

ICIMOD on the Information Highway

For each of ICIMOD's mandatory activities (documentation and information exchange, research, training, and advisory services) communication is of vital importance. Reaching out to the 120 million people living in the mountain ranges of eight countries is a continuous challenge to the Centre.

Technologies

When ICIMOD was established in 1983, the main methods of communicating with institutions in its member countries were by mail and telegramme. Subsequently, telephone and fax have had a tremendous impact on the efficiency of ICIMOD's operational and administrative contacts in the region. We are very happy that, by entering into the INTERNET, ICIMOD now also has the opportunity to interact in a very substantive way on scientific issues, both within the region and outside, with institutions and organisations with similar access. While at the moment the number of institutions and organisations in the region with operational access to INTERNET may still be somewhat limited, we are convinced that this technology will be adopted by many of our partner institutions in the region within the next few years.

Methodologies

Face-to-face communication is, however, still the preferred method of communication in this region, as can be seen from the contents in this Newsletter. This issue, once more, reports on several workshops and seminars that took place in the region. Travel by ICIMOD professional staff to our regional member countries is also an important communication method when it comes to ensuring that ICIMOD's programmes respond to the needs and problems of our partner institutions. This issue also contains a short note on the response to our readership survey, which indicates the continuing, if not increasing, need to send out our Newsletter regularly to the more than 2,000 addresses on our mailing list.

The Ultimate Goal: Reaching Out to the Poor

Even in ten years' time, 99 per cent of the population of the HKH Region will not have access to INTERNET and will not have direct access to the ICIMOD Newsletter and other ICIMOD documents. ICIMOD is therefore on the continuing lookout for partners who can



ICIMOD's home page menu

be intermediaries in reaching out to the poor of the region. Please approach us through any of the methods listed in the box 'Communicating with ICIMOD', and we will try to be of assistance.

Egbert Pelinck
Director General

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Conservation of the Environment in the Nepal Himalayas

Harka B. Gurung

In recent years, the Nepal Himalayas have become the focus of much environmental concern, owing to the massive soil erosion that affects the adjacent lowlands and the problems of mountain areas with heavy tourist traffic. This paper attempts to provide a brief overview of four aspects of the ecocrisis: conceptualisation, diagnosis, factors, and interventions.

I. Conceptual Clarification¹

Discussion on the Himalayan environment needs to begin with conceptual clarity and this means the demolition of 'sacrosanct tenets'. The obvious prevailing platitudes are ecological balance, fragility of the mountains, the afforestation/soil erosion equation, native ignorance of the environment, and environment and development as antitheses (Table 1).

Ecological Balance: The spoliation of the natural ecosystem is inevitable with human intervention. The degree of imposition on the natural environment varies in rapacity, both in time and space, depending on whether it is for survival (poverty) or conspicuous consumption (affluence). Substantial advances in science and technology have, however, obliterated the Middle Path between traditional immobility and materialistic heedlessness.

Fragility of the Highlands: If vast quantities of sand and silt were not transported by the Himalayan rivers over millions of years, there would be no

Table 1: Notion vs Reality

Notion	Reality
1. Balance between nature and man	Technological development to adapt/control nature Temporal sequence a. Dominance of nature over man b. Adaptation of man to nature c. Balance between man and nature d. Adaptation of nature to man e. Dominance of man over nature
2. Mountains are fragile	Mountains are dynamic
2a. Mountain and hill environment	Temperate mountain + Subtropical hill = Highland environment
3. Deforestation = Erosion	Surface erosion is due to steepness of slopes
4. Natives are ignorant of environmental degradation	Natives have intimate knowledge of the environment
5. Development is anti-environment	Environmental protection is possible only through development

fertile Indo-Gangetic plains to contrast with the poverty of the highlands. Excessive exposure to natural elements makes highlands a high energy area for mass wasting. Therefore, it would be more realistic to consider the highlands as dynamic elements.

Erosion due to Deforestation: The instability of the highlands is related more to the declivity of the land surface of steep slopes. At excessive heights above the treeline, mass wasting takes place independently of vegetation cover. Soil creep erosion, solifluction, and land slips and slides are common in the highlands, whether there be vegetation or not. Human activities do contribute to deforestation, but the extent of human impact on consequent land degradation remains an unknown quantity.

Native Ignorance: Generally, the natives are said to be ignorant of ecology or the adverse consequences of environmental degradation. It is said that highlanders should not multiply so fast, that shift-

ing cultivation is a bad land-use practice, and tree felling for fuelwood certainly leads to deforestation. However, these are adaptive mechanisms for survival in the absence of alternatives.

II. Environmental Problems

The two principal environmental problems in Nepal are land degradation and deforestation. In recent years, pollution problems have also emerged due to haphazard urbanisation and industrialisation. The first two processes are due to the nature of terrain and over-exploitation of the natural resource base.

Land Degradation: The term 'degradation' used here is not in the form of a geomorphic process but in the sense of diminishing economic returns. Mass wasting in the form of landslides and slope failures is common on steep slopes. Soil erosion is natural on steep slopes, and the heavy precipitation during the monsoon intensifies the process. In arid trans-Himalayan areas, wind erosion is a predominant process. Road and canal construction activities also contribute to slope failure, but their scale of impact is minor compared to that of natural mass wasting in Nepal.



Thinner and thinner forests

* This article is based on a presentation by Dr. Harka Gurung to ICIMOD staff on 9th January. Dr. Gurung is a Member of ICIMOD's Board of Governors, a former Minister of Industry and Commerce and of Tourism for HMG/Nepal, and currently the Director of the Asia Pacific Development Centre in Kuala Lumpur.

1 Harka Gurung, 'Ecological Change', Seminar Journal (Nepali Reflections), Delhi, June 1982, pp57-64

Nepal is said to lose 240 million tonnes of sediment annually through its three river systems. That the catchment area of the Koshi is only half that of the Karnali but transports a 2.4 times greater sediment load is indicative of the active contribution of heavy precipitation in the eastern part of the country. Mass wasting and surface erosion contribute to increased sedimentation and flood hazards in the inner *terai* and the *terai* plains.

Deforestation²: Destruction of forests has two aspects: forest depletion through overexploitation and outright clearance for agriculture and other land uses. The former occurs near settlements and is due to the extraction of products and overgrazing. Expansion of cropland at the expense of forest land is indicative of increasing population pressure, while commercial exploitation is facilitated by road access. From 1964/65 to 1978/79, there was a loss of 382,000 hectares of forest land.

The rate of forest depletion varies widely among the elevation zones. The mountain zone is assumed to have gained marginally. In the hills, the loss was as low as 0.2 per cent. Nearly 90 per cent of the forest area lost was in the tropical *Tera*i at a rate of 1.8 per cent annually. This was mainly because of agriculture and settlement for the large influx of migrants.

Depletion and destruction of forests have a highly negative effect on biological diversity. The rich floral diversity in Nepal is represented by 375 species of fern, 352 species of lichen, and 350 species of orchid. Furthermore, the country has high faunal diversity, being the convergence of the Oriental and Palaearctic realms. It includes 797 bird, 580 butterfly, 129 mammal, 120 fish, and 63 reptile species. Despite the designation of some areas as national parks and reserves, many biotic species fall in the endangered category.

Pollution: Solid waste of varying compositions, biodegradable to non-biodeg-

radable, have become a problem in urban and industrial areas. It has also become a problem in heavily-treked areas such as the Annapurna Sanctuary and the Upper Khumbu. Water contamination has also become a big problem in Kathmandu Valley due to industrial effluent, chemical pollution, and pesticides used on agricultural land. Air and noise pollution are very localised problems and refer particularly to the Kathmandu Valley. Air pollution in the Valley is mainly caused by brick kilns, cement factories, and the increasing number of vehicles.

III. Causative Factors

The three broad categories of environmental problems enumerated above owe their genesis to discrete factors. Simply stated, land degradation is mostly natural, deforestation is due to population pressure, while pollution problems are due to poor management.

Steep slopes are both the cause and effect of mass wasting. According to the databases of the Land Resources' Mapping Project, 58 per cent of Nepal's land surface is defined as steep to very steep. Deforestation, whether in the form of depletion or outright clearance, can be attributed to human interference.

