

Mountain Forum Bulletin

July 2008



Natural Resources: Women, Conflicts and Management

- ▶ Learning Together: Integrating Social and Gender Analysis into Natural Resource Management Research
- ▶ Gender Roles in Household Energy Management: Issues and Implications
- ▶ Maintaining Pastoralism in a Context of Competition for Land
- ▶ Resource Management: Conflict, Use and Role of Women
- ▶ Energy Saving and Drudgery Reducing Technology Initiative

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Woman member lighting up the hamam. Photo: Mamta Chandar.
Woman cooking using LPG. Photo: Jagriti.
Girl collecting grass, Nepal. Photo: Marianne Heredge.
At the entrance of the market in Hue, Vietnam. Photo: Ronnie Vernooy.

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Editorial

Dear Mountain Forum Members,

Please find herewith the July edition of the Mountain Forum Bulletin, *Natural Resources in Mountains: Women, Conflict and Management*, which focuses on the management of natural resources, with particular emphasis on the role of women and conflicts arising from management of resources.

Many articles have been sent to the Mountain Forum Secretariat from around the world, emphasising the urgency and relevance of this topic, whilst offering ideas for solutions and contacts for collaboration.

The articles from our Asian members deal with gender roles in energy management and yak production in Nepal, forest governance in the Chittagong Tracts of Bangladesh. Indian contributions tackle the issue of climate change in Ladakh, forest resource management in Uttaranchal and resource management in Garhwal; the European contribution addresses pastoralism in the European Alps; territorial perceptions in southern Morocco and land use conflict in Cameroon are articles from Africa, South American members highlight use of ancient bio-indicators for disaster warning and the role of women in the Andes.

The Bulletin also gives a snapshot of the activities of the Mountain Forum as a whole: the regional networks and the Mountain Forum Secretariat. Several joint activities are taking place which will enhance the products and services and contribute to sustainable mountain development.

The celebrations of 25 years of ICIMOD, the kind host of the Mountain Forum Secretariat are highlighted in this Bulletin as well as the progress with the Eco-Everest initiative aimed at raising awareness about climate change as well as the environmental effects of tourism.

The members' initiatives clearly highlight the dynamics of the Mountain Forum network. Members are very active in a wide range of interesting projects and initiatives. This ranges from sustainable use of energy, to earthquake rehabilitation, to conservation of water and biodiversity.

On behalf of the Mountain Forum, I like to thank everyone who has contributed to the development of this Bulletin, also those who have sent documents and inputs for the Online Library, or participated in e-conferences and discussions in the past months.



Wish you happy reading!

Frans Neuman
Executive Secretary,
Mountain Forum Secretariat

Your feedback is always welcome. Please send any comments or suggestions by email to bulletin@mtnforum.org or by ordinary mail to the Mountain Forum Secretariat (for the full address see the back of the Bulletin).

Learning Together: Integrating Social and Gender Analysis into Natural Resource Management Research

Ronnie Vernooy



Women's loads are increasing all over Asia. Photo: Ronnie Vernooy.

The complexity of societies in Asia and the problems of natural resource management are considerable. Notions of gender, class, caste, ethnicity, and age are integral to understanding the social relations and decision-making processes concerning access to and management of natural resources (e.g. Agarwal 2001, Farnworth and Jiggins 2003, Howard 2003). Understanding of social differences and social inequality are key to answer such questions as who participates in development (research) interventions and policies. (Cornwall 2003)

Most social and gender analysis in natural resource management is at the conceptual level. There are few effective learning programs that focus on systematic capacity building for gender and social analysis in applied research in this field. (Vernooy and Fabjer 2004: 210). Challenges to address include:

- Knowledge of and experience in social science research among natural resource management researchers is limited.
- Social science components are not well integrated with natural science in most research efforts.
- Researchers and research organisations have different starting points, interests, and expertise in terms of social and gender issues.
- 'Gender blindness' is common in research and policymaking.
- Short-term training has limited impact.
- Resources in this field in Asia are not widely available.
- Networking has potential benefits but is not easy in practice.

