

In this Issue

No. 40, Winter 2001

Mountain Risks and Hazards

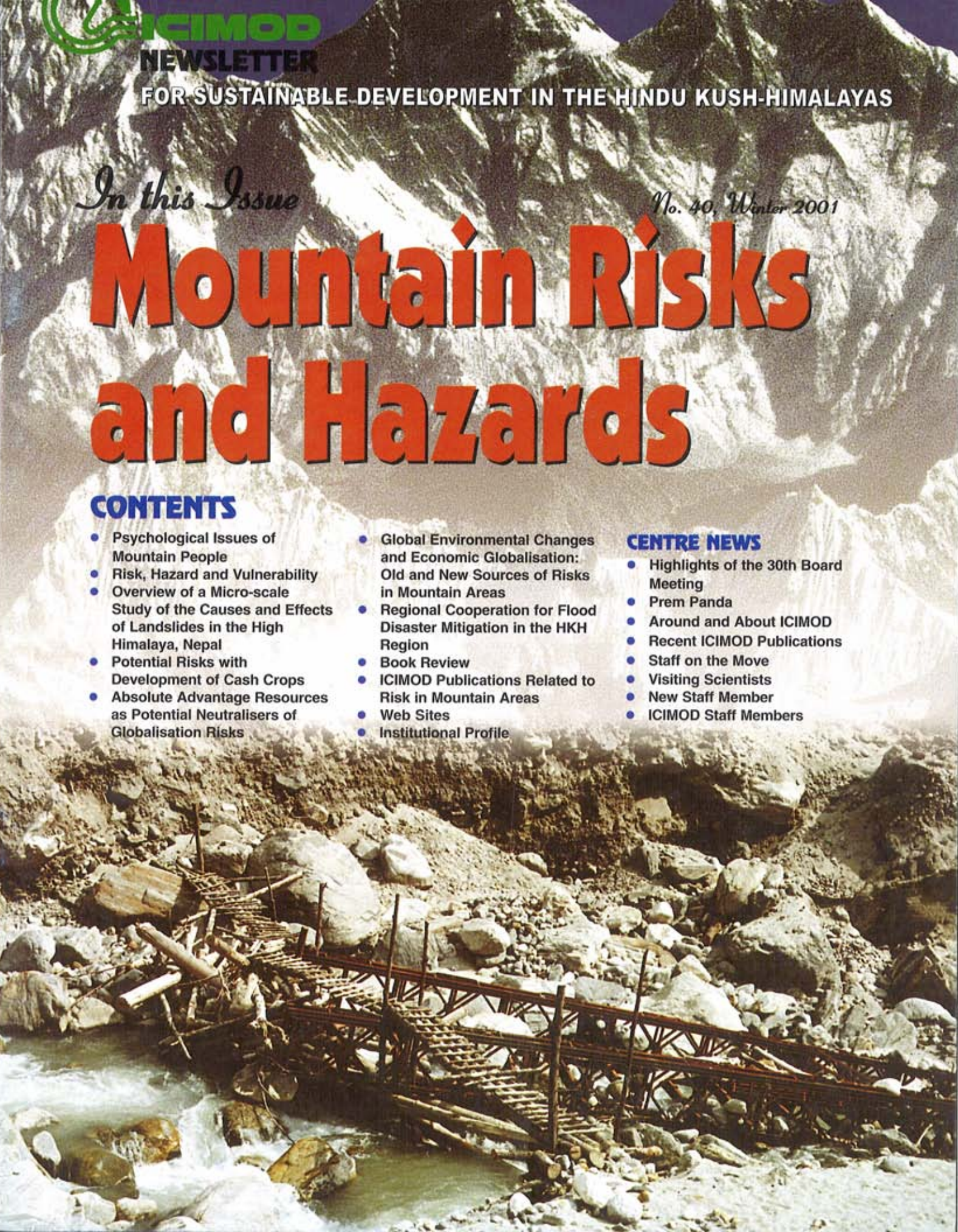
CONTENTS

- Psychological Issues of Mountain People
- Risk, Hazard and Vulnerability
- Overview of a Micro-scale Study of the Causes and Effects of Landslides in the High Himalaya, Nepal
- Potential Risks with Development of Cash Crops
- Absolute Advantage Resources as Potential Neutralisers of Globalisation Risks

- Global Environmental Changes and Economic Globalisation: Old and New Sources of Risks in Mountain Areas
- Regional Cooperation for Flood Disaster Mitigation in the HKH Region
- Book Review
- ICIMOD Publications Related to Risk in Mountain Areas
- Web Sites
- Institutional Profile

CENTRE NEWS

- Highlights of the 30th Board Meeting
- Prem Panda
- Around and About ICIMOD
- Recent ICIMOD Publications
- Staff on the Move
- Visiting Scientists
- New Staff Member
- ICIMOD Staff Members



Psychological Issues of Mountain People

A letter from

- Chen Guangwei, chen@icimod.org.np



Yes, it is true, there is increasing psychological pressure faced by mountain people in this fast changing world. It affects mountain women in particular. Mountain people are marginalised by geography, which excludes them from competition in terms of economy, technology, and education. Today, especially, the marginalisation is greater than ever before because it is difficult for them to access IT and the information networks it sponsors and hosts.

When Uncle Mountains (he represents a typical mountain person) first visits a big city he does not know how to get on/off the buses, and even might not be able to get out of a modern toilet if he locks himself inside. Uncle Mountains also gets lost among the many streets, he is afraid to ask for directions because he is ashamed of his mountain dialect. He does not know how to use a telephone, ATM, or computer. Uncle Mountains has the courage to go to a restaurant when he gets really hungry, but he does not know how much to pay for a meal and whether he will have enough because he isn't a rich man. Uncle Mountains gets lost not only physically but also spiritually. He feels isolated in the city and would run back to his mountain village if his situation was not so desperate.

In the village where Uncle Mountains lives, there are a lot of female-headed households because men migrate to urban areas to earn money. Money wasn't so necessary in the past, but now things have changed. To eat one must have enough money as there is less food being grown. Rural mountain women have to look after the land as well as their families, what kind of lonely hard life is that?

Students from the mountains who are lucky enough to go to study in the city also lack knowledge of/skills for computers and IT, they do not know much about modern film stars and popular singers. They feel stupid while talking with arrogant city boys/girls. Most mountain children have to economise on food and clothing because their families are not rich. There are good university staff, however, who sometimes give special courses in computers, IT, and other modern information tools to mountain youths.

I still remember a project to resettle mountain villagers from a drought-ridden remote area to a village in a newly reclaimed area in the plains with irrigated land and housing. A number of mountain villagers went back several times to their poor mountain homes. They felt they were unable to compete with the people of the plains. They preferred poverty with spiritual confidence.

But now globalisation has come to mountain areas, there is no place to run. Globalisation is not only economical, but also cultural, social and spiritual. Mountain people have to face the challenge.

I think project designers, in addition to material inputs, should look at the need for and role of education in poverty alleviation to help marginalised people feel comfortable with mainstream society.

Thank you

Risk, Hazard and Vulnerability

Landslides, debris flows, floods, earthquakes, and glacial lake out-burst floods (GLOF) are the main natural hazards in the mountain areas of the Hindu Kush-Himalayan region. Given the diverse geophysical conditions of the Himalayas, these natural hazards will continue as they are natural processes. The potential impacts of hazards differ from place to place, depending on a number of factors: for instance, a large landslide or an earthquake in a remote area may have less impact than a small landslide or earthquake in a thickly populated area.

Risk refers to the nature of hazard and the potential impacts of the hazard if the hazard takes place. The potential impacts (damage) may be in the form of loss of life and injuries and/or loss of land and property. The potential impacts of the hazard are dependent on the existing land-use pattern in the area likely to be affected, the density of population and the preparedness of the local people for disaster. Risk identification includes an assessment of hazards, community exposure and vulnerability.

The possibility of a disaster occurring, combined with the ability of a society to cope, determines the level of vulnerability. All humans and their built-up environment are potentially vulnerable to disaster, but the level varies greatly from one person/community to the next, given individual circumstances. In the context of risk assessment, vulnerability is examined generally in four separate categories: physical, spatial, social, and economic.

Physical vulnerability is related to buildings, houses and other habitable structures, along with infrastructure and agricultural land. The focus is upon the actual physical asset, but also considers loss of trees, crops, livestock and the livelihood generated by these physical assets. Physical vulnerability analysis is particularly



Physical weathering processes are extremely active in the high mountain area and the river valley is at risk of flood due to rapid snow melting (Mustang, Nepal).

concerned with critical facilities and may include, but is certainly not limited to, hospitals, fire stations and police departments, water pumps, search and rescue, communication and road infrastructure, electricity, and warning systems. The technical capacity of the built-up environment to handle the impact of a natural hazard is also a factor in physical vulnerability. For example, good seismic design and engineering can protect a building in a strong earthquake, whereas structures built without seismic considerations may well fail even in a small-scale earthquake.

Spatial vulnerability is closely related to the physical. It is a function of location, exposure to hazard and the physical performance of structures. Specific locations on the earth's surface are more exposed to risk because of topography, climate, seismicity, groundwater and soil type. As a result, structures located in these spaces are more vulnerable than others unless they are designed and engineered to withstand hazards. For example, the city of Tokyo is very susceptible to earthquakes as it is located in an extremely seismic zone. However,

the structures in the city are built to withstand periodic shaking. Although it is an example of a spatially vulnerable city, its vulnerability is reduced by the design of its buildings.

Spatial vulnerability also deals with the physical location of a given human settlement within a given area. Settlements usually develop in places with the promise of economic opportunity with little consideration for hazard and risk. Migrants do not often have resources to build safe structures, thereby facing a high degree of spatial vulnerability. In Nepal, for example, many people have migrated to the Terai in recent years in search of fertile land. As the Terai becomes more crowded and the newest arrivals settle in the floodplains, a large proportion of the population is becoming vulnerable to natural disasters.

Social economic vulnerability considers the risk of natural hazard causing losses to economic assets or income-generating activities. These losses can be further classified as direct and indirect. Direct losses include damage or destruction of physical and social infrastructure and its repair or



A new bridge constructed in the same location of the old bridge which was completely destroyed by debris flow in 2000 is still at risk (South Bhutan).

replacement costs. They also include crop damage and damage to means of crop production. Indirect losses include the loss to potential development, lost production or employment and a loss of vital services. These are secondary effects felt in the long term as they have far-reaching consequences.

While every human being faces some level of vulnerability, there are distinct groups that may be more or less vulnerable because of social status. Marginalised groups include, but are not limited to, women, children, the elderly, the disabled or ill, landless, illiterate and migrants or

refugees. These characteristics may have more or less relevance given a specific culture or context, so they cannot necessarily be universally applied. However, in many cases, these sub-sectors of society share a common characteristic; they are relatively poor, and therefore warrant specific attention in vulnerability assessments and decision-making processes.

There are both immediate and root causes to vulnerability. Physical, spatial, economic and social are more than simply a means of categorising vulnerability, they are its major causes. One may

live in a floodplain, and therefore be spatially vulnerable. Perhaps one is a migrant and unable to leave because of poverty. In this case, the root cause of vulnerability is socioeconomic. The poor are more likely to be living in dangerous areas, whether on hillsides or in floodplains, and have limited access to safe building technologies; hence they are the ones least able to relocate or prepare themselves for potential disaster. Economic status often explains why people live where they do and the condition of the buildings in which they live. In most cases, the immediate cause of vulnerability is physical, yet the root causes are almost always economic or social.

As the world becomes increasingly vulnerable to natural disaster, the greatest number of people at risk live in the poorer nations of the developing world. The next critical challenge for disaster managers, planners, legislators, designers and development workers will be to effectively mitigate and keep the world most vulnerable safe in the face of disaster. While it is impossible to control nature, human activity, its impact on the environment and subsequent impact on vulnerability can be altered.

Li Tianchi
tianchi@icimod.org.np

Overview of a Micro-scale Study of the Causes and Effects of Landslides in the High Himalaya, Nepal

Historically the Himalayan mountain range has attracted a global and often romantic fascination with challenge and discovery. Associated with any challenge is an element of risk. Being a young and growing mountain range, the risk level is high, but, for the communities who live there, risk is integrated within their day to day living and does not necessarily stand out as an issue.

Discovery has brought development to previously isolated and closed communities. Development has grown in many forms with both positive and negative outcomes, from the improvement of health care, construction of infrastructure, and international tourism to the commonly quoted theory of population explosion.

Population explosion has been linked to the Malthusian-type

'vicious circles' - where poverty, death and environmental degradation are explained as products of population pressure on resources (Ross 1998). This has led in recent years to reports of increasing environmental fragility within mountainous regions. Impending disasters were foreseen and forewarned of within mountain regions. These issues and concerns were initially raised at the 1972

'United Nations Conference on the Human Environment'. However the Himalayan mountain range was singled out and, in particular, Nepal was used as a prime example of "deteriorating mountain environments" and that there was no other "...mountain country [where] the forces of ecological degradation [were] building so rapidly and widely." (Eckholm 1976:76). The various concerns were then banded together and formed the Environmental Degradation Theory (EDT) (Ives and Messerli 1989). It was also reported by the World Bank (1979) that by the year 2000 no accessible forests would remain. The EDT was counterbalanced with the argument focusing on the natural geological aspects of the Himalayas supported by the relatively new theory of plate tectonics.

The mountain building process and the factors associated with it, such as seismicity, earthquakes and plate tectonics are what underlie (both in the literal and metaphorical sense) many of the debates in South Asia but which unfortunately are not always brought to the fore. It is often questioned to what degree of detail these essential factors are taken into consideration when related to international development aid projects.

The counter argument to the environmental degradation debate takes the view that not enough emphasis has been given to the natural dynamic, tectonic and climatic conditions (Wu and Thornes 1995), and it is suggested that there is a lack of factual data which, according to authors such as Ives and Messerli (1989), weakens the basis of the EDT argument. In addition there is an over emphasis on the macro-scale and very little on the micro-scale. The Himalayas cover a vast area and contain a diverse range of environments, terrain, microclimate pockets, and so on and it is grossly misleading to make generalised statements. For example the levels of precipitation vary greatly from one area to another.



Plate 1: Agricultural Terrace Fields Dhunche, Nepal (April 2000)



Plate 2: Dhunche village, Nepal (April 2000)

We set out to examine the link between natural geological instability and socioeconomic factors in one particular community in the High Himalaya, and to analyse the causes and effects of landslides occurring in the surrounding area. The particular site was not only chosen to test the validity of the debate but to choose an area that had not been notably studied, with the intention of adding the results to the growing databank.

