

Capacity Building for Mountain Development

One of ICIMOD's greatest challenges to help national and local partners to improve the well-being of the mountain people and their economies and environment is the strengthening of local institutions to support the vision of integrated mountain development. To realise this vision, ICIMOD has been striving to build governance frameworks that allocate rights and enforce responsibilities for integrated mountain development at the appropriate level: local, national, or regional. In the process, ICIMOD's capacity building activities are based on enabling the participation of all stakeholders, including government, non-government, and private institutions, in sound institutions, investments, and environmental sustainability of the Hindu Kush-Himalayas.

The issue of capacity building for sustainable mountain development is very complex. ICIMOD alone can neither claim the full understanding nor find the resources to undertake sustainable mountain development activities the diverse stakeholder groups. The Centre supports multisectoral/stakeholders' coordination, as capacity building encompasses the region's human, scientific, technological, organisational, institutional, and resource capabilities. ICIMOD carries this out through partnership development. Such partnerships have given the national institutions access to knowledge and skills; innovative and proven methodologies; networking and funding opportunities; and replicable models for addressing community needs and managing resources. It has also equipped them, to a reasonable extent, with options for organisational management and governance; gender equity and organisational development; technologies for farm productivity and sloping land management; hazard mitigation and risk engineering, GIS and Remote Sensing applications and information management systems; and strategies for advocacy, government relations, and public outreach in integrated area development and institutional strengthening.

In spite of the above activities, the Centre has experienced drawbacks in capacity building. The first one is the Centre's own approach, which requires more integration within and amongst thematic areas. As the activities of ICIMOD are presented as segregated project activities, the partner institutions and, hence, their professionals tend to identify only with these. This means that the whole process of information sharing and dissemination can remain in tunnels. One solution is to present ICIMOD activities as integrated work and adapt a one-door policy, at both the centre and with partner institutions, for appreciation of policies and programmes (implementation).

Capacity Building in Policy Analysis and Planning

The strengthening of capacities for planning sustainable mountain agriculture on using Geographic Information Systems (GIS) and Remote Sensing (RS) help to reduce the costs of data collection and analysis. The transition from a centralised planned economy to a decentralised market-oriented economy creates a series of problems and opportunities that produce effects on all aspects of life; most importantly on the land use and tenure changes and, consequently, agricultural production. The integration of modern GIS/RS methodologies with planning offers a convenient and effective solution to policy analysis if these tools are made available to end users as well.

There is a growing realisation that, in terms of sustainable mountain agriculture, a strong link between agricultural and population policies is needed. Demographic conditions influence agricultural development goals, e.g., improvement in land productivity, establishment of secure cultivation rights, and redistribution of land. On the other hand, rural conditions such as land/tenure arrangements, shape demographic behaviour and demographic trends. The most important element in the land-fertility/mortality interface is gender. As such, institutional arrangements and socioeconomic and sociocultural norms can contribute differently to the experiences of men and women in relation to land use and fertility. Female-headed households are especially affected. ICIMOD's programme to build gender and organisational development capabilities for sustainable mountain agriculture stimulates discussion among land tenure, gender, and population specialists at the interface between gender, rural fertility/mortality, and land/tenure in order to identify key policy issues and related research needs.

In mountain areas, which have diverse biological and physical conditions, planning needs to be integrated even more than in the plains. Mountain areas contain thousands of watersheds. ICIMOD has recognised the importance of an integrated development approach to sustainable development of these mountain areas. The objective of capacity building activities is to proliferate the knowledge and experience of analytical methods, tools, and approaches for optimum area-based land use and economic development to improve the living standards of mountain people.