The "Learning Studies" initiative

In 2002, a "Learning Studies" project started with the support of the International Development Research Centre (IDRC) to deal with the challenges summarised above. The

six cases selected, reflect a diversity of research strategies, approaches and methods. All six teams carried out community-based (action) research highlighting different methods used and adapted in diverse contexts within Asia. They used a case study approach with six common guiding questions as a basis and a variety of action-oriented approaches, combined with a process of reflection workshops, peer review, and production of outputs. Two international workshops provided the inputs for the publication of a book (Vernooy 2006).

Sikkim/West Bengal, India

Through its focus on ginger production and commercialisation, the Sikkim/West Bengal study showed that social realities are often complex and sometimes contradictory. Gender dynamics interact with other variables such as ethnicity and caste. History is a major determinant of today's patterns. Cultural and ethnic identities and traditions (including taboos) inform the division of labour and mobility of women and men. The study argues that there is a high degree of socioeconomic differentiation among households. Among women, new differences are emerging based on age and cultural changes. Across social groups, women have limited decision-making power and limited access to credit, which has a negative impact on their capacity to improve production. It is men who are entitled to land. Most women have only limited control over cash income and household expenditures.

The poor have limited access to land and limited ability to expand production. In addition, the poor cannot afford to experiment as their access to land is constrained and have difficulties obtaining government support. In Sikkim, minorities coming from Nepal are often excluded from government support and research.

Nagaland, India

In Nagaland, an increasing demand for vegetables is a result of the rapid transformation of a subsistence economy to a market economy in combination with an urbanisation process accompanied by changing food consumption habits. Women are primary collectors of forest products and marketers of vegetables, but women marketers are differentiated economically and according to social status. Women vendors face constraints and hardships, partly because the market chain is not fully developed (e.g. insufficient and inadequate transportation) and partly due to limited government capacities and poor service. Marketing is a complex political-social process, in which many of the women vendors have only recently become entangled. Despite their significant roles and contributions to the economy, Nagaland women are not fully recognised or respected as economic agents and citizens.

Nepal

In Nepal, women play important but undervalued roles in farming, including seed production. The technology development process in Nepal, as directed and supported by the government, is largely gender blind and biased toward the rich. Only recently, have some changes occurred in the recognition of the relevance of social and gender analysis. However, translating this into practical steps to implement

social and gender aware policies and programs remains a major challenge. At best, gender is defined as 'women,' and 'women's' projects are seen as an adequate way to address gender issues. In research, those paying attention to gender are isolated and little integration takes place.

The field study showed that rural life is strongly shaped by social status and wealth hierarchies. Focusing on seeds, the poor and uneducated have restricted access to traditional and modern hybrid varieties, which is having a negative impact on their livelihoods.

Guangxi, China

Feminisation of Chinese agriculture is one of the most significant features of rural life today. At the same time, there is increasing disparity between the rich and poor. Ethnic minorities continue to be marginalised in many ways despite a number of supportive government policies. Their local knowledge and skills remain undervalued by society at large and by most researchers in particular. There is no system to recognise and value farmers' contribution to biodiversity conservation and crop improvement. The seed market, including that for local or locally improved varieties, is underdeveloped. Household food security remains unresolved and is becoming more problematic in the uplands and ethnic minority regions due to increasing globalisation and free-market expansion. Environmental problems are widespread and serious. In terms of social and gender considerations, the study argues that there is a lack of awareness, understanding, and planning by government, extension and research agencies, although some opportunities for change are opening up.

Hue, Viet Nam

Similar to the Chinese and Nepalese studies, the Viet Nam study argues that Vietnamese women contribute more to agriculture than men, but their work is not recognised by the government. Most government policies and programs are gender-blind, if not on paper certainly in practice. As a result, women and poor farmers have unequal access to education, services, and information (e.g., research results).

Many farmers (including women) say that men are better than women at learning about new farming technologies and practices. Local leaders and extension agents agree with this. They also think that men will disseminate

knowledge automatically to women (one reason why they have no problem with only men attending training events). The study criticises these gender-biased views and the outcomes they lead to.

Viet Nam is undergoing dramatic macroeconomic change. However, economic growth does not necessarily translate into reduced poverty, greater equity, and environmental sustainability. On the contrary, gaps between cities and rural areas, between lowlands and uplands, and between the ethnic majority and ethnic minorities seem to be widening.