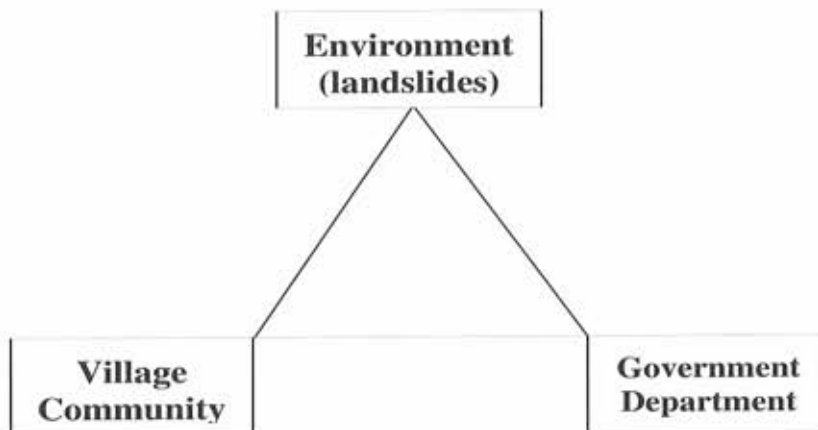
In the High Mountain zone north of Kathmandu is Dhunche village (Rasuwa district) where the study took place. It is on a north-east facing slope, 2012 masl and

within the boundaries of the Langtang National Park. A tributary of the Trisuli River cuts northwest to southeast far below the village but can be accessed through a forested area to the east of Dhunche.

Dhunche village is predominantly a subsistence farming community (Plate 1) but, since the construction of the road some 10 years ago, the village now serves as a trekking stopover between Kathmandu and the famous trekking routes in the Langtang range which is further north bordering Tibet. The village population based on the 1992 consensus was 2,042 (881 female to 1,161 male) and more than 95%



Plate 3: Landslide and Deterioration of Roadside/Supports



of the community are from the Tamang ethnic group (Plate 2), one of the largest groups in Nepal with Tibetan origins. They are primarily farmers but also act as porters on trekking expeditions (Shrestha, personal communication, 2000).

The main road running through the village was initially built to access a mining exploration site further north at Somdang, but it has now opened up access to Kathmandu, transporting food and daily buses for tourists. However what is disturbing is the visible deterioration of the road (Plates 3 and 4), the supports are cracking and collapsing and landslides are occurring along both the upper and lower sides. This strongly implies poor engineering and the use of cheap materials.

One form of evidence of a natural unstable environment is the

occurrence of landslides. The specific causes of landslides relating to this case study include triggers such as cloudbursts, uncontrolled flow of water on the slope surface, toe cutting, earthquakes and blasting (Shrestha 2000). The case study identified 11 landslides in the village area and each one was examined on an individual and physical basis. The second part of the study was to analyse the landslides as a whole and link the effects they had caused with socioeconomic aspects of the local community. What had become apparent when studying the 'Himalayan Dilemma debate' was that it was necessary to look at both the natural geological aspects and human induced degradation. What seemed to be missing was discovering how the causes of disaster or destruction affect

communities living in 'high risk' zones and what can be done to improve the socioeconomic conditions without dramatically increasing the pressure on the 'fragile' dynamic environment.

The case study revealed a triangle of three major parties, each with their own (un)written agenda.

As 'Environment' was the most unpredictable and uncontrollable party of the three, landslides will therefore be used to highlight the unstable aspects of it. The 'Village Community' category comprised of subsistence farmers, tourism traders and government officials. The 'Government Department' was represented by the Soil Conservation Department of Nepal, Rasuwa District. Each link was discussed and the results of interviews carried out within the village community were incorporated in the analysis.

Environment (landslides) - Village Community

As there were no devastating landslides causing any fatalities, it could be assumed that they were of little significance. But, as Jones (1992) emphasised, the cumulative factor has a greater effect on the community. This theory was confirmed while interviewing the villagers. Sixty-nine per cent of the villagers viewed the landslides as a serious problem for the community as a whole. The road is the common and important link for all three groups who make up the 'Village Community' party as it provides food, trade, tourism and transport and it is the most common element to be disrupted and damaged by landslides.

Environment (landslides)- Government Department

The Soil Conservation Department covers a large geographic area and has to cope with limited resources and manpower. They are therefore restricted in the number of landslides they can treat and prevent each year. For severe landslides, wire boxes (which are built locally) are filled with stone walls and built

across the path inside the main body. For less serious ones vegetative measures are used (similar to the bioengineering projects, which are taking place in many parts of Nepal (Li, personal communication, 2000).

Government Department - Village Community

In previous years the Department took a top-down approach to development and provided all materials and finance for the reparation of landslides; however this did not encourage the communities to control the problem, which led to complacency regarding the risks. There was little incentive to become actively involved in prevention and at the time there was more land available and the farmers would simply find another area to farm. However this has changed as both the farmers and the lands are restricted. The Department has since recognised the value of more participatory actions and has set up an integrated project directly involving the communities.

From assessing the triangle of Environment (landslides), Village Community and Government Departments, it is clear that the landslides are a serious concern for the village community, not in the sense of fear of living in an unstable environment but a case of fear for their livelihoods; for example, economic fear that they will not be able to provide the basics for their families. As they see it, little assistance is coming into the village so it must be difficult for them to put the larger scale of events into perspective. Alternatively the Soil Conservation Officer is able to see the macro-scale more clearly, because his remit covers a wider area. In addition he admits that he has been influenced by the EDT

literature and prefers to take a cautionary view.

In conclusion the aim of this report was to examine both sides of the argument of the EDT. The EDT basically blames the increase in escalating natural hazards on population growth and subsequent pressure on 'natural' resources. Based on the field study carried out on a 'micro-scale' area set in the High Himalayan mountains, the causes of the eleven landslides observed were due to both 'natural' geological activities as well as possible human - related causes. The 'natural' components consist of tectonic activities, unpredictable precipitation levels during the summer monsoon months, and the steepness of the slopes. The possible human impact could well be the result of poor planning and construction of the road and unmanaged or abandoned agricultural terrace fields.

It is essential to not only look closely at the physical geography of an area but also to take into account the socioeconomics of the surrounding community. Because the needs and actions of the community would, in the long term, have a knock-on effect on the environment despite the fact that the area constantly faces uncertainty. If both factors can be assessed at one time this will lead to a more balanced view for future planners, developers and international aid agencies.



Plate 4: Landslide in shrub area, crossing road + deterioration of road supports

References

- Eckholm E.P. (1976) *Losing Ground: Environmental Stress and World Food Prospects*. New York: W.W Norton & Company Inc
- Ives J.D. and Messerli B (1989) *The Himalayan Dilemma: Reconciling Development and Conservation* London: Routledge
- Jones D.K.C. (1992) 'Landslide Hazard Assessment in the Context of Development', In McCall et al. (eds) (1992) *Geohazards: Natural and Man-made* New York: Chapman and Hall
- Li, Tianchi, Mountain Natural Resources Division, ICIMOD (Personal Communication 2000)
- Ross E.B. (1998) *The Malthus Factor*. London: Zed Books
- Wu, K and Thomes, J.B. (1995) 'Terrace Irrigation of Mountainous Hill Slopes in the Middle Hill Slopes in the Middle Hills of Nepal: Stability or Instability'. In Chapman G.P. and Thompson M (eds) (1995) *Water and the Quest for Sustainable Development in the Ganges Valley*. London: Mansell Publishing Limited
- Shrestha, Niranjana, Department of Soil Conservation & Watershed Management (Personal Communication 2000)

Tanya Pascual*
pascual@ukgateway.net

* Tanya Pascual has worked in environment for several years and, after recently completing an MA in Environment and Development at the School of Oriental and African Studies (SOAS), University of London, she is now focusing on mountain environments - particularly the Himalayas. Tanya is a fellow of the Royal Geographical Society and a member of its Mountain Research Group, is a member of the Mountain Forum, and is currently working for International Institute for Environment and Development (IIED) London. contact details: pascual@ukgateway.net OR tanya_global@hotmail.com

Potential Risks with Development of Cash Crops

Cash crops are plant species that yield products to sell in wider markets, rather than cereal and food crops for household consumption. With the increasing integration of rural economies into expanding markets in many areas, cultivation of cash crops has become one of the most important development activities in the past two to three decades. This has contributed considerably to improving farmers' incomes and improving livelihoods, particularly in upland areas. This is due in large part to the very diverse biophysical conditions that offer a wide range of selection for suitable crop species. As a large portion of land in the uplands is not suitable for cereal crops but suitable for cash crops, cash crops are promoted as one of the most important options for income generation in the uplands. Thus there is a potential comparative advantage for the upland population to improve their livelihoods through cash crop production.

While many people are benefiting and increasingly people are engaging in the cultivation of cash crops, the potential risks involved have not been addressed properly. Local farmers often do not weigh the potential risks before engaging in the cultivation of cash crops and related activities. Small farmers have a narrow resource base and cash crops result in only a few products, so they become dependent on these commodities. Through this process, they become increasingly vulnerable to risk and fluctuation of market prices, and this can lead to the further marginalisation of poor farmers. With less emphasis on increasing food production and more on promotion of cash crop production, there is an increased risk of food insecurity. Promotion of cash crops with

limited marketing opportunities means there is a risk of increased poverty and vulnerability as well as disillusionment on the part of farmers. A critical issue in relation to cultivation of economic trees, especially fruit trees that take at least 3-5 years to bear fruit, is the analysis of possible market risks that farmers may face in years to come.

To help upland people to benefit from cash crop cultivation and to avoid possible risk or to minimise potential risk in cultivation of cash crops, it is important to address the following issues and to raise awareness about them.

1. Selection of appropriate cash crops

Success of certain cash crops in one area does not automatically mean that they can be cultivated in another area. Cash crops introduced into an unsuitable area bring debt instead of cash income to small farmers. There are government and external development interventions that promote cash crops with the intention of helping local people to increase income, but sometimes the wrong crops are selected. One example was seen in one village in Guizhou province in China where the unsuitability of a particular economic tree variety was demonstrated by extremely slow growth. The particular variety of fruit tree bears fruit in 5 years, but in Guizhou, it did not produce any fruit in ten years. The height of the tree after 10 years was that of a normal 2- to 3-year growth in a suitable locality. In these cases, the investment, either from donors or from farmers, is wasted and the land is not used properly.

2. New technologies and management skills

Introduction of cash crops to an area means new technologies and management skills. But in many cases these technologies and management skills are not made available to local

farmers. In the village mentioned above, according to local growers, trees bloomed but there was no fruit, which is probably because of lack of pollination and poor management. Research and extension institutions are needed to provide skill development and management skills. The absence of skilled management is one of the greatest single constraints to the development of cash crops.

3. Changing markets There have been reports in the HKH region that incomes have increased and then decreased with the development of cash crops. This has happened mainly due to decline in price for a specific product because of fast-growing and changing markets, especially within the context of globalisation. Unfortunately, local growers of cash crops often ignore these changes. In different interviews with farmers involved in cash crop production, it was indicated that varieties with better marketing potential are planted. The risk is that the selection of the crops 'with better marketing potential' is often based upon information about current market prices. Interaction with local farmers, local technicians, and local government officials indicated that they did not take into consideration potential market problems over 5, 10 and 20 years. Once the market demands better varieties, there is a danger of losing the market share and of suffering from reduced income. As small farmers lack access to sources of information, there needs to be a way of providing information so that they will be able to compete in changing markets.

To reinforce the above point, one example from Sichuan province is explanatory. Apple cultivation had been an important income source for farmers in Maodian before 1994 (the price was about 2.5-1.6

yuan*/kg). However, at present, farmers are suffering a serious crisis as a result of extremely low prices (the farmgate wholesale price is around 0.4 yuan/kg). The main reason for this is that the market is full of many new and improved varieties produced in large quantities through large-scale apple cultivation in other parts of China and apples imported from other countries. A further problem is that it takes time for these apple farmers to change to new varieties and almost all of their land has been cultivated with apples.

4. Mono-cropping of cash crops

In areas suitable for certain cash crops, local people tend to convert all their land to these cash crops. This has been observed, for example, in areas of Himachal Pradesh in India as well as in Maoxian County, China. Local people in these areas face great risks, among which are occurrence of pests on a large scale and other natural hazards. Diversification is required to secure earnings. One successful example of diversified sources of income again comes from Maoxian where local people have diversified apple farming by introducing different kinds of vegetables under the apple trees.

5. Planting of cash crops without clearly foreseeing possible problems

Improvement in communication has contributed greatly to information exchange. Farmers start planting cash crops after seeing other people's successes without analysing the suitability or understanding the problems they might face. They might well believe that the success will continue indefinitely. They, as well as institutions mandated to help them, do not make plans in case of a change in the market. They often don't think of potential risks. During a recent visit to the Wulin mountain area of China, it was observed that two types of fruit tree had been planted widely, namely, dry fruit trees such as chestnut and walnut trees, and succulent fruit trees,



Local farmers are working for roadside bioengineering along the Arniko Highway, Central Nepal

including pears (cultivar Jin Qiu Li or golden autumn pear) and persimmons. Chestnuts and walnuts have also been cultivated widely in other areas over the last two to three years. It seems few people have seriously considered the markets because all these trees yield nuts at almost the same time. The same problem has already been seen in many parts of China in the case of oranges. Two decades ago, oranges were cultivated extensively at similar times and, when most of these trees reached their maximum producing period, there were too many to consume and many farmers had to throw the fruit away, forming so-called 'orange hills'.

6. Unorganised activity In many mountain areas, growers of cash crops have to deal with intermediaries and middlemen individually because they are not organised. In such circumstances, they have to accept low prices. Their lack of organisation means there is no information on market prices that they can use in bargaining with middlemen.

Conclusion ICIMOD's experiences in different areas of the Hindu Kush-Himalayan region show that cash crop products cannot compete when marketing potential is not understood, especially in the context of globalisation. Upland areas need

to capitalise on farming systems or enterprise development based on their own niches. Although there is vast potential for the development of cash plant cultivation in upland areas according to specific niche, identification of market niches has to be accompanied by processes to manage risk.

The challenge is to improve the competitiveness of small farmers, improving their prospects for growth through integration into a larger economy. Cash crop production is essential for sustainable economic growth, but it must be managed properly to ensure that small farmers receive proper benefits from cash crops. Understanding local biophysical environments and assessment of available resources are essential. Promotion of specific cash crops should be carried out in line with knowledge about the supply of these products from domestic and international markets and, for this to be successful, an ongoing analysis of market demands is necessary. At the household level, interventions that introduce and promote individual entrepreneurship and training on appropriate management should be provided.

Tang Ya
tangya@cib.ac.cn

* These are 8.29 yuan to a US dollar

Absolute Advantage Resources as Potential Neutralisers of Globalisation Risks



Fig. 1. Large cardamom agroforestry - an absolute advantage resource with multilateral benefits

Rapid globalisation and economic liberalisation pose a new range of challenges and opportunities to farmers living in mountain areas. The challenges are acute for vulnerable farmers affected by increasing degradation of natural resources. Such circumstances are least favourable for farmers in inaccessible, fragile and marginal areas. The subsistence-oriented nature of their livelihoods and fragile nature of the mountains of the Hindu Kush-Himalayas (HKH) increase the risks for poor and vulnerable farmers to face such challenges.

Globalisation as a market-driven process has increased rapidly in recent years and differs radically from the previous processes of commercialisation that were slow and gradual. In the past, farmers addressed vulnerability by selecting a wide variety of options that increased their adaptability and minimised risks. These options have been narrowed down whilst shifting from supply-side driven production to a more demand-oriented

economy. Such external forces drive poor and vulnerable farmers to become part of a vicious cycle of high inputs and greater risks, which does not support mountain needs.

