsist on wheat, barley, and potatoes. At thes higher altitudes, forest and pasture lands provide excelle forage for bees, while insecticide and other agro-chemical are rarely used. The lack of fertile land for agriculture make beekeeping, with the indigenous *Apis cerana*, traditionall a very important sideline activity for the people living higher altitude. At lower altitudes (between 2200m an 2600m), apples, mustard, and vegetable seeds are worth while income-generating activities. Hence, beekeeping als has potential at lower altitudes in Jumla, not only in terms honey production but also in terms of the pollination benefi which can improve crop yields considerably. (See Box.)

Gender Inequity

Women farmers in Jumla work 18 hour days and ta responsibility for the vast majority of work: carrying wat and firewood, child care, and preparing food as well as the heavy agricultural tasks, apart from ploughing (which a lower-caste male domain). Male farmers in contrast a required to carry less, work shorter hours, and generally ha time for attending meetings and relaxing. This caus problems in eliciting women's participation in new activiti such as beekeeping. Despite expressing interest in taking beekeeping, the need to keep farming to feed the family coming months is so crucial that women find it hard to ma time for training and discussions during extension visits.

What is action research in the context of th Jumla beekeeping programme?

In Jumla, action research into beekeeping has be underway since July 1995 as part of the ICIMO beekeeping project, funded by Austro project, Austri Agency for Technical Cooperation Ltd. Action research this context is the testing of appropriate beekeepi technologies and extension methods through actio

together with project beneficiaries. Implementation of beekeeping initiatives and research into how to do so are going hand in hand and developing in an organic way.

Traditional beekeepers' ideas are used in the development of beehive designs, and their participation is central to the testing of these designs. Indigenous knowledge is discussed and documented, using participatory methods, and subsequently used in management of experimental beehives. Evaluation through scientific methods and informal interaction with Jumla beekeepers is underway.

What are the aims of the research?

- To establish appropriate beehive designs for use by farmers in Jumla
- To access and test indigenous technical knowledge (ITK) in beekeeping
- To explore extension methods in beekeeping, including the use of participant-observation methodology to access ITK and engender equal two-way communication between project-staff and beneficiaries
- To examine gender-related issues in the community and means of promoting gender awareness in order to make beekeeping accessible to women in the longer term
- To explore the alternative advantages of beekeeping as a form of livelihood improvement in very poor communities

Scientific Monitoring

For the purposes of scientific testing of beehives, five different hives have been designed and replicated in an apiary at the Karnali Technical School (KTS), Jumla. The hive designs are shown in the middle photo on facing page and described in the caption.

Internal hive microclimates (temperature and relative humidity), bee colony performance, and yields of honey and wax from the different hives are compared. Hives are managed using a combination of modern and traditional methods. Use of top-bars and regular inspection of combs are new ideas, but the project has also been trying indigenous methods of winter feeding, insulating, and baiting hives for catching swarms.

Village Demonstration Apiaries

To explore how farmers respond to the 5 different hive designs, demonstration apiaries have been placed with beekeeping groups for farmers to manage themselves. They are trained in beekeeping and also in the manufacture of the straw, 'Jumla', and modified log hives. They are also assisted in caring for the bees by project extensionists who make regular visits. Farmer response to the different hives is monitored informally by discussion during extension visits and by preference ranking exercises. Some training has been held in the Karnali Technical School, but for fuller community participation, village workshops and use of farmer-to-farmer training and extension methods are proving to be more effective.

Findings on Hive Design So Far

Despite the good insulating properties of the straw hive and its cheap and forest-friendly advantages, Jumla farmers have not accepted it. Lack of durability, pest attacks, absconding by bees, and an unsustainable straw-press design are part of the problem. However, its most significant disadvantage is that the Jumla people do not think of it as a beehive! The traditional view of a beehive is a hollowed- out log which is very heavy and durable. Adaptations of this idea in the form of the 'Jumla' and modified log hives are proving very successful. Farmers easily accept these hives and are able to make their own, with a minimum of training, by adapting their old hives or hollowing out new logs. The project nevertheless is trying to encourage farmers to cut old trees and use fallen logs to reduce the negative impact on the forest.

Why is beekeeping an appropriate activity for particularly disadvantaged poor rural people in remote mountainous areas?

- It requires no land
- It requires minimal inputs when appropriate technology and indigenous bee strains are used
- It is environmentally positive through pollination of wild flowers and trees
- It is not very time consuming
- It is generally not heavy work, so it can be done by most people
- It is a sustainable use of forest and pasture resources, actively encouraging forest conservation
- It is appropriate in areas where agriculture is prevented by mountainous conditions (i.e., sloping rocky land and high altitude conditions)
- It is a source of income generation (through the sale of honey and wax)
- Its main products, honey and beeswax, are of low-volume, high-value and relatively unperishable and hence relatively easy to export from remote mountainous areas
- It has potential for value-added product manufacture in the remote area itself as a means of extra income over and above the value of the raw material (e.g., candle and hand cream making with wax, honey, medicines, etc)
- It has the potential to benefit communities through livelihood improvement (i.e., keeping honey for home medicinal use, making ones own hand cream for cuts and grazes, improving family nutrition, etc)
- It improves crop yields through pollination services
- Honey is not only delicious it is also highly medicinal (containing a natural antibiotic) and provides trace minerals and vitamins
- Bee pollen, which can be harvested, is one of the most nutritious substances known to man, containing all essential amino acids and most vitamins and minerals
- Bee venom (bee sting therapy) can be used to treat arthritis and other ailments

Gender Awareness Raising

As outlined earlier, gender inequity means that women in Jumla have little time for beekeeping or indeed for any new activity which contributes towards the development of their community. Hence, simply running a programme in beekeeping in Jumla is not enough to be able to empower women to keep bees. In response to this problem, ICIMOD is funding a gender awareness raising programme, which is presently being implemented in the three villages where beekeeping groups have been established. Gender imbalances are being tackled by taking a more holistic approach. Through group discussion of women's problems and small-scale women's drudgery reduction programmes, it is hoped that not only will women be able to make time for beekeeping, but also for the overall development of their community.

Challenges and Conclusions

The bees of Jumla are currently suffering from an epidemic of two serious diseases, Thai Sac Brood Virus and European Foulbrood, in which baby bees die and rot inside the comb. Therefore, the project is experiencing difficulty in producing honey and convincing farmers about the benefits of movable comb beekeeping. Selection and multiplication of resistant strains of bees are called for and promotion of movable comb beekeeping is essential if the disease problem is to be tackled effectively.

We are learning that trying to promote beekeeping in an isolated project, rather than as part of a larger integrated community development programme has problems. A truly participatory development process is one which facilitates farmers to build upon their strengths and skills in a multi-dimensional sense, rather than in beekeeping alone. Use of PRA and participant observation stimulate general discussion on villagers' problems and means of overcoming them. Use of these methods requires support from local NGOs to implement 'sister-activities' to beekeeping initiatives. Such activities are to be organised with collaborating NGOs in Jumla.

A general finding is that use of participant observation by the outsider 'agent of change' is an extremely effective way of building-up relationships with beekeepers and, in particular, in establishing communication with women. Illiterate women are often afraid of outsiders, but are ready to interact with a foreigner who looks like 'one of them'. Importation of ideas, especially from outside the country, often appears to be inappropriate, as we are experiencing with the straw hive. Adaptation of indigenous knowledge and technology (see Box), using farmer participation, is the only way to develop appropriate and sustainable answers.

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Straw hive making in a women's beekeeping training programme held the Karnali Technical School, Jumla, in August 1995.

ICIMOD's Jumla beekeeping project extensionist, Satananda Upadhay inspects a top bar with Jumla lead farmer, Rudra Lal Budha, in a new made Jumla top-bar hive.