Mongolia

Mongolia is faced with serious degradation of natural resources, especially grasslands, making it increasingly difficult to maintain the traditional herding lifestyle. At the macro level, the country is undergoing rapid change (liberalisation, urbanisation, steps toward democratisation), but the history of Soviet domination, the still heavily top-down government style, limits imposed by nature, and traditional practices and beliefs influencing gender division of labour and women's mobility, constrain livelihood options and limit opportunities for change. Differences between the rich and the poor seem to be widening. Herder women play important roles in natural resource management, but are undervalued by government and herders alike. Decision-making is not shared equally and power imbalances exist between women and men. There is widespread disrespect and disregard of local knowledge and practices.

The team's efforts included field research activities, targeted training for herders, government staff, and researchers in participatory rural appraisal, social and gender analysis, participatory monitoring and evaluation, national and international networking, and direct involvement in national policymaking, including the drafting of new laws. Two innovative action research activities are the formation of community herder groups and the establishment of pasture co-management teams involving herders, local government, and members of civil society.

Synthesis: insights from the field

All studies emphasise that natural resource management questions, whether addressed from a micro or macro perspective, are not social or gender neutral. A striking result of the comparative analysis is that social and gender inequities in decision-making, access and control of natural resources continue. In several cases, inequities seem to be deepening, reinforced by conservative cultural norms and political systems, and intensified by impacts of forces including globalisation, privatisation, and commoditisation. In a number of countries, these forces play out in the form of out-migration of men. This, in turn, is leading to the feminisation of agriculture, which is increasing burdens on many women. Women's changing roles in the marketing of crops and other natural resource products is another important common issue. Both negative tendencies: little or no respect, nor support for women vendors from municipal authorities, and positive tendencies exist: women collectively entering the seed market.

Although not explicitly addressed by all studies, another important issue concerns the continuing gender-blindness and



At the entrance of the market in Hue, Vietnam. Photo: Ronnie Vernooy.



Vegetable Market, Nagaland. Photo: Ronnie Vernooy.

insensitivity of policies and government services that affect natural resource management practices. This leads to arguing for the urgency of improving linkages of relevant research results to policy makers, and the need to prioritise this at the outset. "Social and gender analysis is essential, not optional, for the formulation of responsive and gender sensitive policies/regulations and related implementation and management to avoid further marginalisation and biases in the mainstreaming process." (Vernoooy and Zhang 2006: 231)

Conclusion: learning from collaborative practice

New ways of doing field research through participatory action methods and tools, farmer-to-farmer or herder-to-herder, other participatory forms of extension (particularly in Viet Nam, China and Mongolia) and local development work stand out as achievements. All case studies contributed to increasing social science knowledge and experience among natural resource management researchers and research managers.

Our assessment suggests that the success of capacity building strategies for the integration of social and gender analysis can be enhanced by combining a "learning by doing" approach, participatory (action) research methodologies, a diverse group of participants, regular peer review, flexible networking, and strong personal and organisational commitment. Learning by doing focuses on internalising theories and concepts, understanding how these can be practically implemented in the field. Combined with iterative training and mentoring, this enables researchers to develop, adapt and adopt approaches and methods relevant to their social/cultural contexts.

There is value in rooting social and gender analysis in participatory methodologies - both in terms of an overall approach to research involving work with communities and the training methods used in the capacity-building programs with the participants. It needs to be strengthened in ongoing work.

Peer review fosters creativity and critical thinking among participants while also supporting researchers in recognising

the potentials of research, highlighting challenges with constructive suggestions, and offering a platform for exchange of similar experiences and strategies.

Understanding the organisational contexts in which partners are working and the need to strengthen institutional support, emerged over time as a key lesson. A high level of commitment and desire to enhance learning towards integration of social and gender analysis is required among participants coming from natural science backgrounds and technical disciplines. This commitment also has to come from management of the organisations in which they are working. A good mechanism to support this is to support the development and implementation of curricula and through training of trainers.

References

Agarwal, B. (2001) "Participatory exclusions, community forestry, and gender: an analysis for South Asia and a conceptual framework." *World Development* 29(10): 1623-48.

Connelly, P., T. Murray Li, M. MacDonald, J.L. Parpart (2000) "Feminism and development: theoretical perspectives." In J.L. Parpart, M.P. Connelly, V.E. Barriteau (eds.) *Theoretical perspectives on gender and development*, pp. 51-159. Ottawa: International Development Research Centre.