RS/GIS technology is becoming an indispensable tool in accomplishing activities. The spatial framework provides new

approaches to revitalising the region's planning, implementation, assessment, and monitoring performance. Widely used as a decision-making tool for the 21st Century, RS/GIS can empower the region's policy-makers and implementing agencies as well as representatives of user communities. As there is a paucity of both historical and current spatial and temporal information from mountain areas, RS/GIS generated decision-making processes are making inroads into national and regional planning exercises. ICIMOD's programme on RS/GIS capacity building is to increase the use of these technologies and methodologies among regional institutions.

Capacity Building for Hazard Mitigation and Disaster Management

The livelihoods of mountain people depend on marginal farmlands that have provided them with a meagre living despite all adversities. There is the continuing threat of land degradation due to extreme weather conditions, slope failures, GLOF events, or deforestation. The young terrain of the Himalayas poses severe threats to infrastructure such as roads, canals, tunnels, dams, and bridges. ICIMOD's emphasis on building capabilities in mountain hazard mitigation and risk engineering is to stimulate awareness of mountain hazards amongst infrastructural planners and implementing agencies and to provide new design solutions that can lead to reduction of adverse effects on mountain people and government investments.

Among the activities carried out are geo-technical engineering and GLOF mapping.

Three volumes of workshop papers entitled 'Landslide hazard management and control in the Hindu-Kush-Himalayan Region' have been sent for publication next year. A study on methodologies for hazard vulnerability assessment and community-based hazard management has begun with assistance from the Japanese Government through UNDP/Nepal.

Capacity Building through Focused Training

In terms of agricultural technology, two training courses (summer schools) were organised in the Tibet Autonomous Region of China, several Farm Technology Kits were published in the Tibetan language, and a resource book and CD on Sustainable Mountain Agriculture for research and education were prepared in the Chinese language. Another positive indication of the value placed on ICIMOD's training capacity is the growing number of visitors to ICIMOD's site in Godawari

to orient themselves to the tests and demonstrations being carried out.

The participants at the third and final regional training course on Gender and Organisational Development for Sustainable Mountain Land Use came back in the second part of April after doing field exercises assigned during the first part of the course in January. They are now carrying out the action plans developed during the course to promote gender equity in their institutions. This activity has contributed towards capacity building for sustainable mountain development by imparting knowledge and skills for undertaking gender mainstreaming activities to over 55 participants from 18 institutions in 7 member countries in the region.

Together with the Bhutanese Government, ICIMOD organised a training course on geo-technical engineering in Bhutan, the first of its kind in Bhutan. The training course imparted practical knowledge and skills with illustrations of appropriate designs and various considerations for irrigation canal construction. The course generated a lot of interest and commitment among the government officers and the Ministry of Agriculture intends to organise similar training courses in collaboration with ICIMOD in western Bhutan next year.

Altogether eight regional training courses on the Application of Geo-informatics to sustainable mountain development were held at ICIMOD for over 120 professionals from Bangladesh, Bhutan, China, India, Nepal, Pakistan, and ICIMOD. Through these training courses, ICIMOD has transferred state-of-the-art technology in GIS and Remote Sensing applications and research in almost 50 institutions of the HKH region. In addition, academic-level curricula have been developed in all these courses and four training manuals have been developed. A CD-ROM is also being prepared to help impact GIS/RS through Computer Based Training (CBT).

Capacity Building through Facilitation

ICIMOD, as the main facilitator, launched GIS/RS technologies in member countries with its partner institutions as intermediaries. The participants in regional training courses have been actively engaged in designing and implementing GIS/RS education and training programmes in their respective institutions and countries. There was substantial progress towards the eventual goal of strengthening GIS/RS capacities in government planning and line agencies, research and educational institutions, and NGOs; and the participating academic institutions are also planning to launch university-level GIS through their regular curricula.