The overpopulated hills are the sources of outmigrants. Some hill districts in central Nepal exceed 7.7 persons per net cultivated hectare, while the national average is 5.7 persons. This has put increasing pressure on forests for timber, fuelwood, fodder, and land for cultivation. Another source of pressure on forest land is the large number of livestock, estimated from 13.3 to 18.3 million during 1980/81. Their density per hectare of gross cultivated land is 7.6 on grazing land and 2.1 on forest land. Despite various attempts at agricultural development, increase in food production has not been through intensification or increase in productivity but through cropland expansion.

Except for the acute situation of solid



Dr. Gurung delivering his presentation

waste, water, air, and noise pollution in metropolitan Kathmandu, these problems are still in the formative stage. The problems are evident and mainly due to the lack of any control mechanism or proper management.

IV. Poverty-Environment Nexus³

The relationship between environment and development in the highlands of Nepal should be considered to be inverted since some of the environmental stresses there are the making of extreme underdevelopment. Poverty is the basic cause of poor land management, the consequence of which is deepening poverty⁴.

The risks can only be mitigated through economic development for it is the poor that impose on marginal resources.

The main agenda of highland development revolves around reconciling land-use conflicts, reducing demographic pressure, and developing alternative sources of energy. The last item has much relevance for the protection of natural vegetation. Programming of activities will be more realistic through a better understanding of traditional resource management systems. Since the highlands are generally away from the centres of economic and political power, successful implementation will be contingent on the full involvement of local institutions and beneficiary participation. ■

² Harka Gurung, "Management of Temperate Forests in the Central Himalaya," in Wil D. Verwey (ed) *Natural Management and Sustainable Development*, Amsterdam, 1989, pp. 203-215.

³ Harka Gurung, 'Mitigation of Environmental Risks in the Highlands', paper presented at the IFAD Project Implementation Workshop for Asia and the Pacific Region, Chengdu, Oct. 22-Nov 2, 1990.

⁴ Piers Blaikie and Harold Brookfield, *Land Degradation and Society*, London, 1987.

Mountain Agricultural Education and Research

In order to foster regional cooperation for sustainable development of mountain agriculture among agricultural research and educational institutions located in or concerned with mountain agriculture in the HKH, ICIMOD organised a regional consultation in Kathmandu. The consultation was intended to provide a platform for sharing experiences, discussing issues of common concern, and identifying areas for action at national and regional levels.

Participation

Among the participants at the meeting were 20 Vice Chancellors from Universities based in the HKH and a similar number of high-level functionaries from National Agricultural Research Centres. Another 20 participants represented Ministries of Agriculture, NGOs, and other organisations with a mandate for agricultural extension.

Common Platform

It was basically agreed that all mountain agricultural research and development was facing a number of common issues. After an extensive review of existing constraints and potentials, the meeting concluded with the following key recommendations under four specific topics.

I. Strategies for Transformation of Education Systems

- Specialised courses on mountain agriculture should be offered within the general B.S. level degree programme.
- Students should be required to undergo a year's internship.
- There should be an exchange of faculty/staff amongst regional universities and research institutes.
- Faculty should spend 20% of their time directly involved in extension and foster two-way communication between the university and farming communities.
- ICIMOD should serve as the focal point for information and resource sharing.

II. Redefining Research Priorities

- Agro-ecozoning of the Region must be conducted, along with a survey of various farming systems in each zone.
- Indicators for sustainable farming systems should be developed for monitoring, evaluating, and formulating policies.

III. Incorporating Gender Concerns into Agricultural Institutions

- Curricula should be adjusted to include gender concerns at all levels.

- Local women should be mobilised as extension agents to work with existing women's organisations for empowerment and skill development.
- Research should be conducted on time and labour-saving technologies to reduce women's workloads.
- Research should be conducted on women's indigenous knowledge, using participatory methods.
- Information on technologies for women should be collected and shared.

IV. Strategies for Creating Regional and International Partnerships and Alliances

- At the national level, each country should establish national mountain agricultural resource committees at the central, state/provincial, and local/district levels.
- Each country should carry out an analysis of the institutional framework within its territory, including an inventory of who's who to identify a focal point and sources of funding.
- At the regional level, ICIMOD should establish an Advisory Committee on Mountain Agriculture made up of representatives of the national committees.
- All institutions should share their policies, plans, publications, etc through the national focal points; ICIMOD can disseminate this information through print and electronic media.
- Short-term refresher courses and in-service training programmes should be offered to government officials, researchers, and educationalists, as well as to extensionists and farmer organisations.



Vice-Chancellors of Agricultural Universities meet

Chengdu Institute of Mountain Hazards and Environment (China)

Introduction

The Institute of Mountain Hazards and Environment (IMHE), the Chinese Academy of Sciences (CAS), and the Ministry of Water Conservancy (MWC) is based in Chengdu, Sichuan Province, China. It is a premier institute for research on mountain hazards and environment in the Chinese Himalayan Region. The institute was established in 1965 as the Southwest Branch of the Geographical Institute, CAS, and renamed the Sichuan Institute of Geography and the Chengdu Institute of Geography in 1971 and 1978, respectively. The institute was given its present name in 1987 and is now under the dual leadership of CAS and MWC.

Mandate and Objectives

The main mandate and objectives of the institute are to conduct basic and applied research on: 1) distribution, formation, and control of mountain hazards (debris flow, landslides, and soil erosion); 2) formation, evolution, and protection of mountain environment and human impacts on mountain environment; 3) development and utilisation of mountain resources, especially soil resources; and 4) application of remote sensing and computer mapping for mountain planning and development.

The institute offers Masters' Degrees in education on mountain sciences and provides consultations for mountain development.

Organisation

The institute has a Directorate co-ordinating the following divisions and field stations.

Research Divisions

- Debris flow
- Landslides
- Mountain Erosion and Protection
- Ecology and Environment
- Regional Development



Visitors to the Institute posing for a photograph

- Remote Sensing
- Cartography and Pedology

Field Stations

- Dongchuan Debris flow Observation and Research Station
- Jinlongshan Landslide Observation and Test Station
- Jiuzhaigou Landscape and Ecology Research Station
- Gongga Mountain Ecosystem Observation and Experiment Station
- Yanting Purple Soil Agro-Ecology Research Station
- Yuanmou Soil Conservation and Ecology Experiment Station.

Two of the field stations are open to international scientists. The institute also has two debris flow and landslide simulation laboratories and one synthetic technical and specialised laboratory.

Staffing and Facilities

The Institute has about 400 staff, including 120 senior research fellows and 100 middle research fellows. It has a library of documents on mountain hazards and development. Several Journals are published by the Institute, of which Mountain Research is the first journal to be published on mountain development in China.

Programme

To meet the needs for sustainable mountain development, the institute focusses on a number of aspects.

- i. Debris flow: formation, regional planning, and comprehensive control of debris flow
- ii. Landslide: formation and distribution, monitoring, forecast, and protection, specifically for disastrous landslides;
- iii. Mountain erosion and protection: concentrated on soil erosion in arid and semi-arid areas of the Chinese Himalayas
- iv. Mountain ecology and assessment
- v. Regional development assessment
- vi. Mountain regionalisation for economic development
- vii. Mountain pedology
- viii. Application of remote sensing and cartography for mountain development and regional planning.

During the past 30 years, the Institute has made a substantial contribution to mountain development. More than 400 research and production projects have been completed and 70 prizes have been awarded at national and provincial levels.

The Institute of Mountain Hazards and Environment has been involved in the ICIMOD Programme/Projects since ICIMOD's establishment, in particular in the field of landslide hazard assessment. The current Mountain Risk Engineering Project focusses on training at field level (Newsletter 24).

Mainstreaming Gender

J.D. Gurung

The promotion of sustainable development in the HKH Region is the mandate and mission of ICIMOD. Beyond the ecological concerns alone, sustainability also incorporates social, political, and economic factors. Gender is one aspect that is closely linked to sustainable land use and the alleviation of poverty, which is fast becoming more feminised in the region. Men and women's differing roles and responsibilities, access to resources and benefits, and their practical needs affect the priorities and interests of the sexes in different ways. Due to their social and economic roles, poor rural women have a close association with the natural resources from which they must provide water, food, fuel, and income for their families. As a result, women's lives are very much affected, in ways that are different from the ways in which men are affected, by the environmental degradation which is occurring in the Hindu Kush-Himalayan Region.