Village workshop in straw hive making in Dandakot, Jumla. The farme trainer (right) teaches by demonstration. Farmer-to-farmer level traini is preferable because it is more sustainable, avoids language and cultur incompatibility, and is cheap and easy to organise.

What constitutes appropriate and sustainable development in beekeeping?

- Use and adaptation of indigenous beekeeping methods, particularly in the design of suitable beehives
- Use of farmer-to-farmer techniques in beekeeping training and extension
- Promotion amongst both traditional beekeepers and honey hunters (especially at the start) but also amongst groups previously not so active in beekeeping (e.g., in Jumla, women and low caste people)
- Integration of beekeeping with other activities, coupled with gender-awareness raising, in an overall process of integrated community development
- Taking a community-level approach to training, demonstrations, and workshops

The Chittagong Hill Tracts' Development Board (CHTDB)

The Chittagong Hill Tracts' Development Board was established in January 1976 with the aim of accelerating socioeconomic development in the Chittagong Hill Tracts' region. The Board, assisted by a Consultative Committee and represented by tribal and non-tribal leaders, is responsible for policy formulation, planning, and coordination of multisectoral development programmes. It has so far implemented 1,007 schemes worth *Taka* 456.53 million (US $ 10.9 m), through its Annual Development Programme fund from 1976 to 1993/94. These schemes cover sectors such as social welfare, education, road construction, agriculture, sports and culture, building/construction, cottage industries, and others.

File Photo

A tribal household in the Chittagong hills

Through the *Loutha Khamar* (collective farming) scheme, based on planting horticultural crops, 3,487 landless tribal families were settled and each family was allotted five acres of sloping land. Through another horticulture-based "Integrated *Jhumia* Rehabilitation Programme," 410 tribal families were settled at the cost of Tk 19.3 million and 1,070 families of tribal fishermen were rehabilitated and provided with fishing nets and boats. The UNICEF-assisted "Integrated Community Development Programme" was launched with an allocation of Tk 270 million (US $ 6.43 million) from 1985 to June 1995.

Under the Special Five-year Plan period from 1984/85 to 1990/91, the Board, as a coordinating agency with different collaborating departments, spent Tk 2,803.7 million on different schemes; and these included roads, telecommunications, power development, health and family planning, education and vocational training, sports and culture, cottage industries, tourism, agriculture, horticulture, forestry, fisheries, and livestock development. During this plan period, 1,870 tribal families were settled and afforestation was undertaken on 7,600 hectares of steep slopes.

The biggest project so far undertaken by the Board is the Asian Development Bank (ADB)-financed CHT Development Project (multisectoral) comprised of 11 components. The aim of the project was to create necessary conditions for long-term socioeconomic development. Two thousand landless and marginal tribal families belonging to the *Chakma, Marma,* and *Tripura* and other communities were settled and provided with necessary facilities under the Upland Settlement Scheme.

Under the project, each settled family received inheritance rights to 1.8 hectares of land for rubber plantation, 0.8 of a hectare for agroforestry and horticulture, and 0.1 of a hectare as homestead land. Another 300 families were settled under the Afforestation and Settlement Component of the project on 4,000 hectares of sloping land. The settlement scheme sought to address the socioeconomic and environmental problems of the region and succeeded in attracting landless tribal families.

A representative native couple of the CHT

The CHTDB has been entrusted with the implementation of the ICIMOD-assisted project on "Sloping Agricultural Land Technology" (SALT) and other "Appropriate Technologies for Soil Conserving Farming Systems" (ATSCFS) which consist of agroforestry-based, land husbandry of the uplands with soil conservation and food production measures. A Geographical Information Systems' (GIS) centre is also being established in the CHTDB office at Bandarban with the financial assistance of ICIMOD-MENRIS (Mountain Environment and Natural Resources' Information Service) programme.

In addition, ICIMOD together with the Special Affairs' Division (SAD) of the Prime Minister's Office, Bangladesh Institute of Development Studies (BIDS), and the CHTDB organised the 'National Workshop on Development Experiences and Prospects in the Chittagong Hill Tracts'.

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The Mountain Man: Dr. Robert Rhoades

"I am a flat lander by birth .....
I came to terms with the fact that the world wasn't flat - as Columbus once thought it was - that in fact much of the world is vertical. I learned this while walking through the Himalayas carrying goats and chickens ....."

Dr. Robert Rhoades has worked as an anthropologist and development specialist for over three decades in the Himalayas, European Alps, Spanish Sierra, Nevada, the Andes, and the uplands of south-east Asia. He has published over 125 articles and a dozen books and monographs, many of which focus on mountain people. At present, he is Professor of Anthropology at the University of Georgia, USA.

The 'mountain man' is now sitting at ICIMOD and presented below is an excerpt of his interview by our public relations' officer.

PRO: *When and how did your interest in work in the mountains first develop?*

RR: I am a flat lander by birth - I mean flat as it possibly could be across the horizon. I grew up on the American great plains where we had no concept at all of variation in the topography, and, at the age of 20, I joined the American Peace Corps - one of Kennedy's first recruits - and they sent me to a place called Nepal. Quite frankly, a place I'd never heard of before. They assigned me to work in agricultural extension. My job was to distribute seeds and animals to the farmers that lived in many different parts of the country. And I came to terms with the fact that the world wasn't flat - as Columbus once thought it was - that in fact much of the world is vertical. I learned this while walking through the Himalayas carrying goats and chickens to one of the most remote areas. The experience left such a dramatic impression on me that, when I returned to my homeland, I decided that I needed to learn two things - learn more about the mountains as an ecosystem and as a geological reality and to learn more about, what I call today, the ethnoscape, in other words, the cultural variation that exists among the people who live in the mountains today. So it was almost a shock treatment coming from such a simple place where things were flat to where everything was up and down and very complex as it is in the mountains.

PRO: *So, that was what brought you to the mountains. What brings you here to ICIMOD? What made you decide to spend a few months of your time here at ICIMOD?*

RR: I have a long-standing relationship with ICIMOD that goes back to the time of Collin Rosser - the first Director of ICIMOD. I have always been very intrigued by the mandate of ICIMOD and its importance. The current Director General offered me an opportunity to come here to rethink sustainable mountain agriculture as part of a project. Is ICIMOD going in the right direction? have they made the right decisions in the past? what kind of plans can we make for the 21st century for mountain people in the next millennium? It is within that context that I was able to find time from my regular job to come here and spend three months at ICIMOD.

PRO: *As a person who has had a long-standing relationship with and interest in ICIMOD, do you think ICIMOD has lived up to the expectations of its founders? What are your observations on ICIMOD's achievements and gaps and what should be its future thrust?*

RR: I knew quite well some of the original founders of ICIMOD, such as John Cool and Klaus Lampe and I was talking to them about whether or not ICIMOD had

achieved the dream. I know that T. S. Elliot said "*Between the dream and reality there falls a shadow and between the act and the deed there falls a shadow.*" We had dreams for ICIMOD and we will continue to have dreams. But I don't think anyone ever entirely lives up to those dreams, because, in controlling the reality, there are many problems and one feels that you are falling short. In many ways, I feel that ICIMOD comes as close to the dream as possible. That does not mean that there are no shadows or shortcomings which have engaged the Centre over the years. One of the early dreams that I had for ICIMOD which did not materialise is that it would be truly the global, international research development centre. John Cool and some of the early founders said that that was a part of their intention as well. But, over the years, ICIMOD has focussed, and rightfully so, on the Hindu Kush-Himalayan region which has brought it a certain clarity in focus. Certainly there are enough problems to handle within this region, and it is very difficult to handle the global mandate as well. But during the almost 12 years that I lived in the Andes, we were forming our own mountain group and we looked to ICIMOD for leadership with a possibility of establishing a regional office there. But unfortunately that never materialised. I think that on many of the other issues ICIMOD comes close to its dreams.