Specialisation on items of absolute advantage, which are those exclusive to a specific region, provides opportunities for marginalised farmers to withstand the stresses and shocks of market forces in an open economy. Products from these absolute advantage resources have established local and outside markets with almost negligible competition. Furthermore, such a strategy provides greater potential for resilience against global environmental change. The success of large cardamom (*Amomum subulatum*), which is exclusively cultivated and found in the HKH region, provides an example of an absolute advantage product for vulnerable farmers (Fig. 1).

Large cardamom agroforestry in the Eastern Himalayas provides a model with multilateral benefits in terms of ecosystem resilience to

global environmental change as well as being a risk mitigation mechanism for farmers against changing market forces. It is an agroforestry system with a perennial cash crop (large cardamom) as an understorey and intact shade trees that control soil erosion, maintain nutrient balance and increase income for the farmer on marginal lands. The system provides basic requirements such as fuel, timber, fodder, and non-timber forest products whilst addressing 'loud emergencies' such as global warming through higher rates of carbon sequestration. Annual carbon sequestration by agroforestry systems is about four to five times greater than that of natural/mature forests.

The large cardamom is a low volume, high-value, non-perishable and its cultivation is less labour-intensive than other cash crops. It meets the requirements of mountain specificities in terms of adjusting to fragility, inaccessibility and marginality. Large cardamoms are cultivated in the Sikkim and Darjeeling areas of India, Bhutan and eastern Nepal. India has introduced laws protecting farmers' rights, crop varieties and biodiversity.

Protection of farmers' rights and crop varieties in India alone does not suffice. As similar agro-ecological zones are shared by a number of member countries in the HKH region, laws will need to be applicable on a regional level. Regional cooperation on minimum prices and value addition is essential, especially in relation to products that have an absolute or comparative advantage.

Mountain farmers are at risk from an open market economy (Fig. 2) and global environmental changes,

so identifying niche with absolute advantages and multilateral benefits is critical. It is and will be a major challenge for sustainable development in the region. There are several crops/biological resources, viz., high-value medicinal plants, which, like large cardamoms, have the necessary attributes needed by marginalised farmers.

Eklabya Sharma,
esharma@icimod.org.np



Fig. 2. Poor and vulnerable farmers at greater globalisation risk

Global Environmental Change and Economic Globalisation : Old and New Sources of Risks in Mountain Areas

Introduction

Global environmental change and economic globalisation are the two most talked about interrelated processes today. These two processes generate a complex of risks and vulnerabilities for areas and societies, especially for those not well prepared to face them. Mountain areas have specific biophysical features and historically shaped socioeconomic conditions that place them in the high risk category. This article discusses environmental risks and risks associated with economic globalisation and their role in accentuating environmental risks in mountain areas.

Global Environmental Change

Building upon the conceptual framework developed by the Clark University group (Turner et al. 1990), one can distinguish two types of global environmental change: 'systematic changes' and 'cumulative changes'. Broadly speaking, a systematic change is one that, while taking place in one locale, can effect changes in systems elsewhere. The underlying activity need not be widespread or global in scale, but its potential impact is global in that it influences the operation and functioning of the whole system as manifested through subsequent adjustments in the system. Emissions of CO₂ from limited activities that

have impacts on the geosphere-biosphere system of the Earth and cause global warming are a prime example. Cumulative change refers to localised but widely replicated activities where changes in one place do not affect changes in other distant places. When accumulated, however, they may acquire sufficient scale and potential to influence the global situation in various ways. Widespread deforestation, extractive land-use practices, groundwater pollution/ depletion, biodiversity losses and their potential impacts on the global environment serve as examples. Both types of change are the product of nature-human interactions and are linked to each other in several ways.

However, despite several uncertainties and information gaps, especially in the regional context, the domination of natural science groups working on environmental change, certain issues (e.g. doomsday predictions) arising from 'systemic' types of environmental change (e.g. global warming and its potential consequences) have received greater attention and resource allocations for research and policy advocacy in the global arena. In the process, until recently, 'cumulative' of environmental changes, despite having more concrete evidence, certainties of impacts and possibilities of well-

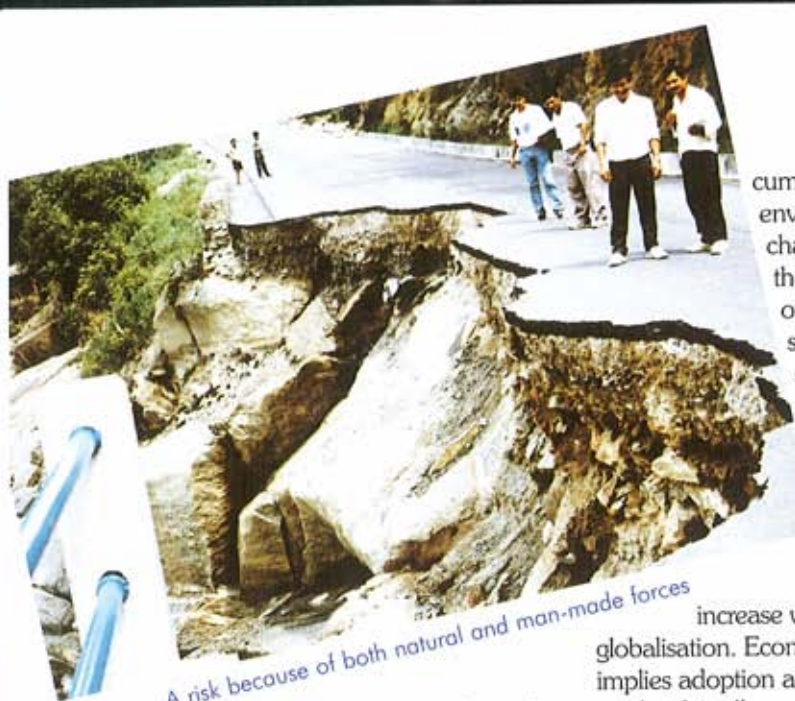
focused remedial/adaptive measures, have received limited attention. This has led to a 'skewed perspective' on global environmental change (Jodha 2001).

Mountain areas are subject to both types of change. The impact of systemic change is more readily visible (e.g. glacial melt due to warming; upward shift of certain plant species; and distortion of flowering seasons). Yet, the more visible 'cumulative' changes need greater attention, especially in the short run. Cumulative changes expose communities to greater risks than systematic changes and are often exacerbated by intensive use of resources as a response to risk.

Cumulative environmental changes result in resource degradation/depletion and have adverse effects on biophysical flows and functions of the ecosystem. The processes and factors behind them and their possible accentuation promoted by economic globalisation are discussed below in terms of the disruption of resource-use systems and break down in the stability of the system.

The Initial Situation

Previously, there was less risk from accumulative environmental changes resulting from human interventions. Certain characteristics (inaccessi-



A risk because of both natural and man-made forces

bility, remoteness and so on) rendered these regions less attractive for human habitat and intensive use of resources. Notwithstanding these constraints, mountain areas did have human habitation and flourishing communities, but human intervention was limited in terms of extraction of resources as demands were limited and skills basic. In addition the almost total dependence of small communities on local resources made them only too aware of the negative consequences of resource depletion. Patterns of resource use (through agronomic practices and collective management systems) were geared to production with conservation. This helped sustain the lives of subsistence farming communities in a relatively harsh and high risk environment.

Gradual Transformation

Traditional arrangements slowly changed with increased physical, administrative and economic (market) integration of mountain areas into the wider socioeconomic systems extending beyond the mountains. The impacts included marginalisation of both traditional resource use practices/provisions and indigenous coping mechanisms; increased (internal and external) pressures on mountain resources; and led to external interventions and means/mechanisms to (over) extract mountain resources. Resource use became demand driven rather than supply driven. The final consequence was emergence and accentuation of

cumulative environmental changes, leading to the unsustainability of previously sustainable subsistence systems (Jodha 2001).

Potential Role of Economic Globalisation

Cumulative change is likely to increase with rapid globalisation. Economic globalisation implies adoption and promotion of market-friendly and market-driven economic policies and programmes, and promotes the market even in local economies. It differs from conventional commercialisation processes in terms of speed, inter connection of activities/incentives/pressures at global to local levels and institutional mechanisms such as the World Trade Organisation (WTO) that enforce norms and rules that give the primacy to markets and a reduced role for the state and the community. Globalisation brings both opportunities and risks. Mountain areas are not well prepared to adapt to the emerging changes and face more risks and less opportunities than other areas, at least in the short run.

Below is a brief list of mechanisms and sources of risks.

1. Incompatibilities between the driving forces of globalisation and imperatives of mountain specificities provide the first context for understanding the potential role of globalisation in terms of environmental risks. Accordingly, profitability and demand-driven processes of globalisation focus on (i) intensified resource use (going against the imperatives of fragility); (ii) narrow specialisation (going against environmentally friendly diversification of resource-use systems/ cropping as necessitated by diversity).
2. Overextraction of mountain resources/products in response to external demands is another likely impact of globalisation. Focus on

extraction ignores the negative side effects on environmental resources and people's livelihood activities. The history of overextraction to meet the demands of mainstream economies already provides examples of the market's insensitivity to the health of resources and the total environmental and social situation manifested by diverse, interlinked activities based on natural resources.

3. The erosion of traditional provisions and practices (e.g. diversified interlinked, land-based activities) that helped give secure livelihoods to mountain communities and facilitated addressal of production and conservation concerns is another possibility as the market focuses on specific activities and profitability rather than the total system of resource use and its links.
4. 'Systemic disintegration' of farming systems in areas in which the market patronises individual components of the system and delinks them from traditionally evolved integrated production systems.
5. Institutionally, an approach and attitudes oriented to profitability could lead to a decline of collective risk sharing, resource use arrangements. This would mean a breakdown in the social system - ecosystem links sustained by past arrangement.
6. Entry of the global market and selection of the most competitive products might lead to marginalisation of mountain niche that are not yet competitive.
7. Along with loss and marginalisation of traditional sources of resilience, there is the factor of reduced support from the public sector for development and welfare as the influence of the state decreases, which would expose mountain communities to greater risks and vulnerabilities. Without options overextraction might ensue, adding to the 'cumulative' environmental change and associated risks.

N. S. Jodha

jodha@icimod.org.np

Regional Cooperation for Flood Disaster Mitigation in the HKH Region

The Hindu Kush-Himalayan (HKH) region is the source of six of the world's largest rivers. The Brahmaputra, Ganges, Indus, Mekong, Yangtze and the Yellow rivers originate in the Tibetan Plateau. These rivers are vital for the socioeconomic development of close to 500 million people in South and Southeast Asia through their potential for irrigation, hydropower generation, fisheries, inland navigation and the sustenance of wetlands and their biodiversity. Many of the rivers in the HKH-region are transboundary in nature, i.e. flow through several countries before reaching the ocean.

A large portion of the population is vulnerable to natural disasters linked to water. Floods are an annual phenomenon of the HKH region. Floods caused by severe meteorological events cause loss of lives in thousands and damage property worth millions of dollars, holding back development and affecting national economies.

To mitigate the adverse effects of floods most of the countries in the HKH-Region have a flood forecasting system in place, though technical capabilities and performance vary from country to country. There are some bilateral agreements between countries but no regional mechanism to share flood information, especially on a real-time basis. An institutionalised exchange of real-time hydrological and meteorological data and information, primarily for flood forecasting purposes, is a prerequisite for the development of strategies to mitigate the negative impacts of floods.

As a step in this direction ICIMOD and the World Meteorological Organization (WMO) hosted a high-level consultative meeting in Kathmandu from 15-18 May 2001. The meeting was co-hosted by the Department of Hydrology and Meteorology (DHM) of His Majesty's Government of Nepal. Participants from six countries, Bangladesh, Bhutan, China, India, Nepal and Pakistan, and

international experts participated in this meeting about developing a framework for regional cooperation in flood forecasting and information sharing in the HKH region. This meeting served as an important platform for the initial development of strategies for regional cooperation.

An initial Action Plan to be implemented by 2002 was devised. Participants agreed to develop a regional flood information system like the proven concept of the World Hydrological Cycle Observing System (WHYCOS) of the WMO which provides a sound conceptual and technological basis to establish and upgrade data collection and transmission systems and to build adequate institutional capacity for hydrological and meteorological services on the basis of regional cooperation. In this respect, the development of the HKH-Hydrological Cycle Observing System (HKH-HYCOS) is envisaged.

Action Plan

- a. *Establishment of a Consultative Panel:* Participating countries are encouraged to nominate members for a panel to discuss concept papers on regional cooperation for information exchange
- b. *Formulation of the HKH-HYCOS concept paper:* A draft concept paper for regional co-operation for flood information exchange will be developed and circulated to participants for feedback and endorsement resulting in the production of a project document
- c. *Exchange of regional information:* Participating countries are expected to contribute to the preparation of a web page and establish an open system database as well as to establish the concept of a regional hub for exchange of data/information
- d. *Preparation of Technical Papers:* Technical papers will be developed by experts selected mainly from the HKH region for presentation at the 2nd High Level Consultative Meeting



- e. *2nd High Level Consultative Meeting:* A high level meeting will be held to assess progress and to formulate a Project Document to operationalise a flood forecasting and information exchange system. Political will, sound technical concepts, and full ownership of the plans are needed for successful regional cooperative efforts.

ICIMOD, in collaboration with WMO and with support from regional countries, is now in the process of implementing the action plan endorsed by participants at the first meeting. This phase of the Project is supported by the Oceans Environment and Science Initiative (OES) of the US State Department and the US Office of Foreign Disaster assistance, OFDA/USAID. A consultative panel has been constituted with members from regional countries as well as international experts. The needs and priorities of each country with regard to flood forecasting and information sharing will be discussed during the consultative panel meeting scheduled for April 2002. Work on the website has begun. It is envisaged that the website will be a regional communication platform for exchange of data and information.

The expected outcome of the Project is the strengthening of cooperation in flood forecasting and information sharing between regional countries, building trust and confidence amongst participating countries to enable establishment of an operational system providing reliable and timely flood forecasting and information.

Mandira Shrestha
mandira@icimod.org.np

Mountains Forever

edited by **Para Limbu**, Illustrated by **Param Meyangbo**
Published by **Helvetas Nepal, ICIMOD and Spiny Babbler**
Book Review by **Hilary Kammerer**

This collection of 60 stories by mountain teenagers about mountains around the world will lift your spirits after a year of depressing news worldwide. These young writers obviously love their mountains and plan to protect them when they are adults.

Nepal is represented by several stories, including a poignant one

written by a student from Sri Lanka in which a little girl's father is killed in an avalanche during a family trek to Everest. The father had planned the trip to teach his daughters about the mountains. Many of the other stories also deal with parents teaching their children about the value of the mountain plants, animals and cultures.

In 'Papa's Lesson', by Seren Goh, a Singapore girl becomes a property agent, using the lessons - the timeless advice - learnt from her father when gathering herbs in the mountains. But she never forgets that she is a mountain girl, and in her spare time dedicates herself to supporting environmental education. In

the story from Bhutan, a boy asks his father why they live so far away from the plains. His father replies, "Mountains Forever!" And the son agrees.