It is the under-represented needs of women, in addition to the better-known priorities of men, therefore, that must be understood and accounted for in the planning and implementation of sustainable development programmes. Due to the tremendous variations in cultures, constraints, and opportunities in this mountain region, policies and plans

for the incorporation of gender perspectives must be based on local realities, which differ widely from east to west; a gender perspective for sustainability in the HKH Region will necessarily be derived from a knowledge of this diversity, gained with the full participation of both sexes in the information collection and analysis.

As was often commented on during the recent ICIMOD-sponsored Regional Consultation on Agricultural Research and Education in Sustainable Mountain Agriculture, most institutions involved in agriculture and natural resource management (including NGOs) in the region have not formally incorporated gender concerns into their research, extension, and training programmes. Indeed, many of their staff are not aware of what 'gender and development' refers to and demonstrate a gender blindness that leads to the widespread exclusion of rural women from participation in research and extension activities, limiting the degree of sustainability that these outreach actions may achieve. The common problems that women of this region experience - those of heavy workloads, low education, little access to financial and health services and new technologies, and limited control over resources - go largely unaddressed by those institutions responsible for rural

poverty alleviation through improved land use. Clearly, a strategy to bring about gender-sensitised planning and implementation in these key agencies could do much to encourage more equitable development between men and women and more sustainability.

To address this institutional neglect of gender concerns, ICIMOD has developed an institutional strengthening programme focussed on, but not limited to, agriculture and natural resource management institutions in the region. This programme will have both research and training components, as well as support for a Gender Network for information exchange. Research will begin in 1996 with a fact-finding mission to identify relevant institutions and individuals, collect existing data, and analyse the situations of women and men farmers throughout the mountain areas within the eight countries of the region. These analyses will then point the way to the development of a more in-depth and systemised databank to meet the needs identified.

From this mission, participants from eight countries will be selected for attendance in a training course on incorporating gender into organisational policies and programmes, as well as development activities for mountain dwellers. Women and men engaged in policy formulation for agriculture, forestry, livestock development, and environmental development in general, whose institutions demonstrate an interest to incorporate gender concerns into their programmes, will be eligible. These participants will gain the skills to guide their organisations to become more gender-responsive. A network formed around this core group of participants will provide the nexus for information collection and sharing in the HKH Region.

To help us in the identification of institutions working on gender issues within the HKH Region, please complete the form below and return it to Jeannette Gurung, Gender and Development Specialist, Mountain Farming Systems' Division. ■

Gender Survey Form

Name : _____

Institution : _____

Address : _____

Tel. : _____

Fax : _____

e-mail : _____

- ☐ Yes, we do have a Women in Development/Gender and Development Unit in our institution
- ☐ No, but we are interested in establishing one

What type of institution are you from?

Women's Natural Resources' Management Network Formed

Anupam Bhatia

ICIMOD's first workshop in 'Women, Development, and Mountain Resources: Approaches to Internalising Gender Perspectives' took place in November 1988 to promote interaction between ICIMOD professional staff and guest participants who were resource experts on women's issues. The workshop was coordinated by Dr. Vandana Shiva and Dr. Deepak Bajracharya.

From that time, the need for gender perspectives in mountain development has moved out of the tentative phase to becoming an accepted concept; if indeed there was ever any doubt about the importance of women in mountain development and in development per se. The first workshop was useful in that it came up with several suggestions about practical approaches to enhance the role and effectiveness of women in mountain resource development and management. Since then, internalising gender has progressed from the general to the particular.

Forty women from Nepal, India, and Pakistan came together in Kathmandu in December 1995 and decided to form the Himalayan Grassroots' Women's Natural Resources' Management Network. This workshop was a continuation of the process which had begun in May 1995 at the First Regional Community Forestry Users' Group Workshop organised by ICIMOD's Participatory Natural Resources' Management Programme.

The December forum brought together the women who had been nominated to the regional committee and who had been given the mandate to operationalise a regional network for women in May 1995.

In his inaugural address, Egbert Pelinck, Director General, ICIMOD, welcomed the participants and said

that this was a unique meeting for ICIMOD. This was the first meeting in which grass roots' women from ICIMOD's three member countries had come together to discuss the involvement of women in natural resources' management and mountain development. ICIMOD had already recognised the important role of women in this area and had established a special programme on gender and development. He said he was happy to see that men had also been invited to the forum and hoped that they would contribute to the discussions. ICIMOD would be eagerly looking forward to the outcome of the workshop so that the recommendations could be fed into ICIMOD's ongoing programmes.

The first two days of the workshop were spent in small groups to identify issues related to natural resources' management and the barriers which prevented women from playing a stronger role. It became clear during the plenary presentations that the status of women within the household was a critical issue and that women had to have a greater say in decision-making at all levels. The barriers identified were related to social and cultural issues, lack of education, the legal rights of women, and lack of aware-

ness about rights. In addition men's attitudes towards women, political manipulation, and caste and class structures were considered to be wider issues which need to be addressed.

The plenary also recognised that the key to sustainable mountain development was rooted in the ability of women to have a greater role in decision-making. This would only be possible if mechanisms to address gender and related issues were created so that women could collectively address them on a continuing basis.

The women participants endorsed the formation of the network and decided to create the Himalayan Grassroots' Women's Natural Resources' Management Network. As a principle it was also essential to ensure that leadership for this forum remained vested with grassroots' women. With this in mind, the group elected a new committee from the three countries of Nepal, India, and Pakistan. A follow-up meeting of the regional committee is scheduled to be held in Nepal in May 1996 to evolve a strategic action plan for the future.



Grassroots' women: given a forum

Rethinking the Energy Development Paradigm for Mountain Populations

Kamal Rijal



Are these technological options viable? Energy Centre, Y.S. Parmar University, Solan

A basic feature of the HKH Region is that the majority of the population lives in the countryside, quite removed from the amenities of modern cities and towns. These people are forced to lead simple lives, meeting virtually all their energy requirements from the environment. The price of this energy self-sufficiency, particularly for the poor, and specifically women and children, can be quite enormous in terms of human effort. This tedious and arduous labour is aggravated by the low efficiency of end-use devices. As a result: i) biomass is the principal fuel for cooking and space heating; ii) animate energy is the main source of mechanical energy; iii) the domestic sector is the main consumer of energy; and iv) cooking and space heating are the predominant end uses.

The slow pace of energy transition in the HKH Region can be attributed to the slow rate of growth in economic activities due to prevailing development barriers. These barriers are caused by mountain specificities which are manifested by inaccessibility, marginality, and fragility (Box 1). Besides these constraints and the 'niche' imposed on the energy sector, the numerous barriers it faces with regard to policy, planning, technology, cost,

financing, institution, and information pose a serious predicament for the development of the sector. However, a more positive strategy would be to capture the opportunities generated by the mountain-specific characteristics rather than harping on the constraints.

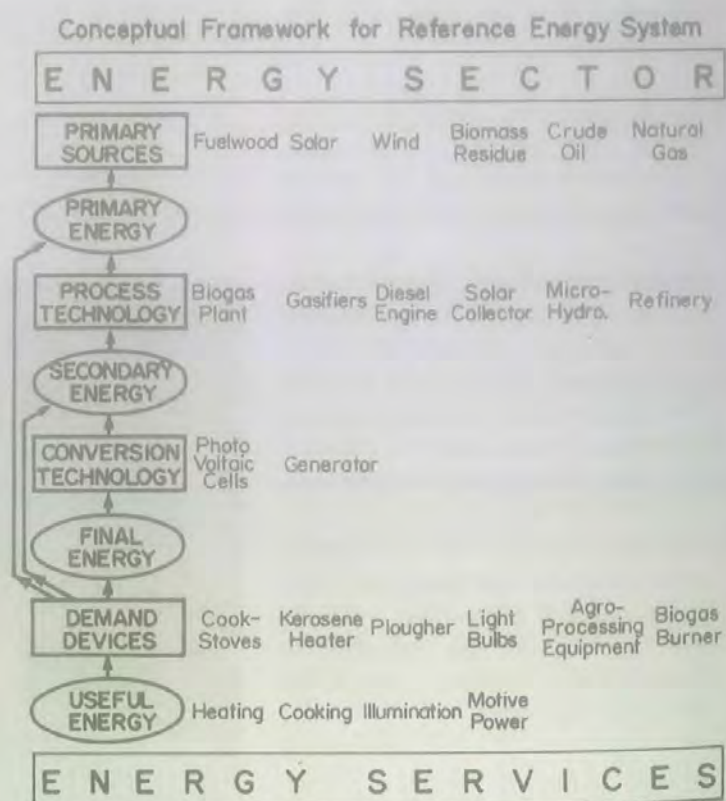
The objective of the energy system is to provide energy services. Energy services are the desired and useful products, processes, or services that result from the use of energy - for instance, illumination, cooking, space conditioning, and so on. The energy chain that delivers these services begins with the collection or extraction of primary energy, which is then converted into energy carriers that are suitable for end uses (Fig. 1).