PRO: *Don't you think its limited resources could also be a limiting factor?*

RR: I think in the past it was much more of a limiting factor than it is today. You see with the UNCED's decision to pressure governments globally to donate to the various components of Agenda 21, including Chapter 13, more and more funds are now available, at least there is a significant amount of pressure on governments to provide funds. So I believe that, in the present environment, funding - well it is always a limitation - is certainly not the limitation that it was in the earlier period.

PRO: *It has been five years since Rio and Agenda 21. After all the noise that has been made about it do you think it has made a difference? What has it achieved especially in the context of Chapter 13 - Managing Fragile Ecosystems: Sustainable Mountain Development?*

RR: Agenda 21, Chapter 13, was a great step forward for the mountains. Primarily because, up to that point, the mountains, like many other global ecosystems, had been the most neglected. The oceans had Jacque Cousteau and the rain forests had the Rock Groups. Many people were speaking for the other ecosystems and even certain other animals or species that depend on the mountains received more press than the mountain themselves. For example, the Panda in China was a very popular environmental symbol and Periwinkle too. Had it not been for the mountain agenda group - a small group of mountain defenders who pushed for putting the mountains before the delegates at Rio, we would still perhaps be in the same situation today. Thanks to those great souls it came forth in the form of Chapter 13. With the promise of some 50 million dollars a year, which I don't think has materialised yet for the mountains, at least, there is some hope.

A large number of organisations - NGOs, International Agricultural Research Centres, Universities, and private individuals have suddenly developed more interest in the mountains. I happen to know that many of those institutions, prior to Agenda 21 and the possibility of funding, were not interested in the mountains, despite having them in their own backyards. So the one impact of Agenda 21 is that it certainly has brought more and more people to deal with mountain problems. On another level, I am extremely concerned as to how much of that is just a rush for the funds as opposed to real sincere dedication to the mountain people.

PRO: *What would be your message to the mountain people - everybody migrate to the plains and leave the mountains as a playground for the rich?*

RR: My first message to the mountain people is to be proud; proud of the diverse cultures of the mountains, the people that formed those cultures and have done so in very difficult conditions over long periods of time. They have a very strong sense of place, they have very fine adaptations to the mountain environment as reflected in their indigenous knowledge about their natural resources, reflected in the refined technologies and the animals they have, as reflected in their ethnicity and their religious cultural systems; all these are a product of the intimacy between the people and their environment. And no one else can duplicate that. Certainly lowlanders can't because they perceive the mountains in a wrong way. So, my message to the mountain people is to be proud of what they have accomplished and to work on those accomplishments as sources of strength as they move into the future, rather than as something to be discarded because someone says they should modernise.

...my message to the mountain people is to be proud of what they have accomplished and to work upon those accomplishments as sources of strength as they move into the future, rather than as something to be discarded because someone says they should modernise.

PRO: *Finally, what would you say to those working on the behest of mountain people?*

RR: I think the most important responsibility for people who draw their salaries or livelihoods on the basis presumably of serving mountain peoples is that they must do so with the ultimate dedication and sincerity to help mountain farmers and mountain dwellers. In other words, if individuals are in this business only because of the benefit to themselves and they neglect their duty to be very honest, sincere, and respectful of the mountain communities then I think in the short term there will not even be jobs for them. In other words, the mountain peoples' cultural ecosystems are valuable in their own right and, in fact, I would argue that there should be a reverse debt commitment to mountain peoples for all they have supplied to the world, including the genetic material of all the major food crops and much more, including beauty and hydroelectric power and mining. The rest of the world essentially owes them, if nothing else, the respect that they deserve.

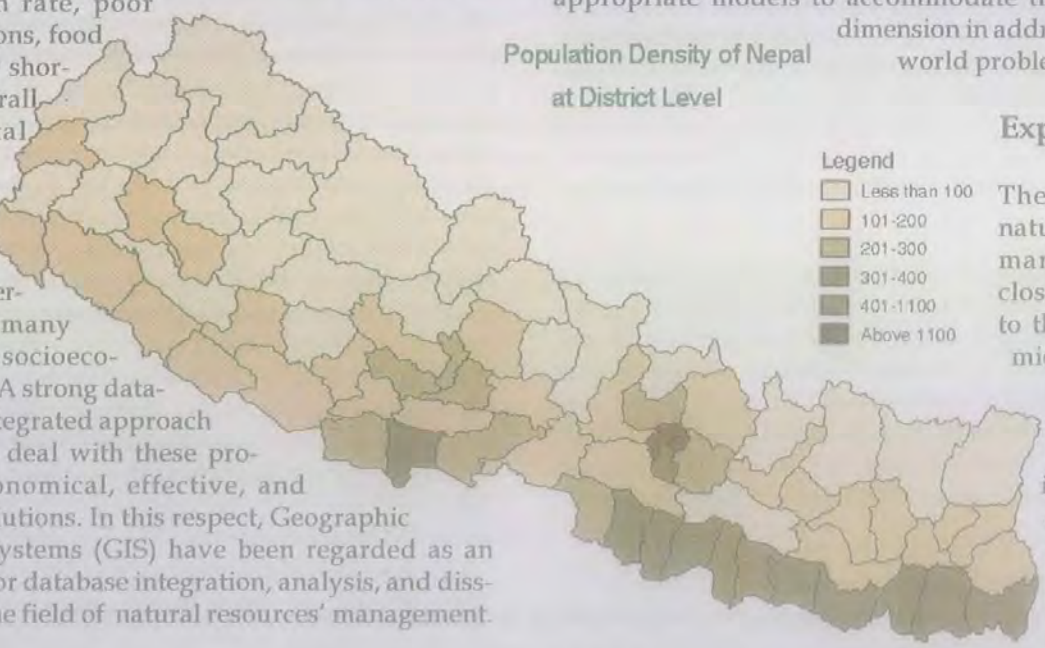
Socioeconomic Data in GIS

Birendra Bajracharya and
Sushil Pradhan

Background

The Himalayas have remained a source of inspiration to mankind from time immemorial. The high mountains have always posed a challenge to the strength of men who, in turn, scaled the peaks to get a feeling of conquest. Today, the mountains are as high, but the challenges are different, diverse, and manifold. The Himalayan region is facing severe ecological and developmental problems with its rapidly increasing mountain population. Poverty and illiteracy are further adding to the problems of deforestation, soil erosion, high population growth rate, poor health conditions, food deficit, energy shortage, and overall environmental degradation.

The problems are complicated, and are interlinked with many physical and socioeconomic factors. A strong database and an integrated approach are needed to deal with these problems for economical, effective, and sustainable solutions. In this respect, Geographic Information Systems (GIS) have been regarded as an effective tool for database integration, analysis, and dissemination in the field of natural resources' management.



The Need

Efforts are being made to succeed in poverty alleviation, environmental protection, and biodiversity conservation in the region. The limited natural resources have to be managed for the economic benefit of the growing population. The planning process is always constrained by the physical resources available, but it is guided by socioeconomic needs. Socioeconomic variables, such as demography, agriculture, education, and health, are the basis for development planning. These factors are involved in all the sectoral plans pertaining to social development, e.g., the population of working children, youths, adults, and elders; urban and rural population; and literacy, mortality, and fertility in urban and rural areas.

Most socioeconomic data pertaining to an administrative unit are available in analogue tabular form and are dispersed among many national institutions. These data are not being merged in a digital format for multi-sectoral and problem-oriented analyses. As a result, the likelihood of finding a timely response to the information needs of planners and decision-makers is limited. Some data on natural resources, environment, and socioeconomics are currently available. However, these manually-produced geographic information, e.g., maps, charts, and other static presentations may not depict the information accurately and effectively.

GIS has been used in the region mainly for physical planning. Very little has been done to integrate socioeconomic factors into these systems. There is a need for appropriate models to accommodate the sociological dimension in addressing the real-world problems using GIS.