Cornwall, A. (2003) "Making a difference? Gender and participatory development." IDS discussion paper 378. Sussex: Institute of Development Studies.

Farnworth, C.R. and J. Jiggins (2003) *Participatory plant breeding and gender analysis*. PPB monograph no. 4. Cali: Participatory Research/Gender Analysis Program.

Howard, P. (ed.) (2003) *Women and plants: gender relations in biodiversity management and conservation*. London, UK: Zed Books.

Vernoooy, R. (ed.) (2006) *Integrating social and gender analysis into natural resource management research: experiences from South and South-east Asia*. New Delhi: Sage; Ottawa: International Development Research Centre; Beijing: China Agricultural Press.

Vernoooy, R. and L. Fajber (2004) "Making gender and social analysis work for natural resource management research: an umbrella program for building researcher capacity." In InterAction's Commission on the Advancement of Women and International Institute of Rural Reconstruction Gender mainstreaming in action: successful innovations from Asia and the Pacific, pp. 208-223. Washington: InterAction's Commission on the Advancement of Women and Silang, Cavite: International Institute of Rural Reconstruction.

Vernoooy, R. and Zhang Linxiu (2006) "Social and gender analysis is essential, not optional: enhanced capacities and remaining challenges." In R. Vernoooy (ed.) *Integrating social and gender analysis into natural resource management research: experiences from South and South-east Asia*, pp. 225-236. New Delhi: Sage; Ottawa: International Development Research Centre; Beijing: China Agricultural Press.

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Gender Roles in Household Energy Management: Issues and Implications

Ishara Mahat



Rai farmer cooking, Nepal. Photo: Marianne Heredge.

The basic energy requirements of rural households are mainly for cooking, lighting and heating especially in mountainous areas. Cooking needs are mainly met by traditional fuel in rural areas. Energy needs at household level are directly related to women's workload and their time. For instance, women in rural mountain areas of Nepal often spend four to six hours collecting firewood and two to four hours in grain processing. In most developing countries, women are the ones involved in managing biomass fuels and food processing (like rice husking, grinding grain and so on). Women as the primary users and beneficiaries of household energy have expertise in local biomass resources including their properties as fuels. For instance, women can differentiate between those fuel-wood species which burn fast with high heat, those which burn at a slow speed with low heat and those which give off smoke (Kelkar, 1995). Women are also the ones most affected by the energy crisis (Battiwala and Reddy, 1996). For instance, the growing scarcity of firewood and other biomass resources add hours to a woman's workday.

Experiences

Energy poverty has a disproportionate effect on women and girls especially in rural areas. With the increased burden on women, daughters are forced to drop out from school to assist with household activities, limiting their opportunities to progress in their education and increasing the likelihood of family poverty (Cecelski, 2000; Clancy, 1999). Women and children often have less access to forest areas in the case of forest reserves and private plantations. A study in Nepal indicated that women have concerns with the risk associated with stealing firewood (e.g breaking their legs while running, financial penalties etc.) from private forests since they did not have access to community forests (Mahat, 2006). Because of a scarcity of firewood, women do not boil

water long enough and cook food items with low nutritional value that requires less cooking time. This in turn, affects family health (Skutsch, Clancy and Bachelor, 2003). Women especially become victims of a different health hazard due to firewood scarcity. A study in Uttarachal, India, indicated that miscarriages are linked to heavy load-bearing work during pregnancy, which are five times more than the national average (30 percent). Similarly, in Nepal, a high incidence of uterine prolapse among women is likely to be linked to carrying heavy loads of wood soon after childbirth (Earth and Staphit, 2002; Nishimizu, 2001). Above all, women and children are the ones most affected by the domestic air pollution due to low quality biomass burning (Dutta, 1997; Baltiwala and Reddy, 1996).

A study conducted in rural hilly areas of Nepal indicated that women, especially from high caste Hindu families, were solely responsible for collecting and cooking with firewood. Women collect and store firewood, although men cut the wood to be used as firewood, as women are considered not to be strong enough. Among minority ethnic groups such as Tamangs and Rais, there is work sharing at the household level and men were also involved in collecting and cooking with firewood. Especially among the low caste groups such as Kami and Sarki, a good work ethos is maintained among men and women. Both are involved in managing the household energy system (Mahat, 2006).