Therefore, better efficiency of energy use permits significant improvements in the physical quality of life without any increase, or even with decrease, in the amount of primary energy, while,

at the same time, it reduces the release of environmental pollutant. Also, when a particular energy carrier is used efficiently, or a shift is made into more efficient energy carriers, then inefficiently used sources will be available for alternative uses. For example, large-scale dissemination of improved cooking stoves might make it possible to use animal dung as farmyard manure.

Mountain development and the associated poverty alleviation are believed to be feasible if development is both equitable (in group, gender, and generational dimensions) and sustainable (from both environmental and fiscal aspects). This would require a significant change in the energetics of mountain lives, besides the energy services required to fulfill the most basic needs such as water and food.

Sustainable human development could be achieved if energy systems' transition



Box 1: Mountain Specificities and Implications on and for the Energy Sector

Mountain Specificities	Primary Attributes	Adaptation Characteristics	Implication on Energy Sector	Implication for Energy Sector
Inaccessibility	Isolation; high cost of supply system; limited access; invisibility of problems	Multiple use of resources and technologies	Interventions failed due to a sectoral approach	Better understanding of sectoral links, i.e., fuel, fodder, and food chain
Fragility	Resource highly vulnerable to rapid deforestation; low productivity and resource capacity, dispersed settlements	High community participation; people-oriented problem-solving; integrated farming system; prevailing barter system	High cost of interventions; higher level of energy input	Augment energy supply; improve efficiency of conversion
Marginality	Limited resources and productivity; minimal consideration of areas/people	Exploitation of potentials by core areas/population, use of marginal areas by others, dependency	Destruction at margin process	Encourage forest management to provide fodder, fuel, and timber
	Subsistence economy	Low risk-taking capability	Slow pace of dissemination	Link energy and income generation
Diversity	Diverse resources and approaches; environmental situation; large-scale micro-variations in physical/biological attributes; interdependence of production bases	Multiple cropping, diversified upland/lowland farming systems	Increase in energy inputs, increased dependency on a specific fuel	Adopt the need-based approach and diversify fuel use
Niche	Small-scale specialisation; location and area-specific comparative advantage; location-specificity of production and consumption	Emphasis on activities that are mostly of an extractive nature; logging; hydroelectricity	Decentralised energy system preferable	Indigenous technical knowledge-base for maintaining forest areas, traditional machinery/ water wheels

Source: Banskota and Jodha (1992), Sharma and Banskota (1992), Sharma (1994), Jodha and Shrestha (1994), PEP (1994).

formation means movement towards a model that embodies lower energy system supply costs; greater financial sustainability, reflective of users' preference and ability to pay; improved environmental sustainability through greater reliance on renewable energy and improvement in the supply chains of traditional fuels; adoption of a system in a manner that maximises both direct and indirect benefits; and use and development of alternative institutional and financial approaches and incentives by all key players.

To facilitate sustainable environmentally-friendly development, other infrastructural development activities, as well as income-generating activities associated with credit facilities, are also crucial. At the same time, the system of decentralised governance and identification of appropriately-designed technology with in-built institutional attributes need to be packaged for intervention in mountain communities.

It is important to understand the overall food, fuel, fodder, fertiliser, and fibre (F5) system when considering the possibilities of transforming the energy systems in support of economic development. In the HKH Region, F5 systems are intertwined in many ways.

Animals and animal energetics are important in both subsistence and market-based development phases. Also significant is the value of the multiple outputs of animal husbandry and how it affects the alleviation of drudgery, increased productivity, and overall livelihood of the household.

The intricate relationship which exists between energy - economy - environment is generally understood. However, lack of knowledge concerning how to capture the dynamic linkages of these sectors continues due to the weak database and poor analytical capabilities.

A particular concern is the health impact associated with domestic use of

traditional fuels. Many people, especially women and children, are seriously affected by exposure to very high concentrations of emissions caused by cooking with low-grade fuels and stoves in poorly ventilated environments. An energy system transformation that reduces the health risks as well as poverty must be promoted.

It can therefore be concluded that energisation of mountain communities can be made feasible only if appropriate technological interventions, in terms of energy sources, technologies, and institutional mechanisms, are conceived and translated into reality. Energy technology interventions with increased economic activities will lead to breaking down the vicious cycle of poverty and environmental degradation. If energy transformations are implemented appropriately, even the poor can contribute in a significant way to development, which would affect their lives as well as the overall economy.

Regional Collaboration on Biodiversity Assessment, Monitoring, and Management

Pei Shengji

The Hindu Kush-Himalayan (HKH) Region is one of the world's highest ecosystems. This mountain ecosystem is extremely rich in biodiversity due to its great variety in altitude, climate, geology, biophysics, and soil formation. Human interactions with mountain environments throughout history have further enriched their biodiversity with particular distribution patterns of plant, animal, and genetic diversity. Recently, as part of an effort to promote national biodiversity conservation, several countries of the region began preparing national biodiversity action plans or programmes which also take mountain ecosystems into consideration. The biodiversity convention, however, also considers an ecosystemic approach in the wider geographical context, which is essential for further conservation, and Agenda 21 reinforces that concept by devoting a full chapter (13) to: 'Fragile Ecosystems: Sustainable Mountain Development'.

Biodiversity conservation is accorded high priority by the HKH member countries, and, as a consequence, ICIMOD is planning to play a more

active role in the field of biodiversity in the HKH Region. Since May 1995, ICIMOD has been engaged in a programme of regional collaboration on 'Biodiversity Assessment, Monitoring, and Management in the HKH Ecosystems'. To ensure that ICIMOD co-ordinates a regional programme that is complementary to and in support of national programmes, the programme carried out a state-of-the-art review on biodiversity and organised a regional consultation workshop for further development of the programme.

The main purpose of the state-of-the-art review is to recommend a regional collaborative programme on biodiversity assessment, monitoring, and management as a whole, as well as other activities specific to the needs of each country. The reviews will help to identify the existing knowledge base and areas of high priority for the future. On the basis of available information, and in consultation with other biodiversity experts, the state-of-the-art review papers were prepared at the end of 1995 by experts from the respective member countries of the HKH Region. All the review papers highlighted the main issues involved in

biodiversity conservation and management in mountain eco-systems in the respective countries, with updated information, data, and maps on biodiversity.

A Regional Consultation on Biodiversity Assessment, Monitoring, and Management in the HKH Region was organised from December 19 to 20, 1995, at ICIMOD, Kathmandu. It was attended by 23 participants from the regional member countries and concerned international agencies such as WWF, WCMC (World Conservation Monitoring Centre), IUCN, and ICIMOD; participants included the authors of the state-of-the-art review papers. The workshop was organised with the purposes of (1) exchanging and sharing information on biodiversity conservation in the mountain ecosystems of the HKH Region and improving the existing knowledge for better collaboration on the subject; (2) assessing and discussing the state-of-the-art review papers prepared by experts from the regional member countries; and (3) providing a forum for regional collaboration on biodiversity in the HKH. The principal outputs of the workshop were the positive comments made on the country review papers.