Expectations

The problems of natural resources' management are closely associated to the socioeconomic conditions of the people. One important aspect of GIS is the integration of tabular socioeconomic data and thematic natural resources' data. In GIS, the socioeconomic data, or the non-spatial data, can be organised as relational tables linked/related to the spatial data of the administrative units which are a part of the Relational Database Management Systems (RDBMS). GIS technology can be used to portray the socioeconomic status on maps, i.e., on a spatial platform, in order to have a more realistic presentation of the situation. This visual medium of presenting information pertaining to spatial units can become an effective means for planners and policy-makers in the planning process and in abstracting related information at a glance.

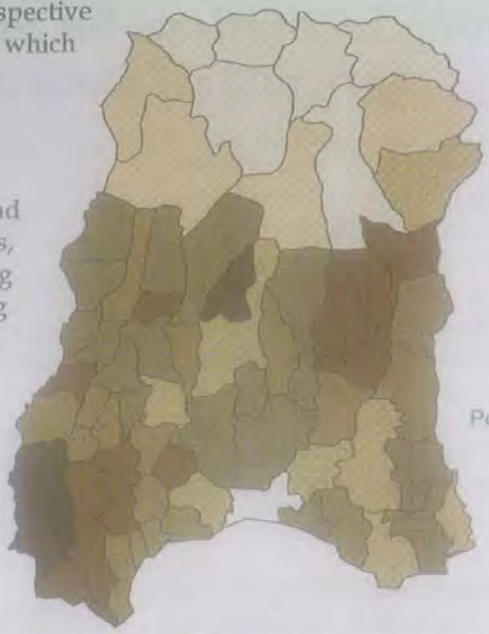
Limitations

The two discrete datasets, the socioeconomic data and thematic natural resources' data, have different characteristics. Socioeconomic data are mostly associated with settlement data. With the conventional methodology of data collection, census data are based on administrative units. Settlements are usually concentrated in certain

pockets of a district and a generalised picture can give wrong conclusions. The three dimensional perspective of mountain areas is another important aspect which adds to the complexity of analysis.

The Future

To address the problems of inadequate use and management of socioeconomic, natural resources, and environmental data, the process of using information in planning and decision-making must be institutionalised. An awareness should be created among planners and policy-makers regarding the capabilities of GIS technology in integrating physical and socioeconomic data. There should be methodological improvements in the contents of socioeconomic data and GIS should be taken as a perspective for database design during the collection of such data. In this respect, the common efforts of economists, sociologists, and physical scientists will play an important role.



Population Density of Morang District at VDC Level

In future, it is anticipated that individual-level databases will become more sophisticated, and these will form the basis for many geographic analyses. However, there is no present prospect of such data becoming widely available, and some important datasets will always be produced at area aggregate level. It should be noted that the representation of socioeconomic data within a GIS is the generation of socioeconomic surfaces where suitable data are available. It must be stressed that all data structures within GIS are merely models of reality and the ideal of an exact reproduction of what exists in the real world.

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Mountain Env. & Natural Resources Inf. Systems (MENRIS) ICIMOD

New Support to ICIMOD

Regional Collaborative Programme for Sustainable Development of the HKH Region (1995-98)
This core programme of ICIMOD was assured of increased support by the Government of Denmark which raised its contribution for the remaining two-year period to the level of US $ 300,000 per year.

Projects
Since the last issue of the Newsletter ICIMOD signed agreements on three more very important projects

1. Capacity Building for Incorporating Gender in Sustainable Development Policies, Strategies, and Programmes in the HKH Region - The Netherlands Govt. (US $ 550,000 - 3 years)
2. People & Resource Dynamics in Mountain Watersheds in the HKH Region - SDC and IDRC (US $ 1.5 million - 3 years)
3. GIS Applications for Sustainable Mountain Development - The Netherlands Govt. (US $ 1.1 million - 4 years)

The Australian Centre for International Agricultural Research has agreed to provide support (US $ 80,000) to ICIMOD for a work programme on "Sustainable Mountain Agriculture and Natural Resources: An Analysis of Some Critical Land Degradation Issues in the Hindu Kush-Himalayas." This is a part of the Global Mountain Initiative involving CIP (International Potato Institute), IBSRAM, and ICIMOD.

Stop Press !

The Swedish International Development Cooperation Agency (SIDA) has announced its support to ICIMOD's Regional Collaborative Programme for an annual contribution of US $ 200,000 starting from 1st January 1997.

Strengthening Institutions for Sustainable Mountain Agricultural Development

The four and a half year project on "Strengthening Institutions for the Development of Sustainable Mountain Agriculture" was introduced with the primary objective of strengthening institutional capabilities in the member countries and at ICIMOD for the promotion of sustainable mountain farming systems. The project focussed on skill enhancement/human resource development and on promoting interactions and exchange of knowledge and information among national/local institutions with respect to sustainable mountain agriculture. The main achievements of this programme, which centre around different activity areas, are described below.

Generation of Knowledge and Information on the State of Institutional Capacities and Failings in the HKH Region

Country studies, workshops, exchange of ideas, and synthesis of information were among the commissioned activities. This resulted in documentation of the strengths and weaknesses of HKH institutions with respect to agricultural planning, research, and other support services. This information was disseminated/shared with a wide range of institutions in the respective countries. In addition, it was also used to design different institutional strengthening activities in the regional countries.

Notable achievements in the HKH region have been recorded in the areas of gender and development issues; biodiversity management issues in agriculture; agricultural development processes and replication of high-value commercial agriculture; agricultural transformation processes in the subtropical shifting cultivation areas (hilly areas of Bangladesh) with a view to addressing institutional capacity-building issues; and agricultural development processes in the cold and dry areas and emerging institutional issues. Findings from work in these areas have influenced current project activities and provided the basis for future programme development in specific areas.

Considerable efforts were expended in the field of human resources' development. Notable among them were the following.

Direct training programmes leading to new programme development

- Training of trainers in sustainable mountain development in the Tibet College of Agriculture, leading to the establishment of a faculty of Mountain Agriculture and development of course materials for the subject.
- Training of teachers on regenerative highland farm technologies at the Tibet Extension Technologies' School and subsequent adoption/incorporation of th approach and documented information as cours material by the school.
- Gender and development training to ICIMOD sta and one professional each from appropriate insti utions in Bhutan, India, Nepal, and Pakistan.
- Training on Appropriate Technologies for So Conserving Farming Systems which included bot sponsored training in institutions of excellence as we as the training organised in the respective area covered.

Training through Dialogue and Study Tours

Attempts were made to reorient agricultural developmen planning and decision-making processes in Xizan Autonomous Region (Tibet) through dialogue. Some R&I planners acquired new concepts/ideas through organise inter- and intra-country study tours to institutions i transformed mountain areas.

The programme was successful in facilitating th reorientation of key senior people in Tibet towards the nee for changing approaches to agricultural research an development and bringing the mountain perspective int planning and action. The evidence of this is available i the joint initiative taken by several institutions to formulat an Agenda 21 document on 'Sustainable Agricultura Development in Tibet'. ICIMOD's role here focussed o human resource development - awareness, methodology technical knowhow, and sharing of experiences in th region.

Human Resources' Development through Improvement in Academic Expertise and Research

A general survey of agricultural research institutions i Tibet revealed that all these institutions lacked qualifie staff, particularly the Tibet Institute of Agriculture, Tibe Institute of Animal Husbandry, and the College o Agriculture.

With the full cooperation of the Chinese Academy o Sciences (CAS), Beijing University, and the Governmen of Tibet, a new activity was launched (May 1996) calle the "Tibet Fellowship Programme" followed by other suc initiatives. The Government of Tibet now plans to sponso candidates for graduate, post-graduate and Ph.D. degrees It is working out details of the process with institutions i China, and ICIMOD has been requested to continu support, maintaining mountain orientation related inpu and dialogue and capacity-building activities.