Every story is illustrated with a vibrant painting by a Nepali mountain woman, Param Meyangbo. Thick black lines emphasise oversized animals, people and plants in vibrant reds, greens and yellows. The pictures match nicely with the short, direct style of writing: straightforward and powerful.

The children of some of the ICIMOD staff have been enthusiastic about this collection when their parents read aloud at night, but it is a book for adults too. It will raise your spirits.



ICIMOD Publications Related to Risk in Mountain Areas

Carson, B. (1985) **Erosion and Sedimentation Processes in the Nepalese Himalaya**. Occasional Paper No. 1. Kathmandu: ICIMOD. 39pp

Ives J.D. (1986) **Glacial Lake Outburst Floods and Risk Engineering in the Himalaya**, Occasional Paper No. 5. Kathmandu: ICIMOD. 42pp

Schaffner, U. (1987) **Road Construction in the Nepal Himalaya: The Experience from the Lamosangu-Jiri Road Project**, Occasional Paper No. 8. Kathmandu: ICIMOD. 67pp

Bruijnzeel, L.A. and Bremmer, C.N. (1989) **Highland-Lowland Interactions in the Ganges Brahmaputra River Basin: A Review of Published Literature**. Occasional Paper No. 11. Kathmandu: ICIMOD. 136pp

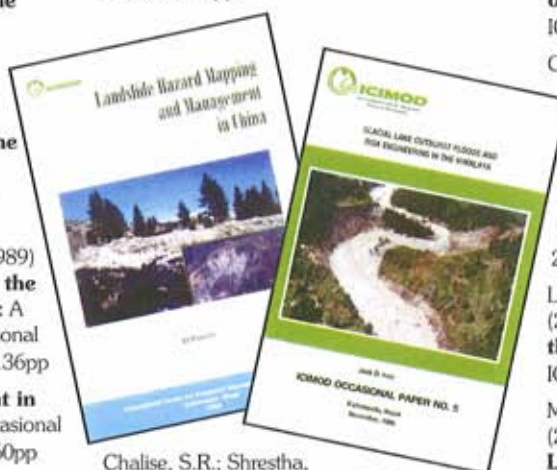
Li, T. (1990) **Landslide Management in the Mountain Areas of China**. Occasional Paper No. 15. Kathmandu: ICIMOD. 60pp

Deoja, B.; Dhital, M.; Thapa, K.B.; Wagner, A. (eds) (1991) **Mountain Risk Engineering and Awareness Handbook**, Vols I and II. Kathmandu: ICIMOD. 875pp

Dhital, M.; Khanal, N.; Thapa, K.B. (1993) **The Role of Extreme Weather Events, Mass Movements and Land-use Changes in Increasing Natural Hazards**. Kathmandu: ICIMOD. 164pp

Deoja, B.B. (1994) **Sustainable Approaches to the Construction of Roads and Other Infrastructure in the Hindu Kush-Himalayas**, Occasional Paper No. 24. Kathmandu: ICIMOD. 70pp

Chalise, S.R.; Karki, S. (eds) (1995) **Landslide Hazard Management and Control in the Hindu Kush-Himalayas - A Report on the Regional Workshop held in Kathmandu July 12-14, 1995**. Kathmandu: ICIMOD. 41pp



Chalise, S.R.; Shrestha, M.L.; Thapa, K.B.; Shrestha, B.R.; Bajracharya, B. (1996) **Climatic and Hydrological Atlas of Nepal**. Kathmandu: ICIMOD. 264pp

Li, T. (1996) **Landslide Hazard Mapping and Management in China**. Kathmandu: ICIMOD. 36pp

Malik, M.H.; Farooq, S. (1996) **Landslide Hazard Management and Control in Pakistan (A Review)**. Kathmandu: ICIMOD. 86pp

Rana, G. (1996) **Workshop on Hazard Mitigation in the Northern Sunkoshi**

and Bhote Koshi Water Catchment Areas (HMWA), Nepal. Kathmandu: ICIMOD. 55pp

Upreti, B.N.; and Rana, G. M. (1997) **Habitat and Hazards in the Himalayas of Nepal**. 1997 IMD 97/3. Kathmandu: ICIMOD. 4pp

Chalise, S.R. (1997) **Management of Water for the Prevention of Environmental Hazards**. IMD 97/6. Kathmandu: ICIMOD. 6pp

Karki, A. S.; Rana, G.; and Li, T. (eds) (2001) **Mountain Flash Floods**. ICIMOD Newsletter No. 38. Kathmandu: ICIMOD. 28pp

Li, T.; Chalise, S.R. and Upreti, B.N. (eds) (2001) **Landslide Hazard Mitigation in the Hindu Kush Himalayas**. Kathmandu: ICIMOD. 321pp

Mool, P.K.; Bajracharya, S.R.; and Joshi, S.P. (2001) **Inventory of Glaciers, Glacial Lakes and Glacial Lake Outburst Floods - Monitoring and Early Warning Systems in the Hindu Kush-Himalayan Region, Nepal**. Kathmandu, Nepal. ICIMOD. 363pp

Mool, P.K.; Wangds, D.; Bajracharya, S.R. Kunzang, K.; Gurung, D.R. and Joshi, S.P. (2001) **Inventory of Glaciers, Glacial Lakes and Glacial Lake Outburst Floods-Monitoring and Early Warning Systems in the Hindu Kush Himalayan Region, Bhutan**. Kathmandu: ICIMOD. 227pp

Web Sites Related to Risks and Hazards

Mapping Debris Flows in the Himalayas

<http://www.gisdevelopment.net/application/mountain/conservation/mounm0001.htm>

Due to lack of proper technical appreciation, the roads constructed in the Himalayas often cut across debris flow tracks, which leads to recurring societal and environmental problems. Active debris flows can be easily identified on remote sensing data, and thus remote sensing could provide extremely useful input for planning and maintenance of development activities and environmental measures.

Regional Geographic Information Infrastructure in the Hindu Kush-Himalayan Region

<http://www.gisdevelopment.net/application/mountain/general/moung0001.htm>

The paper gives an overview of the outlines, the role and the present activities of the International Centre for Integrated Mountain Development (ICIMOD) with special reference to its Mountain Environment and Natural Resources Information Service (MENRIS). The paper also discusses the status of geographic information usage in the Hindu-Kush Himalayan Region in the context of present political and institutional arrangements.

GIS-based Data Integration for Landslide Hazard Zonation in the Garhwal Himalayas

<http://www.gisdevelopment.net/application/mountain/conservation/mounm0003.htm>

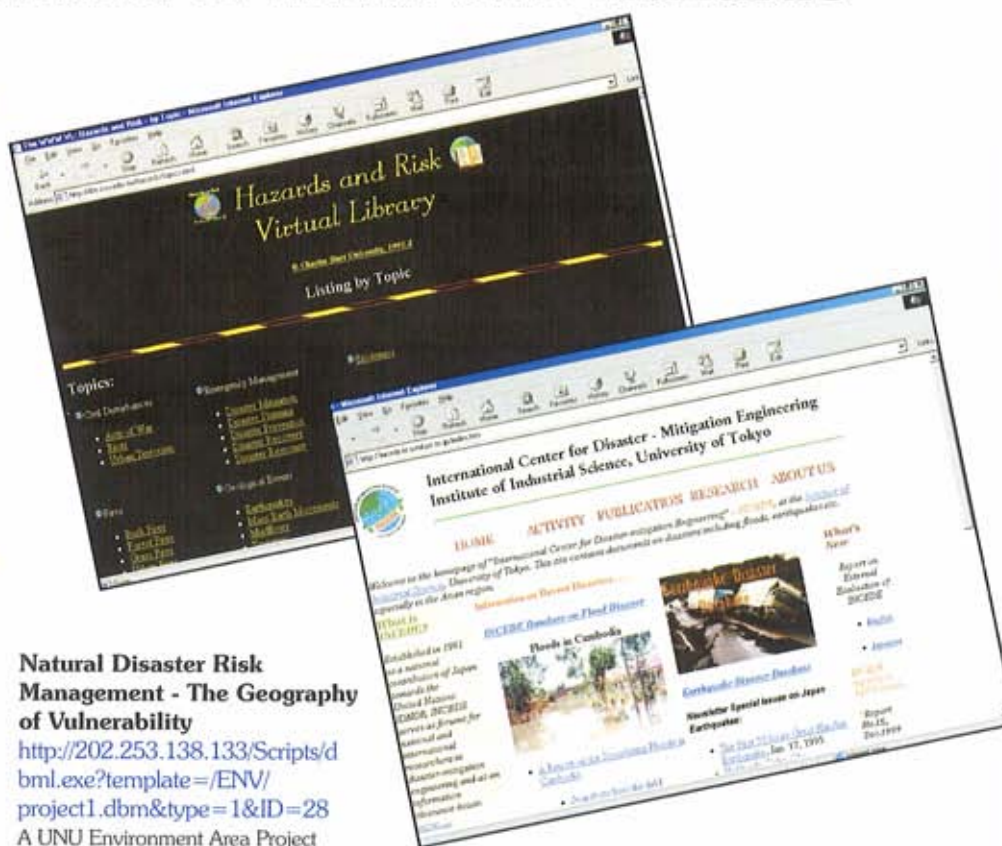
Website on the Drought Situation in Pakistan

<http://www.drought.sdn.pk.org>

Pakistan is facing acute drought conditions in certain areas of Sindh and most of Balochistan. Apart from the loss of precious human lives, this has resulted in considerable loss to livestock and natural resources, squeezing livelihood opportunities and resources for sustenance. It is the need of the hour to help the affected population and vulnerable communities through both long and short-term rehabilitation plans. This special website is created to provide up to date news on the situation and to link the relief activities of donors, government and civil society organisations so as to create a synergy of humanitarian help, urgently required in the drought stricken areas. It also contains links to other sites with relevant information as well as archives of news and articles appearing on this subject.

Yunnan Earthquake Reconstruction

<http://www.worldbank.org/html/yunnan/> Earthquake Reconstruction, Urban Upgrading and Heritage Conservation by Yunnan Provincial Government. A Photo Essay on the World Bank website



Natural Disaster Risk Management - The Geography of Vulnerability

<http://202.253.138.133/Scripts/dbml.exe?template=/ENV/project1.dbm&type=1&ID=28>

A UNU Environment Area Project

Water-Leading Cause of Natural Disasters

<http://202.253.138.133/scripts/dbml.exe?template=/ENV/active1.dbm&type=1&ID=58>

A UNU Environment Area Project Activity linked to the UNU Public Forum Series

International Center for Disaster Mitigation Engineering (INCEDE)

<http://incede.iis.u-tokyo.ac.jp/default.html>

This site contains documents on and extensive links to information on disasters such as floods, earthquakes, etc., especially in the Asian region, and serves as a forum for national and international researchers in disaster-mitigation engineering and as an information clearance house

The World Wide Web Virtual Library: Hazards and Risk

<http://life.csu.edu.au/hazards/topics.html>

Hazard Assessment Keys for Evaluating Site Sensitivity to Soil Degrading Processes Guidebook, Second Edition, March 1999

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/HAZARD/>

This guidebook has been prepared to help forest resource managers plan, prescribe and implement sound forest practices that comply with the Forest Practices Code of British Columbia.

ReliefWeb: Natural Disasters

<http://www.notes.reliefweb.int/FILES/rwdoмино.nsf/VNaturalDisastersTheLatest/> Extensive chronicling of news on natural disasters worldwide

UNEP: Freshwater Website Launched to Counter Declining Resources

<http://freshwater.unep.net/>

The U.N. Environment Program launched the UNEPNet Freshwater Portal, an online web site that provides comprehensive information on the declining state of the world's freshwater resources. UNEP said freshwater may prove to be this century's dominant environmental and developmental issue.

With resources including documents, databases, maps and graphics, the site covers critical freshwater issues including water scarcity, irrigated agriculture, water and sanitation, water quality, groundwater, transboundary water management, water and ecosystems, urban water and floods and droughts.

UNEP warned that one-third of the world's population lives in countries with moderate to high water stress. Water shortages are particularly acute in Africa and West Asia, and insufficient water is already a major constraint to industrial and socioeconomic growth in China, India and Indonesia. If present consumption patterns continue, UNEP said, two out of three people worldwide will live in water-stressed conditions by the year 2025 (UNEP release, Dec.18).

Department of Hydrology and Meteorology (DHM)

Ministry of Science and Technology, His Majesty's Government of Nepal

Introduction

His Majesty's Government of Nepal (HMG/N) started hydrological and meteorological activities in an organised manner in 1962 under the Department of Electricity. This was later transferred to the Department of Irrigation and was upgraded to departmental status in 1988. The Department of Hydrology and Meteorology (DHM) is under the Ministry of Science and Technology of HMG/N and is responsible for monitoring all hydrological and meteorological activities.

DHM is a member of the World Meteorological Organisation (WMO) and contributes to the global exchange of meteorological data on a regular basis. It is a focal point for the Intergovernmental Panel on Climate Change (IPCC) and for the meteorological activities of the South Asian Association for Regional Cooperation (SAARC). The International Civil Aviation Organisation

(ICAO) has recognised DHM as an authority for providing meteorological services for international flights.

DHM actively participates in the programmes of relevant international organisations such as UNESCO's International Hydrological Programme (IHP), WMO's Operational Hydrology Programme (OHP), and ICIMOD. In the past, DHM has hosted several regional and international workshops, symposia, seminars, and meetings on different aspects of meteorology, hydrology, sediment, and snow hydrology.

Principal Activities

- To collect and disseminate hydrological and meteorological information for water resources, agriculture, energy, and other development activities
- To issue hydrological and meteorological forecasts for the public, mountaineering expeditions, civil aviation, and for the mitigation of natural disasters
 - To carry out special studies required for policy-makers and for the development of hydrological and meteorological sciences in the region
 - To promote relationships with national and international organisations in the fields of hydrology and meteorology

Organisational Set-up

The Director General heads the DHM. There are 4 divisions headed by Deputy Director Generals.

1. **Hydrology**
River Hydrology, Flood Forecasting, Snow and Glacier Hydrology, and Sediment and Water Quality
2. **Climatology**
Climatology, Agro-meteorology, and Wind and Solar Energy Data
3. **Meteorological Forecasting**
The Communication, Aviation, and General Weather Forecast Units

4. Coordination

The Coordination Division is primarily responsible for developing policies and coordinating all the departmental activities.

Hydro-Meteorological Networks

DHM maintains nation-wide networks of 309 precipitation stations, 120 hydrometric stations, 21 sediment stations, 68 climatic stations, 22 agrometeorological stations, and 15 synoptic stations. DHM is equipped with computer facilities for database management, hydrological and meteorological modelling, and analyses. Data are made available to users through published reports, bulletins, and computer media outputs such as hard copies or diskettes.