A wide range of common issues on biodiversity conservation and management in the mountain ecosystems was raised and discussed and the outcome was outlined into two groups of issues, one related to the biophysical aspects of regional cooperation for biodiversity conservation and the other related to the socioeconomic aspects which essentially build up the basis for formulating a medium-term work programme for regional collaboration on biodiversity. The workshop proceedings, including the state-of-the-art review papers, will be published by ICIMOD in the near future.



Rhododendron delavayi in Gaoligong-Shan of the Hengduan Mountains in the Eastern Himalayas of Yunnan Province of China. Yunnan Province contains a diverse range of *Rhododendrons*, with some 250 species in the mountain ecosystems of Yunnan. The total species number about 500.

How You Responded to Our Newsletter Readership Survey

Background

In October 1995, ICIMOD carried out a Newsletter Readership Survey for the first time. We are extremely grateful for the responses we received and are happy to share with you some of the significant findings.

A total of 2,071 questionnaires were sent out with Newsletter No. 22 to 79 countries and, to date, 300 (15%) responses have been received from 30 countries. Out of these responses, 181 (60%) were from the Hindu Kush-Himalayan (HKH) Region and the rest, totalling 119 (40%), were from outside the region. The two primary reasons for carrying out the survey were:

- to find out how useful and informative you find our Newsletter and to find out whether you feel it provides adequate information on the issues relating to sustainable mountain development and
- to solicit your ideas and suggestions on how we can further improve both the content and presentation of the Newsletter.

Here is the feedback

1. Are you receiving the ICIMOD Newsletter regularly?

217 (73%) respondents indicated that they were receiving the Newsletter regularly; however, some of them complained about irregularity or late receipt. (This probably has more to do with the vagaries of postal authorities worldwide than with ICIMOD - something that ICIMOD has no control over.)

2. Do you wish to continue receiving the ICIMOD Newsletter?

All but five respondents wished to continue receiving the Newsletter.

3a. Is the ICIMOD Newsletter interesting to read?

284 (95%) respondents find our Newsletter interesting and 3 (1%) do not (4% had 'no comment').

3b. Does the Newsletter provide useful/practical information?

Several readers expressed the opinion that the Newsletter should provide more practical, technical, and scientific information, focussing on the results of research activities carried out by ICIMOD and on highlighting 'success stories' in the region. Nevertheless, 275 (92%) found the Newsletter interesting.

3c. Does the Newsletter help you to understand the activities of ICIMOD?

282 (94%) of you responded favourably, 5 (2%) did not, and 4% had 'no comment'.

Readers would, nevertheless, like more information on activities that are going on or which are about to be launched by ICIMOD in the region. They would also like the Centre to be more involved in on-line interactive communication systems such as the Internet, List Servers, and World Wide Web. We are happy to inform you that you can find us on the Internet (see front page).

4. Have you ever contacted ICIMOD with an enquiry after reading an article in the ICIMOD Newsletter, or enquired about its programmes and publications?

118 (40%) readers contacted ICIMOD after reading an article in the Newsletter, whereas 169 (56%) did not, and 4% had 'no comment'.

5. Do you think the articles are too technical, about the right level, or too general?

240 (80%) of you find our Newsletter about the right level in terms of its content, 12 (4%) too technical, and 33 (11%) too general. The general feeling here is that the Newsletter should contain more technical or lead articles highlighting research activities, case studies, or 'success stories'. At the same time, some urged us to maintain a balance between items that are of wider interest and those that are technical.

6. Are there any particular topics(s) or item(s) you would like to see in the

ICIMOD Newsletter?

More than half (54.33%) of the respondents provided information on topics of interest, many of which related to natural resources' management.

7. Do you keep copies of the ICIMOD Newsletter in your library or documentation centre?

263 (88%) responded that they keep the Newsletter in their library/documentation centre.

8. Do you have any comments on the frequency, language, and visual presentation of the ICIMOD Newsletter?

While readers complimented us for the improvements we have made over the years in terms of layout, formatting, and visual presentation, there is a strong indication that most would like to see the frequency increased either to quarterly or bi-monthly, if not monthly.

On visual presentation and layout, a preference for photographs depicting grassroot-level activities was clearly evident from several of the responses, as was a preference for more maps, charts, and diagrams. The use of catchy headlines was also suggested.

9. Do you have any other comments about the ICIMOD Newsletter, or recommendations about how we can improve it?

Some of the responses to this question were the same as those covered in question number 6 above.

In addition, our readers would like to see information and reports on a broad range of additional subjects

We hope that readers will recognise in this and future editions of the Newsletter that we have used the comments we received to make it even more responsive to the needs of our readership. In the meantime we thank all of you who contributed to our understanding of the Newsletter's readership.



Abstracts of Recent Publications

1. **Landslide Hazard Management and Control in Pakistan**

- M.H. Malik, and S. Farooq

ISBN 92-9115-483-0



Landslide Hazard Management
and Control in Pakistan
A Review



M.H. Malik
and
S. Farooq

This country review on landslides in Pakistan deals with all the aspects of landslides, their types; causative factors; their relation to geology, earthquakes, monsoons, and deforestation; their impact; and possible studies to overcome disasters and control. This paper systematically identifies the problem areas and gives details of the historical

background, clearly establishing the connection with certain natural (earthquakes, lithology) and man-made (excavations and indiscriminate construction) causative factors. The extent of the impacts of landslides depends upon various factors such as the depth and rate of movement, stresses from the environment, volume of materials involved, and, most importantly, the proximity to settlements and structures. Dealing with the diversity of causes, the author scientifically enumerates aspects of geology, such as lithological distribution, bedding, joints, foliation, and schistosity, that lead to landslides. Causative factors relating to surface and groundwater and the effect of saturation on strength, temperature variations, earthquakes and vibrations, and effects of vegetation and deforestation have been dealt with in the context of Pakistan. The text is further substantiated with figures, tables, and photographs.

2. **Landslide Hazard Management and Control in India**

- V.C. Thakur

ISBN 92-9115-497-0

Landslide Management and Control in India examines the problem of landslides in a mountain environment in which rising populations and an increase in infrastructural construction have led to augmentation in the probability of landslide occurrence. The various landslide triggers (rainfall, erosion, deforestation, earthquakes, overburden of and construction of inappropriate infrastructure, geological causes, etc) and parameters of occurrence are discussed; a number of case histories are given in illustration. Methodologies for Landslide Hazard Zonation and map preparation are

discussed, along with landslide hazard rating. Methods of landslide hazard mitigation are covered and an outline for a training programme is proposed as part of the paper's principal recommendations.

3. **Landslide Hazard Mapping and Management in China**

- Li Tianchi

ISBN 92-9115-466-0



Landslide Hazard Mapping
and Management
in China



Li Tianchi

Landslides are one of the main natural disasters in China, responsible for huge social and economic losses for mountain populations. This paper reviews the available information on effective measures for reducing economic and social losses caused by landslides. These measures include landslide mapping (identification, types of

landslide maps, techniques of mapping); physical prevention and control measures (problem avoidance, surface-water drainage works, subsurface drainage, support structures, excavation, river structure works); landslide hazard anticipation (long-, medium-, and short-term prediction; prediction of the extent of landslides); and assessment and mitigation measures for landslide-dam failure disasters. Institutions concerned with landslide hazard mapping and control, forecasting, mitigation, research, and training (government agencies, research institutions, central and provincial governments, NGOs, and scientific societies) have also been listed.

4. **Landslide Studies and Management in Nepal**

- B.N. Upreti, and M.R. Dhital

ISBN 92-9115-502-0

The document covers the geographical make-up and geological framework of Nepal as an introduction to the topic. Specific topics such as erosion and sediment yield in the Himalayas are covered within these topic areas. Landslides are classified and factors causing them described, including the geological background to landslides. Climate and vegetation are among the factors covered, along with hazards such as glacial lake outburst floods and earthquakes. The main part of the document focusses on landslides and their mitigation; the landslide sections are introduced by a short review of landslide studies in Nepal. The text is supplemented by an

extensive bibliography and the curriculum for studies in engineering geology of Tribhuvan University, Kathmandu.

5. GIS Database of Key Indicators of Sustainable Mountain Development in Nepal ISBN 92-9115-516-0

This is the first of a series of eight documents envisaged for mountain areas of the eight countries of the HKH Region. In publishing this volume, ICIMOD is fulfilling a part of its mandate to facilitate the dissemination of relevant information for sustainable development of the HKH. The information is presented in tabular form with respective government institutions, but this is the first time that many important data sets have been brought together in one volume and on a common geo-referenced platform. The spatial dimension provided by the graphics provides decision-makers and planners with easy access to information.