Developing Institutional Capacities in New Areas

Previous work on successful and replicable technological options at MFS-ICIMOD had identified the Seabuckthorn initiative in China as an appropriate approach for regeneration in cold and dry areas of the Hindu-Kush Himalayan region. Interestingly, whereas China had developed institutional capabilities (R&D) for harnessing this indigenous plant resource, other countries in the region had no idea about its potential for bringing about economic and environmental changes in some degraded mountain areas.

The Institutional Strengthening Project carried out systematic efforts in institutional capacity-building with respect to Seabuckthorn harnessing (R&D) in Himachal Pradesh-India, Nepal, and Pakistan. The ICIMOD project helped establish a Seabuckthorn Research and Demonstration Centre at Tabo, under the YSP University of Horticulture and Forestry, Solan, Himachal Pradesh, and imparted training to scientists and provided material support. Following ICIMOD's pioneering support, the University has assured the permanent establishment of this Centre by mobilising financial support from both the provincial government and from ministries of the Government of India. Similarly, the impact in Pakistan is encouraging and the same follow-up process is being carried out by ICIMOD. In Pakistan, a new institute established by the Ministry of Agriculture, called the National Aridland Development and Research Institute (NADRI), was asked to develop and implement a Rs 5 million project on replicating the Seabuckthorn successes of China in Balochistan and the northern mountain areas.

An importa ıt step was taken in providing a platform for interaction and developing bilateral - multilateral cooperation by organising the "Regional Consultation on Education and Research for Sustainable Mountain Agriculture". Eighty-five heads of research organisations of national and provincial institutions, Vice Chancellors of universities located in the HKH region, and representatives of planning and development organisations met in Kathmandu from January 23 - 26, 1996, and discussed ways of mutual cooperation to meet the new challenges of sustainability and mountain farming in the HKH. The outcomes of this important gathering included:

recommendations for establishing a network of these institutions based at ICIMOD, in order to facilitate regular exchange of knowledge and information; and

discussion of bilateral and multilateral cooperation for reforming education and research for mountain farming.

Some of the important recommendations will now be incorporated as core programme activities of MFS - ICIMOD.

Institutional Strengthening at MFS-ICIMOD

Strengthening the Mountain Farming Systems' Division was seen as a precondition for organising a region-wide programme on institutional strengthening. This was undertaken through the following measures: continued services of a critical number of specialists; in-service training of staff, and a new programme on gender and development.

During the project implementation period, apart from collaborating with many institutions in the region and outside, many workshops, training programmes, and study tours were conducted and documents published. The collaborating institutions are given below and a list of the workshops, training programmes, and study tours are provided in the profile of this project in the following page.

Collaborating Institutions

Regional

Bangladesh: Chittagong Hill Tracts' Development Board - Special Affairs' Division of the Prime Minister's Office

China: Institute of Geography, CAS, Goverment of Xizang Autonomous Region (Tibet); Chengdu Inst. of Biology; Commission for Agriculture, Forestry, and Animal Husbandry and its various sister institutions, e.g., Tibet Institute of Agriculture and the Tibet Institute of Animal Husbandry; Agricultural Technology and Extension Education School; Tibet College of Agriculture and Pastoralism; Agenda 21 Office of China; Chinese Association of Agricultural Science Societies (CAASS); Sichuan Association for Science and Technology (SAST); Government of Panzhihua City, Sichuan Province

India: YSP University of Horticulture and Forestry, Himachal Pradesh; GB Pant Institute of Himalayan Environment and Development; Ministry of Environment and Forests; Indian Council of Agricultural Research

Myanmar: Myanmar Agriculture Services (MAS); Ministry of Border Areas and National Races' Welfare

Nepal: Local Initiatives for Biodiversity Research and Development (LIBRD); National Agricultural Research Council (NARC); Silk Association of Nepal; Department of Soil Conservation of HMG/Nepal

Pakistan:Pakistan Agricultural Research Council (PARC); Federal Ministry of Agriculture; Departments of Agriculture and Livestock, Balochistan; Aga Khan Rural Support Programme (AKRSP); Agricultural Universities; National Aridlands Development Research Institute (NADRI)

Others

International Board for Soil Research and Management (IBSRAM), Thailand; International Potato Centre (CIP), Peru; Asian Rural Life Development Foundation (ARLDF), Philippines; International Service for National Agricultural Research (ISNAR); Asian Development Bank (ADB); FAO; Ford Foundation

Title	: Strengthening Institutions for Development of Sustainable Mountain Agriculture
Division	: Mountain Farming Systems
Duration	: Jan 1992 - July 1996
Date of Signing	: May 08, 1996
Budget	: US $ 1,500,000
Donor Org.	: DST-ML, Division of Development Cooperation, Ministry of Foreign Affairs, The Hague, The Netherlands.

Objectives

1. Strengthening national institutions to implement programmes oriented to sustainable mountain agriculture
2. Build capabilities at ICIMOD to facilitate strengthening of national agriculture/ farming related institutions

Study Tours Conducted

1 Inter-country Seabuckthorn Study Tour organised for a multidisciplinary team from Himachal Pradesh, India, and Nepal to China. July 11 - 23, 1995 (Number of participants: 12)

2. Sericulture Study Tour of Sichuan Province, China, for a Group of Nepalese from the Silk Association of Nepal and the Institute of Agriculture and Animal Sciences, Rampur. October 14 - 24, 1995 (Number of participants: 10)

3. Intra-country Study Tour of the Extension Systems' Reform Team of Tibet to study Efficient Extension Systems of Transformed Mountain Areas in China. May 18 - 12 June, 1995 (Number of participants: 8)

4. Inter-country Study Tour of Chinese scientists to observe the Participatory Research Planning System at Pakharibas Agricultural Research Centre, Nepal. May 5- 20, 1996 (Number of participants: 4)

5. Study Tour of the Northern Areas of Thailand and Cebu, the Philippines, in relation to Appropriate Technologies for Soil Conserving Farming Systems. March 1995 (Number of participants: 4)

Dr. Tej Partap
Head, Mountain Farming Systems (MFS)
ICIMOD

Email: partap@icimod.org.np

Workshops and Training Programmes Organised

1. International Workshop on Institutional Strengthening for Sustainable Mountain Agriculture, July 28 - 30 1993, Kathmandu, Nepal (Number of participants: 38)
2. Dialogue with Senior Level Functionaries from Tibet on Institutional Strengthening Needs for Sustainable Mountain Agriculture (Training Programme), August 8-13, 1994, Lhasa, Tibet, PR China (Number of participants: 45)
3. International Workshop on Evolution of Hill and Mountain Farming Systems: Sustainable Development Policy Implications, October 3-6, 1994, Lumle, Nepal (Jointly with FAO and Ford Foundation) (Number of participants: 30)
4. Hill Districts of Bangladesh: Experiences in Development, January 23-25, 1995, Rangamati, Chittagong Hill Tracts, Bangladesh (Number of participants: 48)
5. Programme for a Planning Workshop for the Consortium on Conservation Farming and Environmental Management of Steep Lands, 27 February - 2 March 1995, Phitsanulok (Thailand)
6. Training Workshop on Highland Agricultural Planning Perspectives, July 25 - 31, 1995, Lhasa, Tibet (Number of participants: 40)
7. Training Programme on Regenerative and Indigenous Technologies for Sustainable Highland Farming, August 5 - 12, 1995, Lhasa, Tibet (Number of participants: 28)
8. International Course on Gender in Policy Development, Nov. 3 - 25, 1995, Wagningen, the Netherlands (Number of participants: 5)
9. Regional Consultation on Research and Education for Sustainable Mountain Agriculture, January 23 - 26, 1996, Kathmandu, Nepal (Number of participants: 90)
10. Workshop on Managing Mountain Agri-biodiversity in Nepal: Perspectives and Issues, March 16-17, 1996, Pokhara (Number of participants: 38)
11. International Symposium on Agricultural Development in Mountain and Hill Areas (ISADMHA ' 96), April 15 - 18, 1996 Panzhihua City, Sichuan.
12. Gender Development - Fact Finding Mission: Methodology Workshop, April- 29 - 1 May 1996 (Number of participants: 16)
13. Awareness-cum-Training Workshop on Appropriate Technologies for Soil Conserving Farming Systems, Lashio May 7-14, 1996 (Number of participants: 35)
14. Workshop on Managing Mountain Agri-biodiversity in Pakistan: Perspectives and Issues, May 25 - 26, 1996, Quetta, Pakistan (Number of participants: 32)
15. Workshop on Agenda-21 for Sustainable Development of Agriculture in Tibet, June 5 - 6, 1996, Lhasa, Tibet (Number of participants: 30)
16. Workshop on Managing Mountain Agri-biodiversity in the Chinese Himalayas: Perspectives and Issues, June 11- 13, 1996, Chengdu, China (Number of participants: 21)
17. Awareness-cum-Training Workshop on Appropriate Technologies for Soil Conserving Farming Systems, Khagrachari, Hilly Areas of Bangladesh, June 16 - 26, 1996.
18. Workshop on Agri-biodiversity in India, July 29-30, 1996 (Number of participants: 22)
19. Methodology Workshop on Gender, Environment and Development for Sustainable Livelihoods, July 1996 (Number of participants: 25)
20. Summer School on Sustainable Mountain Agriculture: Teaching & Curricula Development (Training), August 3 - 9, 1996, Ninje Bye, Tibet (Number of participants: 12)
21. Regional Workshop on Sustainable Agriculture in Cold and Dry Mountain Areas: September 25 - 27, 1996, Quetta, Pakistan (Number of participants: 69)