Where technologies are available for cooking such as improved stoves and biogas plants, men also share the cooking responsibilities, such as preparing light snacks for the family and preparing curries with biogas stoves. This is also the case among the minority ethnic groups. Similarly with availability of micro hydro mills, men help women carry the grain to processing mills thus saving their waiting time in the mills. Where these technologies are absent, women and children are solely responsible for grain processing using indigenous technologies such as Dhiki and Janto that involves exhaustive physical exercise (Mahat, 2006).

Renewable energy technologies can help reduce women's drudgery in managing the household energy system. For instance, the micro hydro mill in one of the villages in Nepal has helped women reduce their workload, especially in hulling and grinding grain. With traditional technologies it takes four to five hours to hull 30 kg of grain; with the power mill this has been reduced to less than one hour, including travelling and waiting time. In addition, the water from the canal established for operating the mill is used for drinking water and irrigation. The irrigation system has increased vegetable production, especially garlic, the income from which normally goes to women. Women are happy to have lights in the kitchen, animal sheds and in the toilets, which makes it more convenient to work. A woman mentioned that it was especially easy to take care of old and sick people when there is light. It was interesting to know that women felt less burdened in filling up the kerosene for each room and were less worried about frequent cleaning needed by kerosene lights. Children have more time for schoolwork with electric lighting, though this did not apply equally to all communities. Some women complained that with electricity, young boys became idle listening to radios and watching television. There was also some dissatisfaction among women and children in those households which were not able to access technologies like electricity. Similarly, women felt comfortable with biogas cooking, although this increased work needed for collecting

water to operate the biogas plant and carrying grass for stall feeding.

Issues and problems

Despite understanding these facts, the majority of energy planners (normally male) rarely consult women for whom they are planning or discuss the problems from their perspective. Too often, assumptions are made regarding energy interventions. Acceptance of energy saving technologies is taken for granted without carefully analysing the needs and priorities of women (Skutsch, 1995). An evaluation of a biogas program in India showed that women are interested by the smokelessness and convenience of biogas plants but the men placed higher value on the benefits of manure produced (Dutta, 1997). Similar cases have been observed in Nepal. For instance, operation of biogas plants is women's work, while men select the land for installing the biogas plants. However, women's involvement in selection of the location is very important in order to ensure their efficiency in performing the tasks such as fetching water, carrying dung and so on (Mahat, 2006). Rural energy needs for domestic, agricultural and smallscale, informal production activities, where women predominate, are given less priority (Skutsch, 1996).

National energy policies in Latin America have given emphasis to environmental and economic factors, while women's needs and concerns are still to be incorporated (Branco, 2002). It is the same in South East Asia, where energy policies mostly focus on the production aspect and women's energy needs are not adequately addressed. Policies do not make clear the role of women and implications of Alternative Energy Technologies (AETs) on women, even though they have a significant role in deployment of AETs and women are directly affected by such technologies. Therefore, it is imperative to have national policies to support gender equity and advancement of women to support improved energy policy.

Lessons for policy implications

Case studies in Uganda and South Africa indicated that policy mechanisms in other sectors must also reflect considerations related to women and energy to smoothly support the extension of energy services (Feenstra, 2002). An energy project (Energy for Rural Women's Enterprises) designed by UNIFEM for supporting rural women involved in small rural industries in Ghana, indicated that consultations with women helped to increase their participation in appraising energy equipment and adapting it to meet their needs. Such consultation provided important insights into the actual needs of rural women to improve their occupational opportunities (Mensah, 2001). Similar experiences can be found in other energy projects in Asia and Africa, such as Rural Energy Development Program (REDP) in Nepal, Upesi Rural Stoves Project in Kenya, and Solar Electric Light Fund (SELF) in Vietnam (Deuba, 2001; Njenga, 2001, Everts and Schulte, 1997). SELF's experience with the Vietnam Women's Union provided a good lesson in involving women in promotion and successful implementation of technologies throughout the country. Women were very active in promoting solar home systems in rural areas. Many of the technicians installing solar home systems were women (Everts, et al., 1997). An introduction to improved kiln technology for some women in Mali has



Firewood, Solukhumbu. Photo: Marianne Heredge.

proved that women can be effective producers and managers of household energy technology (Sanogo and Skutsch, 2001). Similarly, REDP has been successful in deployment of alternative energy technologies with considerable participation of women starting from the planning phase to the implementation of rural energy technologies in Nepal. Women are seen especially active in community mobilisation for saving activities and smooth implementation of micro hydro mills and biogas plants.