6. Occasional Paper No. 25: Assessing the Potentials of Market Towns in the Mountains - Case Studies from the Hindu Kush-Himalayas - P. Sharma and N. Khanal ISBN 92-9115-533-0

Small towns and market centres can play an important and effective role in the development of mountain areas. However, strategies for the identification and assessment of the potentials of market towns and the formulation of a specific programme to develop the market town potential in mountain areas of the Hindu Kush-Himalayas are lacking. The present report builds upon existing literature and elucidates the application of the methodology for the assessment as well as the development of prioritised action plans of the market towns with most potential in Dechang County in Sichuan Province, China, Tehri Garhwal district in the UP hills, India, Dang district in Nepal, and Ghizar district in the Northern Areas in Pakistan. These areas represent the diverse physiographic, spatial, and economic context of the Hindu Kush-Himalayan (HKH) mountains. Spatio-economic profiles for each of the districts were prepared on the basis of secondary data complemented by field-level information. Several criteria were used in each context to identify and assess the market towns with the most development potential. On the basis of the field visits and participatory rapid appraisal methodology, several prioritised areas of action are identified for the promotion of a selected number of market towns with the most development potential in each context. In the context of the HKH countries, where planning manpower is often top heavy, the studies also demonstrate the partnership that can be established between academic institutions, rural development agencies, and governmental agencies in supporting demand-driven approaches to the promotion of market towns.

Recent Publications

- Application of GIS for Planning Agricultural Development in Gorkha District - MENRIS Case Study No.3. ISSN 1021-6529
Hubert Trapp
- Landslide Hazard Management and Control in the Hindu Kush-Himalayas - A Report of the Regional Workshop held in Kathmandu (July 12-14 '95)
ISBN 92-9115-452-0-
S..R.. Chalise and S. Karki (Eds)

WORKSHOP REPORTS

- Seminar on Conflict Resolution in Natural Resources - A. Bhatia
- Building Partnerships in Community Forestry - A. Karki, J. Amtzis, and A. Bhatia

DISCUSSION PAPERS

MNR

- 96/1 Jalbire Women's Community Forest Group - S.P. Malla
- 96/N1 Nepali version of 96/1
- 96/2 Community Forestry in Nepal - KB. Shrestha
- 96/N2 Nepali version of 96/2
- 96/3 Community Forestry in India and Nepal: Learning From Each Other - M. Hobley, J.Y. Campbell, and A. Bhatia
- 96/H3 Hindi version of 96/3

OTHERS

- Bibliography of Mountain Natural Resource Systems
- Publications' Catalogue
- Abstracts on Ecohydrology of High Mountain Areas
- Annual Report 1995

Centre News



Travel News

Directorate

The Director General, Mr Egbert Pelinck, visited Manila, from February 25th to March 9, 1996, to meet with the ADB staff to discuss present and future collaboration between ICIMOD and the ADB. The discussions included generating awareness about mountain issues and specificities, clarification of ADB's policy on international centres, and the scope for collaboration. Considerable interest was expressed in collaboration, and there was a lot of discussion on support that ICIMOD could provide to the Bank. Information sharing, partnership in policy support for mountain development, participation in project design and evaluation, executing regional technical assistance for HKH-specific activities, and support to the Regional Collaborative Programme were the main issues dealt with regarding collaboration. Mr Pelinck also had meetings with the Head of the Social Development Division, the Agriculture and Social Sectors' Department (Region East) staff, the Programme Manager for Pakistan, Afghanistan, etc, the Agriculture and Social Sectors' staff, Mr Marshuk Ali Shah, the new ADB representative for Nepal, and various other ADB personnel.

The Director General's visit to Australia was very successful, as it came at a time when various development agencies were reviewing their strategies on regional cooperation, and there was a greater focus on Asia in terms of their support to international organisations. Mr Pelinck met with the staff of the Australian Agency for International Development (South Asia/Middle East

Section, China and East Asia Section and the Environment, Agriculture and Physical Infrastructure Section), the Australian Centre for International Agricultural Research, the Commonwealth Scientific and Industrial Research Organisation, the Australian National University, and the Australian Alps' Liaison Committee. Extensive discussions were held on dissemination of information, short-term research programmes, biodiversity management strategies, GIS, and curriculum development for social forestry.



Stone temple dedicated to the forest deities for the protection of the water source in Zhi Mountain Reserve, Chuxing, Yunnan Province, China

Mr Pelinck also visited New Zealand and met with the Ministry of Foreign Affairs and Trade Staff. Considerable interest was expressed in collaborating with ICIMOD on the implementation of New Zealand-supported projects and in facilitating study tours to Nepal and ICIMOD. Other areas of interest were the role of ICIMOD in networking, training, and site-specific research. Mr Pelinck also met with staff from the Department of Conservation, Department of Survey and Land Information, Queen

Elizabeth II National Trust, Federated Mountain Club of New Zealand, Forest and Bird Society, Lincoln University, and several Crown Research Institutes. He visited an 11,000ha sheep farm in Mid-Canterbury and held discussions with the policy advisor to the Federated Farmers of New Zealand as well as Mr P.H. Lucas, former chairman of IUCN's Commission on National Parks and Protected Areas. The visit to New Zealand was very useful and informative in terms of informing the New Zealand authorities and scientists about ICIMOD and learning about the experiences of New Zealand in mountain-related development.

Mountain Farming Systems

Ms. Jeanette Gurung, Gender Specialist, was in Pokhara from 4 to 9 January 1996 to attend the Regional Conference on 'Rethinking Culture and Environment: The Cultural Context of Environmental Management in the Himalayan Region', which was sponsored by the UNESCO-Cultural Decade Programme/Paris and organised by the King Mahendra Trust for Nature Conservation - Annapurna Conservation Area Project. The conference was attended by representatives from NGOs, universities, projects, governments, media from within the HKH region, and the UNESCO office in Paris. Ms. Gurung presented a paper on 'Alternative Perspectives: Gender Dimensions of Traditional Environmental Management' which discussed the gender biases of the dominant development paradigm and raised the question of how development theories and practices would differ if they were to be from the vantage point of poor women in developing countries. A lively discussion followed the presentation with questions on changes in the status and conditions of mountain women due to the decline of their

traditional communities by development and commercialisation processes. A field trip to Lwang, a Gurung village in the ACAP area, also took place. The participants were impressed with the women's organisation and achievements in community improvement.

Mountain Enterprises and Infrastructure

Mr Kamal Rijal, Energy Specialist, attended a two-day international conference on Biomass Energy Systems, held from 26 to 27 February 1996, in Delhi. He also participated in an observation trip to selected locations in Himachal Pradesh and Uttar Pradesh, India, and took part in meetings at the IIT, the Ministry of Non-conventional Energy Sources (GOI), and the Tata Energy Research Institute (TERI) in Delhi. The Conference was organised by TERI and the British Council Division in Delhi. Sixty professionals from government departments, academic institutions, and NGOs in India participated in this conference and nine guest speakers from Nepal, Myanmar, the U.K., India, Pakistan, and Sri Lanka delivered papers during the proceedings. The main topics covered by the conference were biomass supply and demand, biomass gasification, and biogas technology. Mr Rijal was one of the panelists in the parallel session on biomass supply and demand. He also made a presentation on a framework for biomass energy technology promotion in mountain areas and gave a brief introduction to ICIMOD. The conference provided him with the opportunity to interact with other professionals working in areas related to biomass energy and also exposed him to current thought and ideas prevalent in this sector.

Dr Pitamber Sharma visited Myanmar (Rakhaine, Chin, and Kachin states) from February 11 to March 1, 1996, to participate in the Formulation Mission for the Human Development Initiative Extension Project (HDIEP). Discussions were held on the possible

collaborative and cost-sharing arrangements between ICIMOD and the HDIEP of the UNDP in Chin and Kachin states.