Recent Key Achievements

- Establishment of an early warning system based on Meteor Burst Technology on the Tsho Rolpa Glacier Lake and downstream
- Reduction of the Tsho Rolpa Lake level by 3m
- HydrA -Nepal Software development in collaboration with the Centre for Ecology and Hydrology, Wallingford, UK, and ICIMOD. It is a new and innovative PC-based software package that provides a rapid means of estimating hydropower potential at any location in Nepal
- Water Availability study of 77 basins in the Western Region of Nepal
- Monthly evaporation data computed for 200 stations throughout Nepal

Major Ongoing Projects

1. Tsho Rolpa GLOF Risk Reduction Project (1999-2002)
2. The Hydrology Component of the Nepal Irrigation Sector Project (1997-2002)
3. The UN Framework Convention on Climate Change Project

Mailing Address

Department of Hydrology and Meteorology (DHM)
P.O. Box 406, Babar Mahal, Kathmandu
Tel: 977-1-248808/262374/
255920/ 262974
Fax: 977-1-262348/473268/ 254890
E-mail: dhm@wlink.com.np



Meteorological station in Bhairahawa

ICIMOD Board of Governors

Regional Board Members

Prof. Sun Honglie**
CHAIRPERSON
Academician, The Chinese
Academy of Sciences, China

Prof Zhao Qiquo*
Institute of Soil Sciences,
Chinese Academy of Sciences
Nanjing, China

Dasho Sangay Thinley
Secretary
Ministry of Agriculture, Bhutan

Mr. Azm Shafiqul Islam
Joint Secretary
Ministry of Chittagong Hill Tracts
Affairs, Bangladesh

Afghanistan
(currently vacant)

Mr. P. V. Jayakrishnan
Secretary, Ministry of
Environment and Forests, India

Mr. Soe Win Hlaing
Deputy Director General
Forest Department, Myanmar

Dr. Mukti Narayan Shrestha
Secretary
Ministry of Population and
Environment, Nepal

Mr. Hafeez Akhter Randhawa
Secretary
Ministry of Food, Agriculture
and Livestock, Pakistan

Independent Board Members

Dr. Anne Whyte
VICE CHAIRPERSON
Mestor Associates
Ontario, Canada

Dr. Hans Gsaenger
German Development Institute
Berlin, Germany

Prof. Jamuna Sharan Singh **
Professor
Department of Botany,
Banaras Hindu University, India

Mr. J. W. F. Coole*
First Secretary
Forests and Environment
Royal Netherlands Embassy

Dr. Rob Visser**
Ministry of Foreign Affairs
The Netherlands

Dr. Karin Inmann*
Salzburg, Austria

Dr. Tone Bleie**
Research Director
Development Studies
and Human Rights
Norway

Dr. Shoab Sultan Khan
Senior Advisor
UNPD, Islamabad, Pakistan

Dr. Ruth Egger
Deputy Executive Director
Intercooperation
Switzerland

Dr. J. Gabriel Campbell
(Ex-officio Member)
Director General, ICIMOD

* Retiring

** Newly elected

Centre News

Highlights of the 30th Board Meeting

His Excellency Lyonpo
Kinzang Dorji, Minister of
Agriculture of Bhutan and
Director General of
ICIMOD, Dr. Gabriel
Campbell



Dr. Pema Gyamtsho, Head of Planning & Policy Division, Ministry of Agriculture talking to the ICIMOD group at the Natural Resources Training Institute, Lobesa, Wangduephodrang, during the field trip.

The 30th Meeting of the ICIMOD Board of Governors was held in Thimphu, Bhutan, on Saturday 8 December, 2001. This full Board meeting was preceded by 'ICIMOD Centre's Day' and meetings of the ICIMOD Support Group, Finance Committee, and Programme Advisory Committee.

The Board and Support Group members were very grateful for the opportunity provided by the Bhutanese Government to spend some days visiting different parts of Bhutan prior to the formal meetings. The field trip included a visit to the Phobjikha Valley, the winter home of the rare and sacred black necked crane, and an opportunity to view the work there of the Royal Society for Protection of Nature; a visit to the Natural Resources Training Institute in Lobesa, with a look at the integrated training programme for extension workers in forestry, agriculture, and livestock with which ICIMOD has been involved; a visit to the Renewable Natural Resources Research Centre at Bajo, which included a fascinating tour of its Lingmuteychu Watershed Programme; and a visit to Punakha Dzong, part of which and its surrounding areas were affected by the Glacial Lake Outburst Flood event of 1994 documented in ICIMOD's recent publication. The field trip provided the participants

with an opportunity to acclimatise physically and mentally to the local environment, created time and space for interaction between the meeting participants, and an opportunity to view some of the positive outcomes and benefits of collaboration between the host country and ICIMOD.

The tone for the meetings was set by the inaugural address of the Hon'ble Minister of Agriculture, His Excellency Lyonpo Dr. Kinzang Dorji, who has been most closely associated with ICIMOD, during Centre's Day. The colourful, elaborate and spiritually moving traditional Opening Ceremony with its focus on simplicity, clarity, and peace played its part in orienting the participants and provided a beautiful and memorable opening to the subsequently successful set of meetings. During Centre's day, highlights of some example programmes were also presented, and the plans for the upcoming International Year of Mountains (IYM) 2002 outlined. Much of the day was devoted to a presentation of the results of the Quinquennial Review (QQR) held in June/July 2001, and of the future plans for ICIMOD.

The Board meeting was chaired by Professor Sun Honglie with Dr. Hans G. Gsaenger, serving as Vice-Chair, and attended by Regional Members from

Bangladesh, Bhutan, China, India, Myanmar, and Nepal as well as Independent Board members and official observers from Austria, Bhutan, Canada, China, Germany and Switzerland.

Major topics of the Board meeting included the review of ICIMOD's current and planned programmes, response to the Quinquennial Review report and strategic planning for the next phase of ICIMOD's programme (due to commence in January 2003 following completion of RCP II), the events and follow-up planned for the IYM 2002, plans to build a Headquarters Building in Kathmandu, and the opportunity to recommence activities in Afghanistan.

The Board endorsed the recommendations of the QQR and thanked the team for their hard work. In future the programme and review periods will be synchronised as recommended by the QQR. The Board approved the Progress Report 2001, Work Plan 2002, and a schedule for strategic planning for the next phase. ICIMOD's new financial strategy was discussed at some length. The Board considered that the Centre should aim for a diversified strategy based on the three main pillars of core funding, partnerships and co-financing, and trust funds together with other components of cost recovery and cost cutting. The Board approved the revised Human Resources Manual, which amongst other changes introduces various new staff categories including those of Associate Visiting Scientists and 'Regional Officer', which will replace and extend the former 'National Officer' level. The Board expressed its gratitude to His Majesty's Government of Nepal for providing land for the HQ building of ICIMOD in Khumaltar, Lalitpur, equivalent to US\$1 million. Various decisions were made related to the financing of the building and the criteria to be used in selection of the final design.

The terms of three of the Independent Board members were

due to expire and Dr. Rob Visser from the Netherlands, Dr. Tone Bleie from Norway, and Professor Jamuna Sharan Singh from India were appointed as new members of the Board. A new policy was agreed whereby if an Independent Board member does not attend for two consecutive periods his or her membership shall be discontinued. A change in the election procedure for the Chair was also agreed: in future the Chair will be elected at the beginning of a regular Board meeting (and stay in office until the start of the next regular Board meeting). The Board welcomed the active participation of ICIMOD in Afghanistan's reconstruction efforts and sought donor support for this. ICIMOD was encouraged to establish direct contact with the relevant authority in order to encourage active participation by Afghanistan in ICIMOD's activities, including the Board.

It was agreed to hold a special joint meeting of the Board and the Support Group on the 2 July 2002 in Germany followed by a one-day meeting of the Programme Advisory Committee to discuss a draft programme, draft funding resources strategy, and draft human resources plan for the next phase. The members of ICIMOD's Board had been invited to participate in a meeting organised by GTZ, UNEP, CIPRA International, and the German Government at the end of June on the experiences of the Alpine Convention process, a meeting that was of great interest to ICIMOD as the convention was potentially a model for the HKH region, and the timing was such that it would also provide an ideal opportunity to discuss the plans for ICIMOD's next cycle.

The next regular Board meeting will be held within the period from 9th-12th December 2002 in Kathmandu, Nepal. The Board expressed its deep gratitude to the Royal Government of Bhutan for its gracious and wonderful hosting of all the meetings and field trip.



Prem Panda

Prem Panda, received an International Year of the Mountains T-shirt on behalf of Barnaby Bear at ICIMOD. The photograph shows Mr. Milan Raj Tuladhar, Head of Administration and Finance, presenting the T-shirt.

The T-shirt motif is one among others taken from the illustrations of the mountain children's book, 'Mountains Forever.' (A review of this book can be found in the publications' pages.)

Prem Panda replaced Barnaby Bear as a visitor to ICIMOD when Barnaby Bear missed the flight from London to Kathmandu. Barnaby Bear is a bear used by British education authorities to teach children about other countries.

Barnaby accompanies travellers who visit places of geographical and historical interest, learning in depth

about each different place. Barnaby companions are usually not your run of the mill tourist. The Geographical Association, Sheffield, South Yorkshire England is Barnaby's governing organisation. The organisation certainly has hit on an interesting way to teach Geography. Photographs of Barnaby in significant spots and situations help teach children in a creative way about other lands. Our photograph shows Prem Panda with Barnaby companion, Andrew Pennington, Editor of The Countesthorpe Herald, Leicestershire.

Following his visit to ICIMOD, Prem decided to stay, so we took permission from his author to host him on secondment from his Himalayan retreat. He visited the British school, Kathmandu, to introduce the International Year of Mountains to children there.

He now has a web page www.prempanda.net, and email address prempanda@icimod.org.np, and will be answering questions about the HKH and ICIMOD's work sent in by children and young people from wherever there is internet access. The current craze is to ask questions about ICT for which Prem has reference manuals in the Itrain collective and 'GIS for Beginners'. Invitations for Prem can also be sent to the same address.



Regional Rangeland Programme

2001 was a busy year for the capacity building component of the Regional Rangeland Programme of ICIMOD. A national-level training programme on **'Participatory Action Research in Rangeland Development and Conservation'** took place in Naqu County, northern Tibetan Autonomous Region, China, from August 13 - 24, 2001. Thirty-one participants attended the training, ranging from government researchers to local township extension staff. The training gave participants the opportunity to learn about the interdisciplinary nature of rangelands and participatory strategies to improve the lives of those dependent on these resources. This was achieved through participatory exercises on: rangeland ecology; resource tenure; stakeholder identification and gender analysis; participatory assessment and planning tools; designing rangeland and livestock monitoring systems based on indigenous knowledge; and evaluating organisational 'readiness' to deliver socially equitable rangeland development packages. The training culminated in an action plan for each trainee to apply to his or her own projects and programmes. This training was sponsored by the Federal Government of Austria with support from CIDA's Basic Human Needs Project in Tibet. This project will follow-up on the preliminary diagnostic study that was completed during the training.

The Regional Rangeland Programme of ICIMOD is also assisting the King Mahendra Trust for Nature Conservation with implementation of their Upper Mustang Biodiversity Conservation Project, primarily in the field of rangeland management and conservation. Project staff have now completed two training programmes, the latter one carried out from September 23 - October 11, 2001, as a follow-up to the initial conceptual training on participatory research, carried out in Pokhara in February 2001. The latter was carried out with Dr. Rodney Jackson of the Snow Leopard Conservancy.

The objectives of the autumn training programme were:

- 1) to review concepts of Participatory Research and Appreciative Participatory Planning and Action;
- 2) to reflect on staff experiences with information gathering during the 2001 field season;
- 3) to improve staff skills in participatory assessment techniques in rangeland management and people-wildlife conflicts due to livestock depredation (especially that associated with the snow leopard, an endangered species);
- 4) to assist project and Lomanthang Unit Conservation Office staff in developing or refining field survey and inventories for assessing rangeland biodiversity and developing simple tools for data analysis;
- 5) to prepare conceptual frameworks, strategies and action plans for 2002's work plan, focusing on strategies for involving local community based organisations and groups in the assessment and planning process, based on the skills acquired during the field-based training.



Interview with rangeland women

Camille Richard, camille@icimod.org.np.

E-conference

An e-conference on **'Integrating Mountain Culture and Natural Resource Management'** was held from August 17-September 28, 2001.

The e-conference focused on 4 major themes, each theme ably moderated by a specialist. The themes and moderators were Conceptual Issues (Prof. Don Messerschmidt), Challenges and Responses (Dr. Deep Narayan Pandey), Ethics (Masi Lutianara) and Which Way Ahead (Nandita Jain).

The e-conference had 126 subscribers and received 52 contributions. Issues such as the dynamic nature of culture, developers' influence on mountain cultures, gender approach to NRM and ethics were thoroughly discussed. An archive of the contributions, relevant reference papers and other details is available on the e-conference website

<http://www.icimod.org.sg/iyf2002/culture/mcnrm.htm>. A synthesis report of the e-conference will also appear shortly.

Farmers' Day

The Pakistan Team for the People and Resource Dynamics in Mountain Watersheds of the Hindu Kush-Himalayas Project (PARDYP) arranged a **Farmers' Day** in Hilkot watershed, Mansehra District, from 12 to 14 September. PARDYP is a regional network funded by the Swiss Agency for Development and Cooperation (SDC) and the Canadian International Development Research Centre and managed by ICIMOD.

The Farmers' Day was arranged to draw local and national attention to the work being carried out through PARDYP on watershed management. The main focus of attention was the participatory evaluation of the more than 70 on-farm trials carried out through PARDYP from the Pakistan Forestry Institute, Peshawar. Over 100 farmers spent two days examining and discussing different crop variety trials of maize and rice, looking at mixed cropping trials, clonal and seedling tea trials and demonstrations of other technical innovations for mountain farming.

The Pakistan Council for Renewable Energy Technology (PCRET) held demonstrations of solar cookers and other renewable energy technologies, while the Honey Bee Research Institute of the Pakistan Agricultural Research Council prepared materials demonstrating improved beekeeping devices. Staff from the medicinal plants and entomology sections of the Pakistan Forestry Institute prepared exhibitions covering the cultivation of medicinal plants and the control of common insect pests.



Farmers' Day

Training on Conservation-based Apicultural Development in Nepal

Conservation-based apiculture is a new concept developed at ICIMOD to cater to the requirements of development, biodiversity conservation and poverty alleviation at village level. The target group of this effort are poverty stricken marginalised landless and poor people who practise apiculture with indigenous honeybees in the mountains of the Hindu-Kush Himalayan region. ICIMOD is working very closely with the beekeepers of the region to cater to their requirements by building their capacities and deriving and documenting useful information from accumulated indigenous knowledge on sustainable mountain apiculture. In this connection, training on conservation-based apicultural development was held from Sept 4-7, 2001, at ICIMOD. It was conducted on the principles of sharing information between trainers and trainees to facilitate the exchange of knowledge and information. Fourteen participants from different parts of Nepal participated in the training. Resource persons from the Department of Agriculture, HMG; ITDG, Nepal; The Beekeeping Shop; Bees for Development, UK and ICIMOD contributed to the deliberations.

During the training programme trainees shared their experiences and knowledge about sustainable *Apis cerana* beekeeping and wild bee management. Trainees also provided an enormous amount of information on honey marketing mechanisms in mountain areas. They were informed about the concept of sustainability in the field of beekeeping development. Trainees also visited ICIMOD's apiary at Godavari Test and Demonstration Site for hands on training. Issues of pollination, gender roles, bee-based eco-tourism and *Apis cerana* selection were also discussed.