In addition, a number of other workshops and meetings, for which ICIMOD was not the principal organiser, was supported, either financially or through the funding of participants from the region, e.g., The International Symposium on Mountain Agriculture in 1996 in Panzhihua, Sichuan, PR China.

Some Regional Newsletters

Wasteland News

This quarterly newsletter deals with thought-provoking as well as informative issues related to various aspects of wasteland improvement.

Contact address
Society for Promotion of Wastelands Development, Shriram Bharatiya Kala Kendra, 1, Copernicus Marg, New Delhi-1110 001, India

NCS Nepal

This is a quarterly newsletter of the National Conservation Strategy implemented by the National Planning Commission of His Majesty's Government of Nepal and The International Union for Conservation of Nature. It focusses on issues of current interest on the environment.

Contact address
NCS Nepal, P.O. Box 3923, Kathmandu, Nepal,
Fax: 977 1 521506, e-mail:iucn@chulu.mos.com.np

NEFEJ Newsletter

While providing information regarding the organisation's activities, this Newsletter throws light on information regarding various media and techniques that can be used to impart information.

Contact address
Nepal Forum of Environmental Journalists (NEFEJ),
P.O. Box 5143, Thapathali, Kathmandu, Nepal,
Tel: 977 1 231991, Fax:977 1 227691

Green Energy Newsletter

This half-yearly Newsletter launched recently focusses on issues and processes involved in developing and commercialising green energy from waste or natural/cultivated plant resources.

Contact address
Green Energy Mission/Nepal, Ghatte Kulo, Anam Nagar, Kathmandu, Nepal, P. O. Box 10647,
Tel/Fax:977 1 420113, 410857

Notebook

Apart from providing reportage of its environmental pursuits, the Newsletter focusses on pertinent questions and issues regarding current environmental problems at both national and global levels.

Contact address
Centre for Science and Environment, 41 Tughlakabad Institutional Area, New Delhi-110 062,
Tel:91 11 6981110, 6981124, Fax:91 11 6985897, 6980870,
e-mail:cseel@cse.unv.ernet.in

Prakriti

The Newsletter imparts to its readers information regarding the organisation's activities and updates on project implementation in the field of nature conservation.

Contact address
King Mahendra Trust for Nature Conservation,
GPO Box 3712, Kathmandu, Nepal
Tel: 977 1 527042/5326573

Lumle Newsletter

This quarterly Newsletter reports on the activities of the Centre with regard to research on various aspects of agriculture and its interrelationships.

Contact address
Training and Information Section
Lumle Agricultural Research Centre, P. O. Box 1,
Pokhara, Gandaki Zone, Nepal,
Tel: 061 29399, 20385, 226699

International Yak Newsletter

This biannual newsletter serves as a common forum for scientists interested in yaks to exchange ideas, to make known their scientific findings, and also to communicate among members having a common interest.

Contact address
International Yak Information Centre, Gansu Agricultural University, Lanzhou Gansu 730070, P.R. China

Forthcoming Events

Regional Meeting of the Asia Pacific Mountain Network Coordinators
Date and Venue: March 17-21, 1997; ICIMOD, Kathmandu
Contact Person: Dr. Mahesh Banskota, Coordinator, APMN, Deputy DG, ICIMOD

International Symposium on Agro-environmental Issues and Future Strategies: Towards the 21st Century
Date and Venue: May 25-30, 1998, **Abstract Due** : November 15, 1997
Contact Person : Prof. Dr. Jehangir Khan Sial
Symposium Director and Chairman (Basic Engineering)
Faculty of Agricultural Engineering and Technology
University of Agriculture, Faisalabad, Pakistan
Tel: 0092-41-30281-89/ext 434, **Fax**: 0092-41-30169, 647846

Programme News

The Second Review Meeting of the NORAD-supported **Mountain Tourism for Local Development Project** was held in Kathmandu from September 6 - 9. The Review Meeting brought together members of the micro-case study teams from India, Nepal, and Pakistan as well as ICIMOD professionals and resource persons involved in the Mountain Tourism for Local Development initiative. Nine micro-case studies and action plans representing different eco-regions and tourism types in the HKH were presented and discussed in the meeting. In addition, a Manual on Technology with Implications for Mountain Tourism, a Compendium of Income-Generating Opportunities related to Mountain Tourism, and a study on Institutions for Mountain Tourism and Local Development were also presented and discussed at the Meeting. The purpose of the meeting was to help finalise the case studies and other expert inputs and determine a framework for the training modules that will be developed by using the material derived from the micro-case studies. Prototype Training Modules for four target audiences (policy-makers, programme designers and implementors, community groups and potential entrepreneurs, and the visitors) were also presented and discussed during the meeting. The micro-case studies and other thematic studies will be revised and published in the MEI Discussion Paper Series. The Training Modules will be used for the pilot training of different target audiences in the respective countries and institutionalised in the tourism-related training institutions in each country context.

File Photo

Farmers' Training at Godawari

Those interested in the programme may contact:
Dr. Pitamber Sharma, Coordinator, Mountain Tourism for Local Community Development,
Mountain Enterprises and Infrastructure Division, ICIMOD, E-mail: pitamber@icimod.org.np

A two-day **GIS Orientation Workshop** was conducted in Besisahar, Lamjung District, Nepal, on 17 and 18 September in collaboration with the Rural Development Through Self-help Promotion Lamjung Project (GTZ/HMG) and the District Development Committee. There were altogether 32 participants representing 23 government institutions and several NGOs and private companies. The workshop not only familarised the participants with the GIS technologies as a useful planning and decision-making tool but also with the digital database developed for Lamjung district.

Over a period of four months starting from July, the Appropriate Technologies for Soil Conserving Farming Systems' Project conducted several training courses on **appropriate technologies for soil conservation, fertility improvement, propagation methods for cash crops, EM technology**, etc. in Bangladesh, China, Myanmar, and Nepal. The training was organised at three levels; policy-makers, technicians and extensionists, and farmers. The participants learned about common issues and how to solve common problems.