Dr Sharma also visited India and Pakistan from January 29 to February 8, 1996, to participate in the Project Planning Mission for the Second Phase of the Mountain Tourism for Local Community Development Project (MTLCDP). The main purpose of the visit was to discuss proposed activities and the workplan for the second phase of the MTLCDP with collaborating institutions in India and Pakistan and to finalise the basis for agreement with respect to the project. The collaborating institutions are the Academy for Mountain Environments (AME), Dehradun, in India, and the Sarhad Tourism Corporation (STC), Peshawar, in Pakistan. Dr Sharma met and discussed with Mr R. Shreedhar, Director, AME, and his staff the activities and workplan for the second phase of the MTLCDP. He also visited the Lal Bahadur Shastri National Academy for Administration in Mussoorie as well as the Centre for Regional Development, Jawaharlal Nehru University (JNU), in Delhi. In Pakistan, Dr Sharma discussed extensively the activities/workplan for the MTLCDP with Mr A.G. Mohmad, Managing Director of the STC, and his staff. He also paid courtesy calls on all relevant senior provincial decision-makers, including the Secretary of Tourism. He visited the Departments of Geography, and Environmental Planning and Management of the University of Peshawar as well as the IUCN Peshawar office, the Pakistan Environmental Protection Council, the Ministry of Environment, Urban Affairs and Forestry and Wildlife.

MENRIS

Mr Pradeep Mool and Mr Hubert Trapp travelled to Besishahar in Lamjung District, Nepal, from January 25 to February 2, 1996, to brief the Local Development Office (LDO) and district line

agencies on the status of the Lamjung GIS Project; to carry out field work for ground truth collection and accuracy assessment of the unsupervised land cover classification, based on the Landsat (MSS 1984 and TM 1994) Satellite data of the Lamjung District; and to check the settlement database, as well as to assess settlement location in the district. Mr Trapp undertook a field trip which covered 22 Village Development Committees (VDCs) of the district. Information was by interviewing local people, the VDC secretaries, and some VDC chairpersons, and from observations. Land cover classifications of the district were carried out at MENRIS/ICIMOD using remote-sensing data.

Mountain Natural Resources

Professor Pei Shengji visited Myanmar from January 7 to 19, 1996, for the ICIMOD programme on Eastern Himalayan Biodiversity Collaboration. The trip itself had three specific tasks: to visit the project field site in Pidaung in Kachin State, to identify and discuss key issues of the field site for project implementation with collaborative institutions, and to finalise and sign the MOU for project implementation. Meetings were held with the Department of Progress for Border Areas and National Races' Development and the Department of Forestry. Prof. Pei visited the Hlawga Wildlife Park, the Central Forestry Development Training Centre in Hmawbi, and the Seed and Seeding Centre as well as the UNDP Office in Yangon. He also visited Myitkyina, Kachin State, and the Pidaung Nature Reserve.



Prof. Pei with the forest officer and villagers of Pidaung, Kachin state

Programme News

MNR

Planning Workshop on Ethnobotany and Its Application to Conservation and Community Development in the HKH Region.

This workshop was jointly organised by UNESCO and ICIMOD and was held at ICIMOD from December 6-12, 1996. Participants from Bangladesh, Bhutan, China, India, Pakistan, and Nepal gave presentations on different aspects of ethnobotany and conservation and community, based on their respective countries. The objectives of the workshop were: i) to identify the main issues related to resources' management and community development in the HKH Region and to discuss how participatory research and joint analysis of local knowledge through ethnobotanical approaches may be used as an entry point to improve resource management and conservation; ii) to provide an overview of relevant technologies and methodologies and select those which are appropriate for application in the HKH Region; and iii) to identify and design project activities, including field sites for case studies and training components.

The recommendations of this workshop included five training workshops - National Training Workshops on Applied Ethnobotany- one sub-regional workshop and support for case studies as well as study grants.

MFS

Appropriate Technology for Soil Conserving Farming Systems' Project

This was a Mid-term Evaluation and Planning Workshop organised by ICIMOD and held at ICIMOD from January 31 to February 2, 1996. It was attended by participants from Bangladesh, China, Myanmar, and Nepal. Site/Country Progress Reports from the different countries were given at the beginning of the workshop. The objectives of the workshop were: i) evalu-

ation of project activities in the past 20 months, ii) sharing of experience by National Coordinating Institutes, iii) revision of the workplan for the remaining period, and iv) planning a training programme for 1996. The conclusions of this three-day workshop were that the active participation of farmers is essential for the success of the project, that training must be imparted at different levels, and that the supply of hedgerow planting materials plays a key role in the project. The workshop recommendations included extension of the project for 3-5 years, monitoring of soil properties, generation of quantitative data, collaboration between related NCIs, and so on.

MEI

Regional Workshop on Stoves Used for Space Heating and Cooking at Different Altitudes and/by Ethnic Groups

This regional workshop was organised jointly by the International Centre for Integrated Mountain Development (ICIMOD) and the FAO-Regional Wood Energy Development Programme (RWEDP) from February 12-16, 1996, in Pokhara, Nepal. Thirty-nine professionals; researchers; developers; manufacturers; governmental and non-governmental organisations; representatives from Bangladesh, Bhutan, China, India, Nepal, Pakistan, the Philippines, Sri Lanka, Vietnam; and GTZ; ICIMOD; and RWEDP participated. Manufacturers of space-heating devices provided brief demonstrations of their devices to all the participants. Following the conclusion of the workshop, a two-day field trip to Ghandruk was organised to better understand the energy technology options currently employed in the present context as well as to provide the participants with an opportunity to appre-

ciate more fully the hardships that mountain people face for mere survival in their day to day lives.

The workshop provided a forum for interaction between the participants and fostered collaboration in the field of space-heating technologies in the HKH Region. Twenty-three papers were presented and discussed during the workshop. Participants were divided into three groups: a) Framework for Policy Formulation; b) Strategies for Technology Transfer; and c) Action Plans for Follow-up Activities and Programme Implementation. The main outputs were: i) state-of-the-art reviews on technical, economic, and social aspects of stoves used for space heating and cooking in the context of mountain populations; ii) better understanding and realisation of space heating requirements that form an integral part of domestic energy services for mountain people; iii) better understanding of the health aspects of space heating/cooking devices and practices of mountain people; iv) formulation of a policy framework for the adoption and popularisation of suitable space-heating and cooking devices for mountain people; v) identification of strategies for technology transfer within and among the countries of the Region; and vi) formulation of action plans for follow-up activities and programme implementation. The proceedings of the workshop will be published by the FAO-RWEDP and will be available soon.



Multiple use of resource and technology: space heating, cooking, water heating, and food drying

Guest Speaker: Mr. Sunder Lal Bahuguna

At the invitation of ICIMOD, Mr Sunder Lal Bahuguna, the popular environmental activist from Uttarakhand, India, addressed the staff on 7th March, 1996, at the Centre's conference hall. A staunch disciple of Gandhi, Mr Bahuguna was inspired to work towards the welfare of the rural mountain dwellers. The salient points that emerged from his address are summed up below.

Up to the early 20th century, the hill farmers were very prosperous, exporting 30 commodities while importing only three, but the situation was the reverse now. The hill people have become poor and most men have migrated to the plains in search of better prospects, leaving the women to eke out a living in the harsh environment. Seeing the plight of these mountain dwellers, Mr. Bahuguna started a movement to save the Himalayas and its people - neither an easy

nor a quick task. But undaunted by the struggles he had to encounter he fought and is still fighting mainly to stop i) deforestation; ii) construction of large dams; and iii) luxury tourism. Mr Bahuguna believes that the following should be adhered to: allocate living space to the local people, some tourists, especially pilgrims, may be catered for; use local resources for sustenance/ fulfillment and self-sufficiency; develop micro-hydropower for this purpose also; preserve the landscape and biodiversity; and give regional autonomy.

To achieve the above, three types of people, namely, humanitarian scientists, social activists, and compassionate artists and journalists, should work together. He believes that greed and fear have to be dispensed with and *gyan* (knowledge), *karma* (action), and

bhakti (devotion/prayer) have to be combined/ balanced in order to achieve any ideal.