Farooq Ahmad, farooq@icimod.org.np

The APMN Team Visits Switzerland

The APMN team, comprising of Greta Rana, Coordinator, and Ujol Sherchan, Node Manager, represented the Asia Pacific Mountain Network (APMN) at the Mountain Forum Node Managers' Meeting in Rolle, Switzerland, September 26 - 29, 2001. The main thrust of the three-day Node Managers' Meeting was essentially four-fold.

- To discuss MF's role in IYM 2002
- To discuss the modus operandi to institutionalize MF through legal registration and signing of MOUs with various MF nodes
- To brainstorm on fund-raising strategies
- To identify weaknesses and strengths of MF; and share experiences

Ujol Sherchan, ujol@icimod.org.np

Farmers' Day concluded with an Essay Competition for local school children designed to increase awareness of environmental issues. The event was a great success with many local and national dignitaries present, including watershed management practitioners, agriculturalists and foresters interacting with the watershed's farmers. Another Farmers' Day is already being planned for 2002.

ICIMOD staff, Dr Eklabya Sharma, Dr Farooq Ahmad, Dr Kamal Rijal and Mr. Roger White, attended the Farmers' Day activities.

Roger White, rwhite@icimod.org.np

Asia High Summit 2002

Mountains matter. Mountains contain large watersheds, enormous biodiversity, and a pastiche of cultures. However, mountain people face many challenges in life and are poor despite a rich heritage. Poverty among mountain people all over the world is linked to their isolation and marginalisation, natural resource degradation, poor human resources, institutional gaps, and knowledge constraints.

One of the key activities during the International Year of Mountains will be for the continent of Asia, South America, Africa, and Europe to each produce a policy document based on the future development of mountain areas in these regions at regional conferences. These regional conferences, known as the High Summit, will be held simultaneously on each continent. The Asia High Summit 2002 will be held in Nepal.

The primary aim of the Asia High Summit 2002 is to bring forward challenges of poverty and degradation of resources that mountain people face every day and to find ways in which lives in mountain areas can be substantially improved. The Asia High Summit 2002 hopes to bring together researchers, scientists, scholars, decision-makers, politicians, and grass roots' participants to raise awareness about life in mountain areas at the regional level. Furthermore, the Asia High Summit 2002 hopes to facilitate transboundary cooperation, exchange ideas, and help frame policies that recognise the importance of protecting mountain environments and ensuring sustainable development of mountain communities.

The Asia High Summit 2002 will be held in Kathmandu, Nepal, from 6-10 May. Each day a different theme will be presented. The themes for the Asia High Summit 2002 are water, culture, economy, risk, and policy. Presentations and discussions will be relayed by live broadcasts on the Internet. There will also be a one-hour common time among viewers in the four continents and within the cities of Kathmandu, Mendoza, Nairobi, and Milan for the High Summit News through video conferencing. There will be further discussion on these themes via e-mail, chat rooms, and on-line forums.

The sponsors of the Asia High Summit are ICIMOD, the United Nations Food and Agriculture Organization, and the Italian Committee on the International Year of Mountains.

For more information, please contact
Ms. Moushumi Chaudhury,

Assistant Coordinator

for the Asia High Summit 2002, ICIMOD,

P.O. Box 3226, Kathmandu, Nepal

Tel: 977-1-525313, Fax: 977-1-524509,

E-mail: mchaudhury@icimod.org.np

Please check www.highsummit.org

for exact program details of the conference and updates

Training Programme on 'Application of GIS and Remote Sensing to Integrated Mountain Development'

A four-week professional-level training programme on **Application of GIS and Remote Sensing to Integrated Mountain Development** was conducted from 17th September to 12th October 2001, at the request of institutions in member countries. The main objective of the training programme was to provide participants with knowledge and basic skills in GIS and RS, in general, and their application to sustainable mountain development. At the end of the programme, participants were able to:

- extract the analytical requirements and information needs of models and methods used in their specific field of application,
- explain and execute basic principles of GIS/RS data input, manipulation, and analysis; and
- apply GIS/RS knowledge and skills to methods and models in their specific fields.

Participants were equipped with knowledge about GIS and RS concepts and practical skills in geographical data capture, storage, management, analysis, and manipulation and output. The training approach used had a block or module structure with a combination of lectures, workshops, and practical exercises. The practical exercises were based on ArcInfo, ArcView, and ERDAS Imagine software. The programme was concluded with individual/group project work. The coordinator of the training programme was Sushil Pradhan.

Sushil Pradhan, sushil@icimod.org.np

Beekeeping Network in Nepal

A larger forum networking meeting held on 26 & 27 September 2001 agreed unanimously to create an Apiculturists' Network - Nepal (ApiNet - Nepal) where 33 individuals and 9 organisations decided to be founder members. An eleven member ad hoc committee was formed that will take a lead in registering this organisation with the appropriate government offices of Nepal. The vision of ApiNet - Nepal is 'Conservation and Development of Sustainable Apiculture in Nepal through active participation of member organisations and individuals'. This new initiative facilitated by ICIMOD's indigenous honeybee project will surely help to bring stakeholders together to share experiences and information.

Min Bahadur Gurung, min@icimod.org.np

Three-day Stakeholders' Meeting on Systems of Local Livestock Resource Planning

ICIMOD and FAO Rome jointly organised a three-day stakeholders' meeting on Systems of Local Livestock Resource Planning from October 11 to 13, 2001, in Dhulikhel, Nepal. The meeting provided an opportunity for different stakeholders from Bhutan, India, Nepal and Pakistan to share their study results, work experiences, limitations and gaps in the past and present systems of local livestock resource planning with due emphasis on linkages such as NRM. The participants represented diverse groups of professionals: field-level livestock officers and directors at the centre, experts working with local communities at the grass roots' level of I/NGOs, and local farmers, village leaders and the district chairman (elected by the people). At the end, the meeting produced a framework for community participation in local livestock resource planning in the HKH region. After a fruitful 3-day meeting, Eklabya Sharma, Pradeep Tulachan and Juhani Maki-Hokkonen (FAO) agreed on a follow-up activity to further strengthen the collaboration between ICIMOD and FAO in the future. It is to be noted that FAO-Rome has been providing both intellectual and financial support for addressing the critical issues of livestock as an integral component of mixed mountain farming systems under ICIMOD programme Activity 1.1 of RCP-II. To this end, Dr. Tulachan visited FAO Rome in January 2002 to develop a follow-up proposal for field-testing and verification of the framework/ methodology in consultation with FAO experts.

Pradeep Tulachan, tulachan@icimod.org.np

Press Conference on the International Year of Mountains (IYM) 2002

In early November 2001 the Swiss Development Cooperation organised a week-long photo exhibition and events at Annapurna Hotel to introduce IYM 2002. On November 8th, at SDC's initiation, Mountain Forum (MF) organised a joint press conference with ICIMOD. Resident Representative of the UN Food and Agriculture Organization (FAO), Winston Rudder, welcomed media representatives and expressed appreciation for the various initiatives planned at the global, regional, national, and local levels, particularly those being led by the Nepal National Committee for the IYM and ICIMOD. Special guest for the occasion, Dr. Uday R. Sharma, Joint Secretary of the Ministry of Forests and Soil Conservation of HMG Nepal and Spokesperson for the National IYM Committee, presented the plans of the government for the Year of Mountains. Dr. Gabriel Campbell, ICIMOD Director-General, highlighted the significance of the Year of Mountains for ICIMOD in view of its mandate to help promote the sustainable development of mountain areas and their people. ICIMOD Coordinator for the IYM, Armila C. Shakya, described some of the upcoming events and activities for the special year.



Press Conference

Ojaswi Josse briefed the media on ICIMOD's flagship event, Celebrating Mountain Women, a global meeting of mountain women to take place on 28-31 May 2002. Dr. Alejandro Camino, who coordinated and initiated the press conference talked about the electronic Forum's preparations for the IYM. For upcoming IYM Events please visit www.icimod.org/iym2002/calendar/calendar.htm

Armila Shakya, ashakya@icimod.org.np

Regional Workshop on Water-induced Disasters in the HKH Region

ICIMOD jointly with the Participatory Disaster Management Programme/UNDP organised a four-day regional workshop on Water-induced Disasters in the Hindu Kush-Himalayan Region from 11 to 14 December 2001 in Kathmandu with support from the Japanese Women in Development Fund/UNDP. The workshop aimed to (i) share information on disaster preparedness, management, (ii) facilitate understanding and implementation of disaster mitigation activities based on a community disaster management approach, including integration of the gender perspective into disaster mitigation.

The workshop participants, about 40 in all, included senior government officials engaged in disaster management; academic experts from Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan; resource persons from Japan, the Philippines and Thailand; and representatives of ADRC, ADPC and UNDP/Nepal. Twenty-four papers were presented at the workshop. They dealt with risk and vulnerability analysis and hazard mapping; flash flood forecasting, community awareness and disaster response preparedness; natural hazards, poverty and development and gender aspects in disaster management.

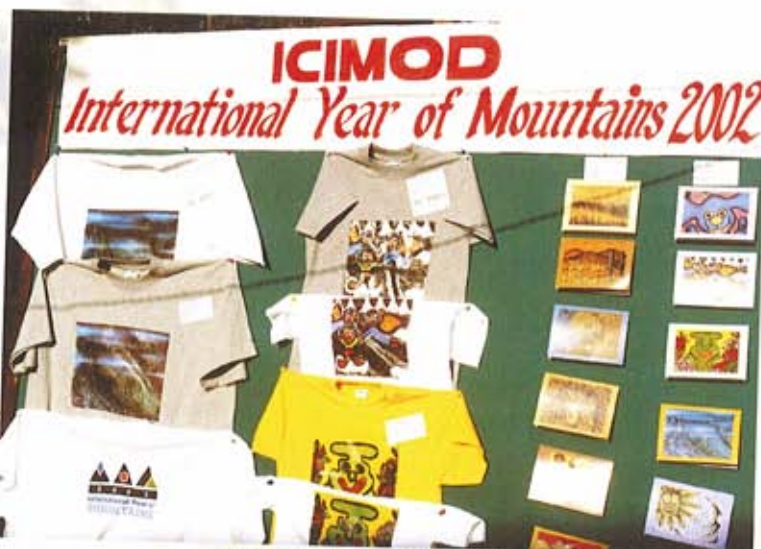
On the basis of presentations and discussions in the plenary sessions and intensive discussions in three groups on Types of Regional Level Hazards, National and Community Approaches to Mitigate Disasters, Replication of New Techniques, Exchange of Information at National and Regional Level, and Regional/ International Cooperation, the workshop arrived at a number of conclusions and made detailed recommendations on various aspects of effective disaster management in the Hindu Kush-Himalayan region.

Li Tianchi, tianchi@icimod.org.np

Bazaars

ICIMOD took part for the first time in the Annual AWON Holiday Bazaar on 1 December 2001 at Hotel Hyatt and in the Summit Christmas Night Bazaar on 14 December 2001 at the Hotel Summit. At these bazaars we sold the IYM t-shirts, IYM greeting cards, plants from the ICIMOD Godavari Trial and Demonstration Site, honey products from Jumla, IYM Wall Calendars and our new publication, "Mountains Forever". The visitor turn out to the bazaars was very good and the whole environment had a festive look. Likewise, on 19 December 2001, a small stall was set up in the British School compound where Prem Panda was introduced by Greta Rana, Head, ICOD, at the school's Christmas Carol programme and, here again, we promoted the sale of IYM t-shirts and greeting cards. Income generated at these three bazaars was Rs 35,040 (US\$ 460). In January, ICIMOD has allowed to put on display for SAARC Summit at Soaltee.

Nira Gurung, nira@icimod.org.np



ICIMOD Bazaar at hotel Hyatt

GIS for Manager's Training

At the request of Sanjay Kumar, the Director of the Centre for Spatial Database Management and Solutions (CSDMS) G-4 Sector 39, NOIDA - 201 301, India, a three-day GIS for Managers' training programme was organised by MENRIS for government employees from Bangladesh. The participants were attending the 1st Regional Seminar on Geo-Informatics for Asian Eco-System Management prior to the training at ICIMOD.

Sushil Pradhan, sushil@icimod.org.np

Mountain Forum Board Meeting

At the MF Board Meeting, which overlapped with the Node Manager's Meeting, on Sept 29, 2001, Mr Ujol Sherchan made a presentation on the APMN's progress to-date to the Mountain Forum (MF) Board of Directors. Ms Greta Rana outlined her vision for APMN for IYM2002 and beyond, as well as a brief on the APMN's ongoing project in Central Asia and the 'Mountains Forever' project, which came out of the APMN initiative. Dr. Tej Partap, Asia/Pacific Representative on the MF Board, also raised issues about the sustainability of APMN.

Greta Rana, greta@icimod.org.np

World Mountain Symposium.

Between September 30 and October 4, 2001, the APMN team attended the World Mountain Symposium 'Community Development between Subsidiy, Subsidiarity and Sustainability' in Interlaken, Switzerland. It is envisioned that the outcomes derived from the Symposium will be further elaborated upon at regional working groups and fed into the preparatory process for the Rio+10 Conference and into the diverse meetings on the world's mountains that will take place during IYM2002. Ms Greta Rana represented ICIMOD at the Symposium, attending seminars, paper presentations, panel discussions, and meetings with donors. Mr Ujol Sherchan presented a paper on 'The State of Mountain Children in Nepal', which was well received. On the last day, the APMN team joined the other MF staff at an informal meeting of Mountain Forum members - numbering around 30 - to get to know each other better and to answer questions/concerns about MF. The APMN team also met with donors, namely, Dr. Paul Egger and Dr. Uli Lutz, as well as other established names in the mountain world such as Prof. Jack D. Ives, Prof. Bruno Messerli, Prof. Hans Hurni, and Dr. Thomas Kohler. All in all, the trip to Switzerland offered the APMN team ample opportunity to discuss their work, raise concerns, network with potential partners, meet with donors, and make contributions.

Ujol Sherchan, ujol@icimod.org.np

Workshop on 'Himalayan Ecology: Main Issues and Concerns'

A one-day workshop on 'Himalayan Ecology: Main Issues and Concerns' was organised in New Delhi on 29th November 2001 in Habitat Place, Lodhi Road, New Delhi, India by the Tata Energy Research Institute in association with the Science Applications International Corporation, United States. The workshop focused on the Himalayan region, its main environmental concerns, the social and economic context and institutional and policy responses for addressing these concerns. The workshop identified mechanisms for improving environmental management, including local, national as well as international cooperation. Dr Eklabya Sharma of ICIMOD participated and gave a panel presentation.

Eklabya Sharma, esharma@icimod.org.np

Islamabad Meeting on the Reconstruction and Development of Afghanistan

The World Bank, UNDP and Asian Development Bank sponsored a meeting about the reconstruction of Afghanistan by organising an international meeting in Islamabad, Pakistan. The meeting was attended by more than 400 delegates from all over the world with active representation of major donor countries, Development Finance Institutions, UN agencies, International Non-Government Organisations and representative non-governmental organisations from Afghanistan. ICIMOD was represented by Dr Farooq Ahmad in this meeting. ICIMOD participated in two working groups: the role of women in reconstruction and reconstruction of agricultural systems.