A Workshop on **Ethnobotany and Its Application to Conservation** was held in Islamabad from September 16-24, 1996 in collaboration with the National Agricultural Research Centre and World-Wide Fund for Nature/Pakistan. The forty-nine participants and resource persons came from the mountain areas in Pakistan, Xinjiang Province in China, Uzbekistan in Central Asia, People and Plants' Programme of UNESCO and WWF International. Prof. Pei Shengji and Mr. Ajay Rastogi participated from ICIMOD. The workshop included a field trip to Ayubia National Park and interaction with the local villagers on the periphery of the park as well as government officials responsible for the management of the park. This provided a useful insight into the intricate issues of conservation and development in mountain areas. Pakistan has a rich system of traditional medicine which derives its strength from ancient ethnobotanical knowledge. A group of leading *"Hakims"* (traditional physician) was brought together and the discussions provided basic orientation to the participants on the salient aspects of conservation, utilisation, and promotion of this knowledge. As a first workshop on applied ethnobotany in Pakistan, it was well received in the government as well as non-government sectors and a group of participants is working on the follow-up of the recommendation made during the course of the workshop.

A Training Programme on **Quantitative Methods and Database Development for Ethnobotanical Research in Mountain Environment** was conducted at ICIMOD from October 7-10, 1996. Ethnobotany surveys usually generate inventories of various plants; and techniques are used to group them in various categories. Often these inventories are presented in descriptive formats without any details addressing the complex interactions between humans and plant use. This training was designed to suit the methodology requirements of the awardees of case study and study grants in order to facilitate their research work. These five young researchers from Nepal were given training on

systematic data collection, organisation of data in a database, and using simple statistical packages for analysis of data and interpretation of results.

The second **Gender and Development Fact-finding Mission Methodology Workshop** was held from October 14 - 16 for 5 participants from Chittagong (Bangladesh), Myanmar, and Yunnan and Sichuan Provinces (China) who were selected as researchers for the Fact-finding Mission. The workshop provided an orientation to the 3-month research activity which they will carry out in their own countries and provided training in tools for gender analysis. The researchers developed their individual action plans during the course of the meeting, and these included an exploration of plans and policies at the national level and investigation of gender relations in one or two sample mountain communities.

A Regional Workshop on the **Conservation and Management of Yak Genetic Diversity** was held in Kathmandu from October 29 to 31. The Workshop, cosponsored and organised by ICIMOD and the FAO Regional Office in Bangkok, brought together 29 yak specialists from yak-raising areas in Asia. Issues in the conservation and management of yak genetic diversity were discussed and priority areas for action to improve yak productivity and maintain genetic diversity were formulated.

A **Regional Experts' Meeting on Rangeland and Pastoral Development in the Hindu Kush-Himalayas** was held in Kathmandu from November 5 to 7. Twenty-five rangeland, forage, and pastoral development specialists from ICIMOD member countries attended this meeting and discussed major issues relating to the sustainable management of rangeland resources.

Travel News

Establishing Linkages in the Region

Ms. Naomi M. Saville travelled to Kodaikanal, Tamil Nadu, **South India**, from 13-27 June to attend the workshop on Revive *Apis cerena indica* organised by the Palni Hills' Conservation Council. The meeting discussed new method of controlling the Thai ac brood virus.

From June 29 to 28 July, **Mr. Anupam Bhatia** visited Manali, Kullu, Palampur (Himachal Pradesh) and New Delhi, **India**. During his visit, he provided advisory services to various institutions in forestry-related issues and held meetings with various others with a view to developing further programmes in participatory natural resource management.

Mr. Rajen Upreti, Travel Officer, made a study of the travel policy and procedures of FAO/AIT, UNEP, in **Bangkok**, and Dragon Air and Jacky's International in **Hongkong** from 28 July to 7 August.

At the invitation of the Ministry of Food, Agriculture, and Livestock, Govt. of Pakistan, an ICIMOD team (**T. Partap, S. Malik, A. Junejo, S. Akhtar D. Miller**, and **B. Shrestha**) went to **Multan, Pakistan**, to attend an International Seminar on Farming Systems' Research in the context of food security. The President of Pakistan in his inaugural address spoke about the concerns of marginal areas and marginal people in Pakistan and also highlighted the role of ICIMOD.

Dr. Tang Ya, together with **Mr. Suraj B. Thapa**, visited Mugling and Tistung in **Nepal** from 8 to 9 August to monitor and review the progress of the Appropriate Technologies for Soil Conserving Farming Systems Project on two sites and to facilitate the implementation of the project.

Dr. Kamal Rijal, Energy Specialist, travelled to **Beijing, Kunming, Chengdu**, and **Lhasa** from 18 August to 7 September to acquaint himself with the prevailing state of energy and the development of renewable energy systems in the Hindu Kush-Himalayan area of China. In the process, he also reviewed the study entitled "Analysis of Energy Use Patterns in Rural and Urban Areas of the HKH."

Dr. Prasad Thenkabail travelled to **Delhi, Solan**, and **Dehra Dun** from 27 July to August 3 in connection with cooperation and collaboration in the application of and capacity building in Remote Sensing. **Birendra Bajracharya** accompanied him to Solan where together they conducted a Remote Sensing Data, Services, and Applications' Workshop for the Indian Himalayas. From 18 August to 6 September, they travelled to **Thailand** and **Myanmar** to attend an ESA/ERS workshop and to familiarise themselves with institutions and individuals working in the context of remote sensing respectively. Dr. Thenkabail also visited **China** from 5 to 15 August to familiarise himself with institutions and individuals working in remote sensing in the country and to develop an agenda for future remote-sensing activities.

Mr. Ajay Rastogi travelled to **Bangladesh** from 4 to 9 August to visit the Bangladesh Forest Research Institute (BFRI) for planning of the subregional training workshop on applied ethnobotany. He also visited other related institutions in Chittagong and Dacca to initiate the activities of the HKH Ethnobotany Project in Bangladesh.

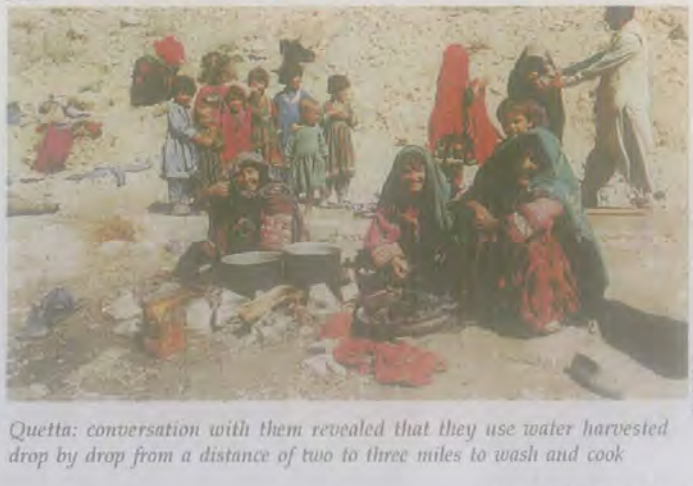
The Director General, **Mr. Egbert Pelinck**, travelled to **India** from 22 to 30 September to attend meetings with the Board Member designate and several collaborating institutions. During his visit Mr. Pelinck met and had discussions with bureaucrats to field researchers and visited ministries and institutions related to donor organisations and universities. It was a fruitful visit from the perspective of both ongoing programmes as well as potential ones.

Professor **Pei. Shengji** and **Daniel Miller** travelled to **China** to handle the workshop on Effective Management of National Parks and Protected Areas in East Asia and South Asia, in Jinzhaigou, Sichuan Province, from August 25 - September 2. Following the workshop, Daniel Miller travelled to Hongyuan, Sichuan Province, to meet officials of the Sichuan Rangeland Institute and to Lanzhou, Gansu Province, to discuss range management and pastoral development activities at the Gansu Agricultural University, Gansu Grassland Ecological Research Institute, and the Lanzhou Institute of Animal Science.