Lastly, he expressed the conviction that Nepal is a very important country and, unlike India, is mostly mountainous and therefore should aim to develop a Himalayan Policy. ■



Mr. Bahuguna, greeting the ICIMOD staff

Visitors to the Centre



A. O'Keeffe, Australian Ambassador
S. Chandra, J. Albergel, M. Douglas, S. Talawar, IBSRAM, Bangkok
J.M. Reynolds, Reynolds Geo-Science Ltd., U.K.
J.H.J. Jeurissen, Ambassador of The Netherlands
P. Egger, SDC, Switzerland
Prof. Roger Mead, University of Reading, U.K.
Dr Chetan Singh, H.P. University, India
Dr Djilali Benmouffok, IDRC-Canada
Madhav B. Karki, INBAR/IDRC, India
L. A. Mandalia, UNESCO, New Delhi
V. Balu, UNDP Consultant
Ren Zhuge, South West Forestry, College, Kunming, China
Lai Qingkui, South West Forestry, College, Kunming, China
Auke Koopmans, RWEDP, Bangkok
Lydia Braakman, RWEDP, Bangkok
Jim Ellis-Jones, Silsoe Rsch. Institute, UK.
Liz Kiff, Natural Resource Institute, UK.
Per Wegge, University of Agriculture, Norway
Alan Hall, ODA, Bangkok
Berry Van Gelder, CTA Social Forestry Project, Malakand Dir. Saidu Sharif, Pakistan

Jeffery Y Campbell, Ford Foundation, New Delhi
S. Muttiah, FAO, Rome
Ilse Hahn, BMZ, Bonn, Germany
Friedrich Kroppen, BMZ, Bonn
Charlotte Addy, GTZ, Eschborn
Donald M. Gordon, WCMC, U.K.
Dr Arzu Rana Deuba, Nepal
David Steane, CTA RAPA FAO, Bangkok
T.N. Khoshoo, TERI, India

Kenneth Riley, IPGRI, Asia Pacific Oceania Region, Singapore
J. Bandyopadhyay, Int. Academy of the Environment, Geneva, Switzerland
Dr Doug Nakashima, UNESCO, Paris
Dr S.M.N. Islam, Victoria University, Melbourne, Australia
L.R. Varma, Uni. of Horticulture, Solan
D. Putterman, USA
K. Garrett, Australia

In Memoriam

ICIMOD expresses profound sorrow at the sad and untimely demise of *Dr Noor Mohammad*, Director of the Rangeland Research Institute of the Pakistan Agricultural Research Institute, in February 1996.

In 1989, Dr Mohammad was awarded a Senior Research Fellowship by ICIMOD, the outcome of which is his book "Rangeland Management in Pakistan." Since then he became constantly involved in implementing Mountain Farming Systems' programmes in Pakistan. He was also appointed national coordinator for the Institutional Strengthening Programme in Pakistan. In September 1994, on behalf of ICIMOD, he organised the 'Regional

Workshop on Sustainable Agriculture in Dry and Cold Areas' in Pakistan.

Dr Mohammad has had a distinguished career. Dr Mohammad had a B.Sc. in Forestry and his first work was in the Pakistan Forest Institute in Peshawar, where he was in the Range Management Division. From 1977 to 1981 he completed his M.S. and Ph.D. in Range Science from the State University of Utah (USA). Amongst his other assignments were those of National Coordinator in Pakistan Agricultural Research Council (PARC) and Director of Range Management and Forestry. Dr Mohammad was also a Member of the Continuing Committee of the International Rangeland Congress (1988-

1991). Rangelands were his life's work. His sudden demise is a sad loss for ICIMOD. We would like to pay tribute to his contribution to the Centre and wish his soul eternal peace.



Dr. Mohammad

Announcements

United Nations' Centre for Space Science and Technology Education and Remote-Sensing and GIS Post-Graduate-level Courses and Degree

To promote the development of high-level knowledge and expertise in the field of space technology in developing countries, the United Nations (UN) General Assembly has called for the establishment of a Centre for Space Science and Technology Education. As a follow-up, through the efforts of the UN Office for Outer Space Affairs (UN/OOSA), four Centres have been established: *Latin America and the Caribbean (Mexico and Brazil)*; *Africa (Nigeria)*; *the Middle East (Iran)*; and *Asia and the Pacific (India)*.

The Centre for Space Science and Technology Education for Asia and the Pacific (**CSSTE-AP**) was established in India in November 1995 with members from 53 Countries. The Centre's campus is located in Dehradun, in the HKH region of India, with the facilities available at the Indian Institute of Remote Sensing (IIRS), which is part of the National Re-

mote-Sensing Agency (NRSA), Department of Space, Government of India.

The Centre offers Post Graduate-level courses in the fields of: (a) Remote Sensing and GIS technology; (b) Satellite Communications; (c) Satellite Meteorology and Global Change; and (d) Space Sciences. The Centre announced its first course in remote sensing and GIS technology starting 1 April, 1996.

All further questions on the course should be addressed to Prof. B.L. Deekshatulu, Director In-Charge CSSTE-AP and Director NRSA, Hyderabad, India (Fax: 91-40-278360 or 91-40-277210 or 91-40-278648) and/or Prof. S.K. Bhan, Dean IIRS, Dehradun, India (Fax: 91-135-25686).

ERDAS Remote-Sensing Software for and Capacity Building in the HKH

ICIMOD entered into an important agreement with Earth Resources' Digital Analysis System (ERDAS) Inc., U.S.A., to obtain ERDAS IMAGINE remote-sensing software for the 8 Coun-

tries of the HKH Region at special discounts. The agreement enables ICIMOD to purchase an unlimited number of copies of ERDAS IMAGINE on Windows 95 at specially agreed discount prices until June 30, 1997. These systems will be used by the nodal points for: (a) imparting remote sensing training by ICIMOD and nodal agency staff for different target groups (e.g., scientists, decision-makers, students); (b) applying remote sensing to issues concerning natural resources' management, sustainable development, and the state of the environment; and (c) remote-sensing curriculum development.

ICIMOD collaborators in the HKH who intend to set up remote-sensing capacities in their institutes may contact MENRIS, ICIMOD, to explore the options of using ERDAS IMAGINE in their systems. They may also consult with them to plan an overall remote-sensing capacity: hardware, software, data products, curriculum development, applications' development, and training/human resources' development.

ICIMOD's Ongoing Activities

Dear Readers,

In response to your interest in knowing more about ICIMOD activities, we are listing below some of the major projects and programmes that are currently being implemented under the various Divisions of the Centre. From the next issue onwards we will include profiles on selected projects. If required, further details can be sought from the coordinators listed below.

Divisions	Projects	Coordinators
Mountain Farming Systems' Division (MFS)	<ul style="list-style-type: none"> Strengthening Institutions for Development of Sustainable Mountain Agriculture Appropriate Technology for Soil Conserving Farming Systems (ATSCFS) Gender, Environment, and Sustainable Livelihood 	<p>T. Partap</p> <p>B.R. Bhatta</p> <p>J.D. Gurung</p>
Mountain Natural Resources' Division (MNR)	<ul style="list-style-type: none"> Participatory Natural Resources' Management Programme East Himalayan Programme for Collaboration in Biodiversity Management Landslide Hazard Management and Control Promotion of Sustainable and Equitable Use of Plant Resources in the HKH Region through the Application of Ethnobotany 	<p>A. Bhatia</p> <p>P. Shengji</p> <p>S.R. Chalise</p> <p>P. Shengji</p>
Mountain Enterprises and Infrastructure Division (MEI)	<ul style="list-style-type: none"> Mountain Tourism for Local Community Development Sustainable Development of Energy in Mountain Area — Mini-and Micro-hydropower (MMHP) for Mountain Development in the Hindu Kush-Himalayan Region Mountain Risk Engineering (Skill enhancement and capacity building) 	<p>P. Sharma</p> <p>K. Rijal/ A.A. Junejo</p> <p>Li Tianchi</p>
Mountain Environmental Natural Resources' Information Service (MENRIS)	<ul style="list-style-type: none"> HKH Regional Resources' Information Database Local Planning and Assessment of Natural Resources in the Marsyangdi Watershed Using GIS and Remote Sensing Technology Capacity Building for Environmental Assessment in the Hindu Kush-Himalayan Region 	<p>P. Pradhan</p> <p>H. Trapp</p> <p>P. Pradhan</p>

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