With assistance from IDRC-Canada, ICIMOD, was able to strengthen electronic information management systems in several of its

Regional Member Countries. In Nepal, the handing over of NepalNet to the Nepal Internet Users' Group is complete. Technical assistance and administrative support were provided to the National Planning Commission for the development of a National Information, Communications and Technology Policy. In Pakistan, ICIMOD facilitated the installation of a wireless Internet POP in Gilgit. Two training courses on Internet and Website development were conducted in Himachal Pradesh (Palampur) and N.E. India (Shillong). Two interns were received from Tibet and a two-week course on internet technologies was offered for participants from Tibet. In Bhutan, with the assistance of the Government of Austria, a series of three training of trainers courses and three workshops on Internet Technologies were conducted. In addition eight new Internet Training Manuals were prepared and some have been translated into Chinese by the Tibet Academy of Agriculture and Animal Sciences and in Russian by the International University of Kyrgystan.

GIS Day 2000

As a part of its networking activities, MENRIS, jointly with the Institute of Engineering, TU, Department of Geography, TU, and the Nepal GIS Society, organised for the first time-ever, GIS Day 2000 in Nepal to promote the use of GIS technology and applications among the public at large. On the occasion, ICIMOD trained more than 120 participants were trained in 'GIS for Beginners' course and a pilot issue of the book 'GIS for Beginners' with a test CD-ROM were released.

An exhibition on various themes of mapping and applications of GIS/RS was held and a quiz contest for school children was organised. More than 2500 people, mostly school children, visited the exhibition which raised awareness regarding GIS technology and its potential applications.



'Strengthening of Training Capabilities for GIS Applications in Integrated Development in the Hindu Kush-Himalayan Region'

Under the capacity building programme of ICI-MOD, MENRIS is primarily focusing on disseminating GIS/Remote Sensing technology and its applications. The four-year project for 'Strengthening of Training Capabilities for GIS Applications in Integrated Development in the Hindu Kush-Himalayan Region', funded by the Netherlands, was completed this year.

Altogether four national courses, one each in Nepal, Bhutan, Pakistan, and China, and one regional course were conducted during the year. With the completion of the full cycle of 16 training courses (8 each at regional and national levels), MENRIS trained altogether 235 people (68% more than the original target of 140) from 106 organisations representing diverse fields in the RMCs. Women accounted for 29% of the participants.

Training courses were designed to address the applications of GIS/RS in four important areas of sustainable mountain development

- Course I:** 'Hands-on' Training for Application of GIS and RS to Mountain Agricultural Planning and Land Use Management
- Course II:** 'Hands-on' Training for Application of GIS and RS to Mountain Natural Resources' Assessment, Monitoring and Management
- Course III:** 'Hands-on' Training for Application of GIS and RS to Localional Planning of Basic Infrastructure and Services
- Course IV:** 'Hands-on' Training for Application of GIS and RS to Slope Instability Analysis and Hazard Mapping



GIS Day 2000:
ICI-MOD Stall
at the
Exhibition

Case studies undertaken with collaborating national partner institutions on application of GIS/RS

CHINA

- Planning for agriculture and land use management in Duilang country, Tibet (with the Tibet Academy of Agriculture and Animal Sciences)
- Establishing a GIS Database of Natural Resources and Monitoring the Change of Land Use and Forests in Lijiang County (with Southwest Forestry College, Kunming).

INDIA

- Mountain agricultural management and land-use planning in Hawalbag development block of Almora district
- Study of land-use/land-cover dynamics of Dagroh Watershed (Dr. YS Parmar University of Horticulture and Forestry, Solan)
- Study on biodiversity conservation and assessment in the Eastern Indian Himalayas.

NEPAL

- Inventory of biodiversity of the Langtang National Park
- Slope instability and hazard mapping of Syongja district (Central Department of Geography, T.U)
- Municipal level GIS in Kirtipur

PAKISTAN

- Mass movement and landslide hazards in sub-Himalayan ranges, Muree, North Pakistan (with the Department of Geology, University of Peshawar)
- Integration of natural resource management planning of Siran Forest Division (with Pakistan Forest Institute, Peshawar)
- Slope instability analysis and hazard mapping in the Muree hills