Recommendations were formulated for short-term relief and long-term development activities. ICIMOD's experience can play a very important role in addressing the policy-level issues and in capacity building of Afghan organisations and institutions for meaningful reconstruction efforts. The success of this meeting reflects the all out donor commitment to the cause of reconstruction and development in Afghanistan.

Recent ICIMOD Publications

The major documents published between May 2001 and Dec. 2001 are shown below with abstracts. The three prices quoted for each publication are applicable to Developed Countries, Developing Countries, and ICIMOD's Regional Member Countries respectively. For institutions actively involved in sustainable development of the Hindu Kush-Himalayas, relevant publications can be provided free of charge.



Mool, P. K.; Bajracharya, S. R.; Joshi, S. P. **Inventory of Glaciers, Glacial Lakes and Glacial Lake Outburst Floods: Monitoring and Early Warning Systems in the Hindu Kush-Himalayan region - Nepal.** Kathmandu: ICIMOD. 2001. 363p. ISBN: 92-9115-331-1, Price: US\$ 20.00, 15.00, 10.00

Mool, P. K.; Wangda, D.; Bajracharya, S. R. **Inventory of Glaciers, Glacial Lakes and Glacial Lake Outburst Floods: Monitoring and Early Warning Systems in the Hindu Kush-Himalayan Region - Bhutan.** Kathmandu: International Centre for Integrated Mountain Development. 2001. 227p. ISBN/ISSN: 92-9115-345-1, Price: US\$ 20.00, 15.00, 10.00

The glaciers of the HKH are nature's renewable storehouse of fresh water. They serve as the perennial sources of rivers that are used as renewable sources for irrigation, drinking water, energy, and industry. However, these glaciers are retreating; the resultant long-term loss of natural fresh water storage will have as yet uncalculated effects. More immediately, as they retreat, glacial lakes can form behind the exposed and unstable terminal moraines. Sudden breaching of these can result in the discharge of huge amounts of water and debris -- a glacial lake outburst flood or GLOF -- often with catastrophic effects downstream. There was no detailed inventory of glaciers and glacial lakes, of GLOF events or of potential GLOF sites, in the HKH region and these two publications have been designed to start filling this gap.





van Wageningen, N.; Sa Wenjun. eds. **The Living Plateau: Changing Lives of Herders in Qinghai** - concluding seminar of the Qinghai livestock development project. Kathmandu: ICIMOD. 2001. 96p. ISBN: 92-9115-376-1. Price: US\$ 15.00, 10.00, 7.50

The Living Plateau is about interventions by a development project for the improvement of the livelihood of sheep and yak herders on the Qinghai-Tibetan Plateau.

The book takes stock of rangeland and livestock resources and describes the socioeconomic situation of herders in Guoluo Prefecture. It then summarises the outcome of field trials and technical interventions in the area of rangeland rehabilitation, the control of rodents, rangeland revegetation, seeded perennial forage and cereal fodders, the control of parasites in yak and sheep, and the control of young stock diseases. Extension methods are also discussed.



Sharma, P. ed. **Market Towns in the Hindu Kush-Himalayas: Trends and Issues**. Kathmandu: ICIMOD. 2001. 137p. ISSN: 92-9115-300-1, Price: US\$ 20.00, 15.00, 10.00

Small towns and market centres are the linkages between large cities and the vast rural hinterland. In the HKH region they play a multiplicity of roles and can be a major tool for implementing decentralisation policies that are being increasingly advocated. Environmental pollution and social

disintegration can be minimised through a policy of promoting market and small towns. However, market and small towns do not feature well in the development agenda of most of the HKH countries.



Messerschmidt, D.; Tempel, K. J.; Davidson, J. **Bamboo in the High Forest of Eastern Bhutan: a Study of Species Vulnerability**. Kathmandu: ICIMOD. 2001. 32p. ISBN: 92-9115-314-1 Price: US\$ 5.00, 2.00

This case study from eastern Bhutan depicts clearly how policies that ignore traditional forest and species' management systems, that have evolved - and worked well - from

generation to generation do so at the risk of the disappearance of not only sustainable, locally acceptable management and harvesting systems, but also at the risk of species disappearing.



Groverman, V.; Gurung, J. D. **Gender and Organisational Change: Training Manual**. Kathmandu: ICIMOD. 2001. 154p. ISBN 92-9115-295-1. Price: US\$ 20.00, 15.00, 10.00.

This manual has been put together based on the experience gained from ICIMOD's Gender and Organisational Development programme and by partner organisations and colleagues, as well as material already published. It is both a

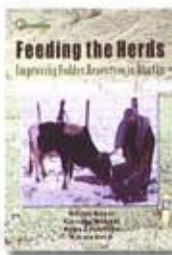
guide and a source of resource materials for training programmes in gender and organisational change. It will be useful for all those attempting to develop programmes that seek to help organisations, particularly those involved in development, incorporate gender concerns into their own workplace and their training, extension, and research programmes.



Shrestha, B; Bajracharya, B, and Pradhan, S. eds. **GIS for Beginners: Introductory GIS Concepts and Hands-on Exercises**, 2001. ICIMOD, Kathmandu. ISBN 92 9115 3931. Price: US\$ 20.00, 15.00, 10.00

This book is the culmination of the training given on GIS Day 2000 Nepal. It is divided into two parts. Part 1 explains concepts such as Thinking Spatially, Maps, GIS, Data

Capture, Remote Sensing, Global Positioning System, Spatial Analysis, and Presenting Results; Part 2, offers hands-on exercises with step-by-step instructions for Understanding Digital Maps, Finding Answers with Digital Maps, Telling Stories with Digital Maps and Building a Digital Map. All the exercises are based on ESRI-Arc Explorer freeware software with local databases.



Roder W., Wangdi K., Gyamtsho P. and Dorji d. eds. **Feeding the herds: improving fodder resources in Bhutan**. Kathmandu: ICIMOD. 2001. 124p. ISBN: 92-9115-409-1 Price \$20.00, 15.00, 10.00

This book is the result of a review, carried out by the RNRRC Jakar. It contains a comprehensive summary of the results of more than 40 years of research into improving livestock fodder resources. Information from numerous

references was supplemented with information from surveys planned and carried out as complementary activities for the review.

This book provides both a wealth of technical information and also a good insight into the legislative and farming systems framework for Bhutan's forage development programme; it looks at extension activities and the impact of research and extension at the farmers' level. The constraints to fodder development are discussed, as are policy issues and future needs and directions. This book will be a major source of information for all those active in areas where there are similar conditions, and a similar need to feed the growing livestock resources.



Bhatia, A. ed. **Himawanti - Women of the Hindu Kush-Himalayas**. Kathmandu: ICIMOD. 2001. 76p. ISBN: 92-9115-412-1. Price: US\$ 20.00, 15.00, 10.00

HIMAWANTI is a truly remarkable organisation, a network of grass roots

women from across the Hindu-Kush Himalayas concerned with the protection and development of natural resources such as forest, land, and water. In October 1999, HIMAWANTI brought together more than 200 women from the region to share experiences and evolve strategies, and to strengthen communication and alliances. The situation of the women, their needs, the challenges they face, and how they are campaigning for change - all were discussed. The main themes are presented in this book in a visually stimulating form in three languages (English, Hindi, Urdu) that we hope will appeal to and inform a wide audience. The book is richly illustrated, with more than thirty reproductions of full-colour pictures by Param Meyangbo illustrating the central themes of women's life in the mountains.

Limbu, P. ed. **Mountains Forever**. Kathmandu: International Centre for Integrated Mountain Development. 2001. 182p. ISBN: 92-9115-426-1. Price: US\$ 25.00, 20.00, 15.00 (See book review)

General Publications

1. Special Technical Bulletin 'Livestock, Fodder, Pastures and People' An Integrated Study in the Karakoram Region of Pakistan'
2. Issues in Mountain Development (IMD) 2001/2 Jodha N. S. **Interacting Processes of Environmental and Social Vulnerabilities in Mountain Areas**.
3. *Mountain Development Profiles of* 2001/2. Mool P. **Glacial Lakes and Glacial Lake Outburst Floods** 2001/3. Chalise S. R. & Shrestha M. S. **The HKH-Friend Project**
4. Mountain Forum Folder and Fact Sheet
5. Mountain Forum Annual Report 2000 'Networking for Sustainable Mountain Development'
6. 'International Year of Mountains 2002' Brochure (English & Nepali)
7. 'The Changing Face of Pastoralism in the Hindu Kush-Himalayan-Tibetan Plateau Highlands' Brochure

Staff on the Move

BHUTAN

- Thapa S. B./July To help establish contour hedgerows intercropping technology for soil conserving farming systems, THIMPHU & MONGAR
Tuladhar M., & P. Tshering/ Sept. To make arrangements for the Board Meeting, THIMPHU
Group of ICIMOD staff/Sept. To attend Board Meeting, THIMPHU, WANGDU & PUNAKHA

CHINA

- Guangwei C. /July To discuss a cooperative programme on forest dynamics and biodiversity conservation, data collection and exchange, BEIJING
Tang Ya/Aug. To attend a National Conference on Strategies for Development in West China and Tibet, LHASA
Guangwei C./Aug To attend a workshop on development of the West Area of China and strategies for TAR, LHASA
Tang Ya/Sept. IFAD related activities, IYM consultative meeting and coordinating study tour of NE India in Yunnan & Sichuan, KUNMING, CHENGDU, NINGNAN, MAOXIAN, GUIZHOU & HUNAN
Tashi N./Sept. To carry out ground truthing and field work and to finalise an MoU with IGSNRR, CAS, to conduct a pilot area case study, LHASA, NAQU, CHENGDU & BEIJING
Richard C. / Sept For CIDA training in NAQU, TAR, Field research, CHANGTANG, TAR, LHASA
Toda A/Sept. For a study tour of Ningnan county and supervision of the IFAD funded Wuliang Mountain Areas Development Project, KUNMING
Tandukar D./Sept. To hold training on information sharing and web content development for TAAAS, LHASA
Rotman A./Sept. To finalise an MoU with the Chinese Academy of Sciences (CAS), BEIJING
Li Tianchi/Nov For discussions about the Regional Workshop on Poverty, CHENGDU
Juerg M./Dec To give training to PARDYP staff in CHENGDU and give a presentation to Kunming Institute of Botany (KIB) and Centre for Biodiversity and Indigenous Knowledge(CBIK) and attend an International Centre for Research in the Semi-arid Tropics/International Water Management Institute(ICRISAT/IWMI) meeting of the Management of Soil Erosion consortium

INDIA

- Bhatia A. /July For a Hindu Kush-Himalayan Forum for Forest Conservation and Management (HIFCOM) planning meeting-SHIMLA, a Community Based Organisation (CBO) advocacy meeting, farmers' right study, discussion and programme development, DELHI & HIMACHAL PRADESH
Shah P. B./July To attend a national workshop on 'Watershed Management Strategies in Uttaranchal State'; - DEHRADUN and visit PARDYP site - ALMORA
Bhadra B./Sept Meeting and discussion with IDRC, NEW DELHI
Bhuktan Pradhan J./Sept Meeting with IDRC in NEW DELHI and visiting the GB Pant Institute of Himalayan Environment Development in ALMORA
Papola T. S./Sept To participate in a workshop on the Rural Non Farm Sector, NEW DELHI
Pandey S. /Sept To participate in knowledge management and sharing for international development in Asia, CHENNAI
Tshering P., & Sharma E./ Oct ICIMOD mission to join UNOPS mission to the NERCIM project of IFAD, MEGHALAYA, ASSAM & MANIPUR
Shrestha M./Oct. To attend a workshop on Watershed Management, GUWAHATI, ASSAM
Rotmans A./Oct. Execution of project work, SOLAN & SHIMLA
Toda A./Oct For an IFAD mission to Northeast India, SHILLONG
Papola T. S./Oct To participate in a meeting and deliver lectures, NEW DELHI, ALMORA & DEHRADUN
Rai S./Oct. To establish relationships with potential partners for project work and understanding of the objectives of their own work, BAGDOGRA, SHILLONG, TRIPURA & DARJEELING
Sharma E./Nov. To attend a workshop on 'Himalayan Ecology: Main Issue and Concerns' NEW DELHI
Rai S./Dec. To identify, shortlist, establish relationship with potential partners for programme implementation, DEHRADUN, GOPESWAR, TERI, CHAKRATA, SHIMLA & PALAMPUR
Papola T. S./Dec. To participate in the International Conference on 'Labour and Capitalist Transformation in Asia' and the Annual Conference of the Indian Society Asia of Labour Economics, BANGALORE

NEPAL

Many staff travelled to various parts of Nepal to attend workshops/meetings, to organise/implement training programmes, supervise research work, carry out studies, and in relation to field activities.

PAKISTAN

- White R./Aug To make arrangements for farmers' day, PESHAWAR AND HILKOT
Rijal K./Sept. To participate in and supervise the energy fair being organised by the PARDYP project, ISLAMABAD, PESHAWAR & HILKOT
White R./Sept. To review of PARDYP activities, PESHAWAR AND HILKOT
Ahmad F., Sharma E. & Guangwei C./Sept. To attend the farmers' day programme of the PARDYP Project, and visit the PARDYP sites, ISLAMABAD, PESHAWAR & HILKOT

GLOBAL LINKAGES

- Chalise S.R./July To participate in the FRIEND Inter Group Coordination Committee (FIGCC) Meeting and the International Association of Hydrological Sciences (IAHS), MAASTRICHT, THE NETHERLANDS
Pandey S./July To attend the Asian-Pacific Regional Space Application Forum - *, KUALA LUMPUR, MALAYSIA
Shah P. B./Aug To attend the conference and workshop on 'Challenges in Integrated Mountain Watershed Management' LIMA, PERU
Bhadra B./Aug To attend the 6th Annual meeting of the consulting partners of GWP, STOCKHOLM, SWEDEN
Tianchi Li/Aug To attend the Pre-World Congress Summit workshop, RESTON, VIRGINIA, USA
Bhadra B. & Toda A./Sept To attend a regional collaborators' meeting, ROME, ITALY
White R./Sept To participate in the World Overview of Conservation Approaches & Technologies (WOCAT), NAIROBI & NYERI, KENYA
Rijal K./Sept To participate in the mid-term evaluation of ENERGIA- the International Network on Energy & Gender as a review panel member, JOHANNESBURG, AMSTERDAM, THE HAGUE, ENCHEDE & STOCKHOLM, SOUTH AFRICA, THE NETHERLANDS & SWEDEN
Nakarmi G./Oct. To participate in the IDRC sponsored CBNRM workshop in Chiangmai and observation of water harvesting initiatives, CHIANGMAI, BANGKOK, THAILAND.

| | |
|---|--|
| Shrestha B./Nov | To attend meeting at UNEP, BANGKOK, THAILAND |
| Rana G., Sherchan U., C. P. Jayalakshmi, Camino A./Nov. | To attend the MF Node Meeting, MF Board meeting and to participate in the World Mountain Symposium, ROLLES & INTERLAKEN, SWITZERLAND |
| Campbell J. G./Nov. | To meet donors, THE NETHERLANDS, ITALY, SWEDEN, NORWAY, GERMANY, BELGIUM & AUSTRIA |
| Pandey S./Nov. | To participate in the 1st Asian Women's ICT Trainers' workshop, SEOUL SOUTH KOREA |
| Shrestha M./Nov. | To attend a 2nd meeting of the Asian Disaster Prevention Centre (ADPC) Consultative Committee on Regional Cooperation in Disaster Management |
| Camino A., Shakyia A./Nov | To attend the High Summit Regional Coordinators' meeting, BRUSSELS, BELGIUM |
| Bhadra B., Manandhar P., Bhuktan Pradhan J./Nov | To participate in an Outcome Mapping Training workshop, OTTAWA, CANADA |
| Ahmad F./Nov | To attend the 37th International Apiculture Congress, JOHANNESBURG, SOUTH AFRICA |
| Rijal K./Nov. | To participate in and present at the International Workshop on Implementation Strategies for Biomass Utilisation in Europe and Developing Countries, STADSHOTELLET, ESKILSTUNA, SWEDEN |
| Sail S./Dec. | To participate in the International Conference on Fresh Water, BONN, GERMANY |
| Campbell J. G., Camino A./Dec. | To attend the launching of the International Year of Mountains and meeting with donors, NEW YORK, WASHINGTON, USA |
| White R./Dec. | To attend ICRISAT/IWMI Soil Erosion conference, HANOI, VIETNAM |

Visiting Scientists

Professor Bina Agarwal



We welcome Professor Bina Agarwal as an honorary visiting scientist with ICIMOD. She is Professor of Economics at the Institute of Economic Growth, University of Delhi. She has authored numerous books and articles on environment and development; poverty and inequality; property rights, land and livelihood; community forestry and collective action; agriculture, technology and rural transformation; and the political economy of gender. Her last book 'A Field of One's Own: Gender and Land Rights in South Asia' (Cambridge University Press, 1995) received several international awards and made a notable impact on academe and policy. She is also on the Executive Committee of the International Economic Association, on the Board of the Global Development Network (Washington DC), has been Vice-President of the International Association for Feminist Economics, and is a founder member of the Indian Society for Ecological Economics.