In early October, **Daniel Miller** travelled to Rapti zone, **Nepal**, with officials from USAID/Nepal and the Deputy Asst. Administrator for Asia and the Near East Bureau, USAID/Washington. Mr. Miller briefed USAID officials on the GIS work ICIMOD has been involved in with USAID Nepal.

Dr. Pradeep Tulachan visited different parts of **Sikkim** (India) from October 6 to 16 in the context of conducting case studies on sustainable mountain agriculture in Sikkim. He, along with Dr. H. R. Sharma (Himachal Pradesh University), selected two study sites where field work is being carried out.

From 11 to 25 October, **Dr. Shaheena Malik** attended the follow-up meeting on Documentation of Appropriate Farm Technologies for Arid and Semi-arid Areas in **Quetta, Pakistan**. The meeting was successful in identifying over 50 farm technologies. In Pakistan she met the Federal Secretary of Agriculture and representatives from FAO, UNDP, the World Bank, and the ADB in connection with collaboration in appropriate farm technologies and training.



Dr. S. Malik

Quetta: conversation with them revealed that they use water harvested drop by drop from a distance of two to three miles to wash and cook

Global Linkages

Prof. Li Tianchi visited **Austria, Switzerland, Norway,** and **Italy** from 16 June to 17 July to study the concrete realisations using Mountain Risk Engineering criteria in the mountain areas of Europe and to participate in the 20th Session of the EEC Working Party on the Management of Mountain Watersheds.

Dr. A. A. Junejo visited Toronto and Ottawa, **Canada,** from 11 to 17 August to attend the "1996 Annual Working Conference of the International Network for Small Hydropower". He also met personnel at the Natural Resources' Department, Canada, and the Canadian International Development Agency (CIDA).

Basanta Shrestha and **Sushil Pandey** went to Geneva, **Switzerland,** from 15 September to 1 October to participate in the MERCURE Training Programme organised and sponsored by the United Nations' Environmental Programme.

Jeannette D. Gurung travelled to **Rome, Italy,** from September 29 to October 7 to participate in the IPGRI/FAO (International Plant Genetic Resources Institute) Working Group Meeting on "Incorporating Gender-Sensitive Approaches into Plant Genetic Resources' Conservation and Use". The objectives were to develop guidelines for promoting strategies in national programmes in line with the recent Global Plan of Action agreed to by 150 countries at the Leipzig International Technical Conference in July 1996 to protect the World's shrinking supply of plant genetic resources for food and agriculture.

From October 6-10, **Dr. K.K. Shrestha** and **Naomi Saville** attended the 3rd Asian Apiculture Association Conference in **Vietnam**. Ms. Saville has been elected the chair for beekeeping extension and Dr. K.K. Shrestha has taken the responsibility of coordinating the next conference here in Kathmandu in 1998.

Book Review Panel

As a multidisciplinary centre on integrated mountain development, ICIMOD produces a broad range of publications addressing a wide range of issues and also aspires to add all relevant documents into its Library collection. Wishing to include in its files the names of individuals willing to undertake occasional book review assignments for its Newsletter and World-Wide Web Home Pages on the Internet, we sent out invitations to all interested to be on its "Book Review Panel".

We wish to thank all those who have volunteered to be on this panel. We now invite you to get in touch with us if you have recent (1995/96) book titles on mountain development that you consider worth reviewing. If so, please e-mail or fax your suggestions, with a complete bibliographic reference of the suggested monograph(s), manual, etc. to:

e-mail: archana@icimod.org.np,
Fax: 977 1 526747, 977 1 524509.

Recent Publications

On Biodiversity

Banking on Biodiversity
Report on the Regional Consultation on Biodiversity Assessment in the HKH
Pei Shengji, 486 pages, 1996
This volume is a collection of papers on a wide range of species and efforts to conserve them. What comes through very strongly is the commonality of issues throughout the region. While pointing out that, as of this date, fifty per cent of all known species have already disappeared, the authors find a reasonable hope that the riches of the HKH region will not be eradicated beyond renewal.

Bibliography on Biodiversity
232 pages, 1996
Information on studies related to Biodiversity in the countries of the Hindu Kush-Himalayas is not only sparse but often widely scattered and not easily accessible. As a first step towards filling this gap, this volume has been compiled. There are altogether 652 documents under the headings entitled Biodiversity and Conservation, Biodiversity in Agroecosystems, Biodiversity in Natural Habitats/Protected Areas and National Parks, Legislation and Policy, and Socioeconomic and Cultural Aspects in Biodiversity.

On Community Forestry

Community Forestry in Nepal and India; Learning from Each Other
M. Hobbley, J.Y. Campbell & A. Bhatia; 48 pages
MNR 96/3 (in Nepali, English, and Hindi)
This paper makes a case that there are tremendous learning opportunities between Nepal and India and that stronger interlinkages based on mutuality can contribute to our common goal of ushering in sustainable forest management in the Hindu Kush-Himalayas.

Comparative Analysis of Policy and Institutional Dimensions of Community Forestry in India and Nepal
S. Palit, 50 pages, MNR 96/4
An analysis is made in this paper of the policy and institutional dimensions of community forestry in both Nepal and India in order to identify the areas of weakness, steps required to rectify these, and opportunities for exchange and learning.

On Education, Research & Planning

Integrated Planning for Environment and Economic Development in Mountain Areas: Concepts, Issues and Approaches
T.S. Papola, 17 pages, MEI 96/2
This paper attempts to raise various issues and come up with proposals relating to environment-development integration and intersectoral linkages, human resources' development and gender dimensions, and integrated area planning in mountain areas.

Education, Research and Sustainable Mountain Agriculture: Priorities for the HKH
M. Banskota and T. Partap, 34 pages, MFS 96/1
This discussion paper was the key research paper presented at the Consultation. It provides a good background to all those who are working with or concerned about the state of education and research in sustainable mountain agriculture development in the HKH.

Visitors to the Centre

Dr. Prakash Chandra Lohani, Minister of Foreign Affairs, HMG, Nepal
Walter Fust, Head, Swiss Development Cooperation, Bern, Switzerland
John Cool, Winrock International
Mosaad Allan (Director, GIS) and *Cherian Chaly* (Head, Systems and Database), Geomatics, Ottawa, Canada
Ekon J. Otoo, Consultant, Canada
Khadija Jamel, Pakistan
Raju Baju Shrestha, INSAN/Kathmandu, Nepal
D. P. Giri, INSAN/Kathmandu, Nepal
Madhukar S. Rana, Special Advisor, Ministry of Foreign Affairs, HMG/Nepal
Esa Hurtig, Charge d' Affairs, Embassy of Finland
A. L. Ange, Chief, Plant Nutrition Management Service, FAO
Jurg Benz, SDC, Agricultural Division, Switzerland
Paul Wilson, Director, Projects and Partnership, Pegasus Networks, Australia
Renald Lafond, Senior Program Specialist, International Development Research Centre (IDRC)
Tshering Tashi, Head of Natural Resource Division, National Environmental Commission, Bhutan
Dequn Zhou, Associate Dean, Office of International Cooperation, South West Forestry College, Kunming, China


File Photo
Minister Lohani at ICIMOD

Roy C. Alimoane, Training Coordinator, Asian Rural Life Centre, Philippines
J. Jeff Palmer, Training Director, Asian Rural Life Development Foundation, Philippines
J. Gabriel Campbell, The Mountain Institute
Dr. Graham Clarke, Anthropologist, U.K.
R. Sugimoto (Chief Advisor), *Daisake Higaki*, *Osamu Yamauch*, and *Shigechika Miyajima*, DPTC (JICA)
K.B. Powar, President, Wadia Institute of Himalayan Geology and Secretary General, Association of Indian Universities, India
Morio Yamamoto, National Museum of Ethnology, Expo Park, Suita, Osaka, Japan
Zhang Hongjiang, College of Soil and Water Conservation, Beijing Forestry University, China
Lu Shengli, Department of Soil and Water Conservation, Ministry of Water Resources, China
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