Professor Agarwal has held distinguished positions at several universities, including Harvard, Princeton, Barnard (Columbia) and Sussex, and lectured extensively worldwide. She has also worked on the expert committees and advisory bodies of many international organisations, NGOs, and the Indian Planning Commission. In addition, she has served on the editorial advisory boards of World Development; International Labour Review; Oxford Development Studies; the Journal for Human Development; Mountain Research and Development; and others; and is Associate Editor for Feminist Economics and Signs.

Bina Agarwal is currently working on theoretical and empirical aspects of gender, environment and collective action. In particular, she is examining the equity and efficiency implications of community forestry in South Asia from a gender perspective.

Dr Rik Thwaites



Rik Thwaites is a lecturer in the School of Environmental and Information Sciences at Charles Sturt University, Australia. He teaches a number of subjects in the Bachelor's Degree programme in Ecotourism and Parks, Recreation and Heritage. His main subjects are ecotourism principles, their application, and social research methods for natural resource management.

Rik trained as a Geologist and worked for a number of years with the Australian Antarctic Division as a research scientist in Glaciology. He also worked as a Glaciologist with the Chinese Academy of Sciences in 1986. After a number of years working as a photojournalist and environmental consultant, he completed a PhD in the Social Sciences on the grasslands of northern China. The main focus of this work was on factors that influence the grazing and livestock management decisions of herders.

He is a member of the Australian Cooperative Research Centre for Sustainable Tourism International Programme which undertakes and supports research, training and development projects in sustainable tourism development across the Asia-Pacific Region. Rik is working at ICIMOD until mid June to contribute to ICIMOD's activities in the tourism areas, as well as to undertake his own research.

New Staff Member

Moushumi Chaudhury, Assistant Coordinator



Ms. Moushumi Chaudhury, a Bangladesh national joined ICIMOD on 29 November 2002 as an Assistant Coordinator for the Asia High Summit 2002 (IYM 2002). Moushumi has an MS in Natural Resources and the Environment from the University of Michigan, Ann Arbor, USA. She has worked with UNDP, IUCN, and UNICEFROSA in Nepal, as well as WWF and the Woodrow Wilson International Center for Scholars in Washington, DC. Having lived among many cultures in Asia and Africa, Moushumi hopes to pursue a doctorate degree on the impact of economic and cultural globalisation on the natural resource management practices of marginalised peoples in various cultures.

ICIMOD Staff Members

List as of 31 December 2001

Directorate

Dr. J. Gabriel Campbell, Director General
Dr. Binayak P. Bhadra, Director of Programmes
Mr. Milan Raj Tuladhar, Head, Administration & Finance
Support Staff: Ms. Tika Laxmi Gurung, Ms. Anjali Shrestha,
Ms. Prema Thapa, Mr. Man Bahadur Katwal

Institutional Strengthening Unit

Dr. Jit Pradhan 'Bhuktan', Planning Monitoring & Evaluation Specialist
Mr. Prem Krishna Manandhar, Programme Officer

Mountain Farming Systems' Division (MFS)

Dr. Ekabya Sharma, Senior Agricultural Specialist/Div. Head
Dr. Tang Ya, Agroforestry/Soil Conservation Specialist
Dr. Pradeep Man Tulachan, Farm Economist
Mr. Arjen Rotmans, Associate Prof. Officer (FAO seconded)
Dr. Nyima Tashi, Researcher, Mountain Agricultural Systems
Support Staff: Ms. Sami Joshi, Ms. Neetu Ghale,
Ms. Beryl Rajbhandari, Mr. Sudeep Pradhan

Beekeeping Project, MFS

Dr. Farooq Ahmad, Project Coordinator, Beekeeping Project
Dr. (Mrs.) Uma Partap, Research Officer
Dr. Surendra Raj Joshi, Action Research Officer
Mr. Min Bahadur Gurung, Institutional Development Officer
Support Staff: Mr. Anirudha Nath Shukla,
Ms. Shova Bhandari, Satyananda Upadhaya
Trial and Demonstration Site, Godavari
Mr. Suraj Bahadur Thapa, Farm Manager/Horticulturist

Mountain Natural Resources' Division (MNR)

Prof. Chen Guang Wei, Division Head/Natural Resources' Specialist
Mr. Anupam Bhatia, Common Property Resource Mngt. Specialist
Prof. Suresh Raj Chalise, Senior Advisor
Ms. Camille Richard, Rangeland Management Specialist
Ms. Mandira Shrestha, Water Resources Specialist
Mr. Suman Rai, Coordinator, Equity and Poverty
Support Staff: Ms. Reeta Rana, Ms. Sarita Joshi, Ms. Tenzing,
Mr. Govinda Shrestha, Ms. Sapana Sharma, Consultant Librarian

Landslide Hazard Mitigation Project

Prof. Li Tianchi, Hazard Mitigation Specialist
Mr. Rajesh Thapa, Research Assistant

Sustainable Water Harvesting in the HKH Project

Mr. Saleem Akhtar Sial, Assistant Coordinator
Mr. Rupak Rajbhandari, HKH Friend Data Analyst

Mountain Resources Management Project (PARDYP)

Mr. Roger John White, Regional Programme Coordinator
Mr. Pravakar Bickram Shah, Country Coordinator/Land Use Analyst
Mr. Juerg Merz, Hydrometeorology Research Associate
Mr. Gopal Nakarmi, Geomorphologist
Mr. Bhubaneswar Shrestha, GIS Specialist

Field (SSA) Staff in PARDYP: Mr. Pradeep Man Dangol,
Mr. Madhav Prasad Dhakal, Mr. Bhawani Shankar Dangol,
Ms. Bandana Prajapati, Mr. Bal Gopal Shrestha,
Mr. Giri Bahadur Shrestha, Ms. Samma Shakya, Smita Kumari Shrestha

Mountain Enterprises & Infrastructure Division (MEI)

Dr. Trilok S. Papola, Division Head / Marketing Economist
Dr. Kamal Rijal, Energy Specialist
Ms. Phuntshok Chhoden Tshering, Gender Specialist
Ms. Atsuko Toda, Assistant Coordinator, IFAD-ICIMOD Project
Ms. Maria Armila C. Shakya, Coordinator, Int. Year of the Mountains
Ms. Ojaswi Josse, Asst. Coordinator, Secretariat for Celebrating
Mountain Women (IYM 2002)
Ms. Moushumi Chaudhury, Assistant Coordinator, Asia High Summit 2002
Support Staff: Mr. Rajendra Shah, Ms. Samjhana Thapa

Mountain Development Policies & Programmes Project

Dr. Narpat Singh Jodha, Policy Analyst

Mt. Environment & Natural Resources Info. Systems (MENRIS)

Mr. Basanta Shrestha, Acting Division Head
Mr. Pradeep P. Mool, Remote Sensing Analyst
Mr. Sushil Man Pradhan, GIS Analyst
Mr. Sushil Panday, Systems' Officer
Mr. Birendra Bajracharya, GIS Analyst
Mr. Andrew Inglis, Australian Youth Ambassador (GIS)
Support Staff: Mr. Saisab Pradhan, Mr. Govinda Joshi, Mr. Anirudra
Man Shrestha, Ms. Monica Moktan, Mr. Mohan Man Banepali
Project Staff: Ms. Bananda Pradhan, Kiran Shakya, Amit Vaidya

Information, Communication & Outreach Division (ICOD)

Ms. Greta Rana, Division Head
Dr. Anne Beatrice Shrestha - Editor
Mr. Raj Bahadur Shrestha, Librarian
Ms. Nira Gurung-Burathoki, Distribution Officer
Ms. Sangeeta Panday, Documentation Officer
Support Staff: Mr. Asha Kaji Thaku, Ms. Shanti Prabha Bajracharya,
Mr. Ram Sharan Thapa, Mr. Dharma Maharjan, Mr. Sushil Man Joshi,
Ms. Punam Pradhan, Mr. Bishwanath (Sudas) Sharma,
Mr. Shiva Hari Khatri
Asia Pacific Mountain Forum - Mr. Ujol Sherchan
Capacity Building in Internet Technologies in Central Asia Project
Mr. Deependra Tandukar, Networking & Training Assistant

Administration and Finance

Budget & Finance Section

Mr. Rajendra Prakash Mali, Budget & Finance Officer
Mr. Kiran Man Shrestha, Ms. Prabha Raj Shrestha,
Mr. Nabindra Raj Shrestha, Ms. Pramila Shrestha

Store Unit

Ms. Jenny Vaidya, Mr. Rabindra Ranjit

Personnel Section

Mr. Chandra Bir Singh Kansakar, Personnel Officer
Ms. Shree Mani Amatya, Ms. Nani Keshari Bajracharya

Communications' Unit

Ms. Sharda Gurung, Ms. Geeta Pant, Mr. Pashupati Sadasankar,
Mr. Akil Nepal

Staff Canteen Unit

Mr. Gujeswori B. Pradhan, Mr. Prakash Nepal, Mr. Kumar Thapa,
Mr. Sukra Tamang, Mr. Pramod Aryal, Mrs. Chanchal Rajak

Security and Maintenance Unit

Mr. Jeet Bahadur Rai, Mr. Prem Dhoj Malla, Mr. Krishna Tamang,
Mr. Sher Bahadur Gurung, Mr. Ram Bahadur K. C., Mr. Ram Singh Rai,
Mr. Birkha Jirel, Mr. Kishore Maharjan, Mr. Babukaji Thapa,
Mr. Mohan Bhujju, Mr. Hari Govinda Maharjan, Mr. Shambhu Thapa

Procurement and Equipment Maintenance Section

Mr. Niranjana Khanal, Procurement & Equipment Maintenance Officer
Mr. Narendra Bajracharya

Photocopy Cell

Mr. Shyam Shrestha, Mr. Ganga Rana

Travel & Hospitality Section

Mr. Rajen Upreti, Travel Officer
Mr. Rishi Ram K. C., Ms. Pratiba Chhetri, Mr. Manoj Rajak,
Ms. Sheela (Kausheela) Lama

Motorpool Unit

Mr. Mohan Krishna Shrestha, Mr. Kishore Shrestha,
Mr. Ram Lal Maharjan, Mr. Bishnu Magar, Mr. Krishna Maharjan,
Mr. Pancha Narayan Maharjan, Mr. Jai Bahadur Subedi,
Mr. Sabak Singh, Mr. Dhurba K. C., Mr. Sudama K. C.,
Mr. Chinikaji Maharjan, Mr. Ram Maharjan

GLOBAL MOUNTAIN FORUM SECRETARIAT (Hosted by ICIMOD)

Alejandro Camino - Executive Secretary,
Ms. C. P. Jayalakshmi, Networking Specialist, Ms. Anju Rana - Support Staff

T-shirts & Greetings Cards for Celebration of International Year of Mountains 2002

ICIMOD is offering two sets of **GREETINGS CARDS** (6 each)
(size 11x15.5 cm, blank inside, with envelopes, can be used for any purpose)
and **T-SHIRTS** for ADULTS & CHILDREN
prepared in celebration of the upcoming *International Year of Mountains 2002*

Proceeds from the cards & T-shirts will be used to support various ICIMOD activities related to IYM2002, including support of grass roots participation in the meeting 'Celebrating Mountain Women' (Kathmandu, May 2002) which will provide a platform for mountain women to voice their concerns and help create new conditions, networks, and partnerships to influence policies and issues. (Details of ICIMOD's activities can be found at www.icimod.org and of international activities at www.mountains2002.org.)

T-SHIRTS

Adults

Design A

Design B



Design A

sizes: 44, 48
colours: grey, white

Design B

sizes: 44, 46, 48
colours: white

Price

| | |
|-----------------------|---------|
| Direct from ICIMOD | NRs 450 |
| Asia (incl. P&P) | US\$ 8 |
| All other (incl. P&P) | US\$ 12 |

Children

Design C

Design D



Design C

sizes: 28, 32
colours: yellow, white

Design D

sizes: 28, 32
colours: grey, white

Price

| | |
|-----------------------|---------|
| Direct from ICIMOD | NRs 400 |
| Asia (incl. P&P) | US\$ 7 |
| All other (incl. P&P) | US\$ 10 |

To order t-shirts contact

ICOD/ICIMOD, POB 3226, Kathmandu, Nepal
Phone: +977 1 525313
email: distri@icimod.org.np
on-line: www.icimod.org

GREETINGS CARDS

Set 1



+ 4 other motifs

Set 2



+ 4 other motifs

Direct from ICIMOD

NRs 100 per set (6 cards + 6 envelopes)

Hindu Kush-Himalayan Region (HKH)

US\$ 2 per set (6 cards+ 6 envelopes)
includes P&P, minimum order 2 sets

Outside the HKH Region

US\$ 2.50 per set (6 cards + 6 envelopes)
includes P&P, minimum order 2 sets

**All orders 10% discount
on 10 sets or more**



International Centre for Integrated Mountain Development
4/80 Jawalakhel, G.P.O. Box 3226, Kathmandu, Nepal

issn 1013-7386