References

- Batliwala, S. and Reddy, A.K. (1996)* 'Energy for Women and Women for Energy: A Proposal for Women's Energy Entrepreneurship', ENERGIA News, Issue 1.
- Branco, M. de A. (2002)* Gender and Energy Issues in Latin America, Regional Paper Prepared for the World Summit on Sustainable Development, ENERGIA.
- Cecelski, E. (2000)* The Role of Women in Sustainable Energy Development, National Renewable Energy laboratory (NREL), Bolder, Colorado, USA.
- Clancy, J. S. (1999)* Policies, Projects and the Market, Empowering Women? Some Initial Reactions to Development in the Energy Sector, Technology and Development Group, University of Twente, The Netherlands.
- Clancy, J., Skutsch, M., and Batchelor, S. (2003)* The Gender-Energy-Poverty Nexus: Finding the Energy to Address Gender Concerns in Development, DFID project CNTR998521. (<http://www.sparknet.info> May 2003)
- Deuba, R. A. (2001)* 'Rural Micro Hydro Development Program: Nepal' in Misana S. and Karlson V.G. Generating Opportunities: Case Studies on Energy and Women, UNDP, New York.
- Dutta (1997)* 'Role of Women in Rural Energy Programs: Issues, Problems and Opportunities', ENERGIA NEWS, Vol. 1 (4).
- Earth, B. and Sthapit, S. (2002)* Uterine Prolapse in Rural Nepal: Gender and Human rights Implications, A Mandate for Development Vol.4 (3), 281-296.

Everts, S and Schulte, B. (1997) 'Vietnam Women's Union Promotes Solar Energy' ENERGIA NEWS, Issue 3.

Feenstra, M. (2002) Towards A Gender Aware Energy Policy, A Case Study of South Africa and Uganda, Thesis Submitted to University of Twente, The Netherlands.

Kelkar, G. (1995) 'Gender Analysis Tools', Wood Energy News, Vol. 10 (2) 5-6

Mahat, I. (2006) Gender and Rural Energy technologies: Empowerment Perspectives-A Case

Study of Nepal, Canadian Journal of Development Studies, Vol. XXVII No. 4. 531-550

Mensah, A.S. (2000) Rural Community in Ghana Benefits from Rural Electrification: The Appolonia Biogas Plant, ENERGIA NEWSLETTER, Vol. 3 (3) 8-9.

Njenga, K. B. (2001) 'Upesi Rural Stoves Project Kenya' in Misana S. and Karlson V.G. Generating Opportunities: Case Studies on Energy and Women, UNDP, New York.

Nishimizu, M. (2001) Energy, Gender and Poverty Reduction, Joint Strategy Business Meetings, Luncheon Address, available online; <http://www.energia.org/resources/papers/nishimizu.pdf>

Skutsch, M. (1996) Gender and Energy Planning, Report-Sub Regional Training Course on Women in Wood Energy Development, FAO, Bangkok.

_____(1995) 'Why Gender in Wood Energy Development?' Wood Energy News, Vol. 10 (2) 3-4

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The Role of Women in the Andean Mountain Ecosystem

Maria del Huerto Barbá



Farm in Argentina. Photo: Augustina Barros.

Despite the efforts of the United Nations to draw attention to governments on issues of the mountains, they have not considered priorities like the risks brought by extreme cold

weather, snow, wind, altitude, ice and other adverse factors causing suffering to mountain people.

In this era of globalisation, women have a higher position in their personal and professional roles and in some areas, are equal in those functions that were previously regarded as male preserves. However women in the mountains are often marginalised and vulnerable. In these societies, women are taking on roles more challenging compared to men, fulfilling roles in and outside the house, often working over 14 hours per day. Up at 5 o'clock in the morning, going on foot or on horseback, often accompanied by a mule load, they are traveling long distances to the nearest town to seek basic necessities. Meat and vegetables are produced in the home, although the meat they eat is usually mutton or llama meat, as breeding cattle is not possible given the weather conditions. When it comes to cooking, wood is used from the area and there is an absence of water, electricity and gas.

People use river water, both for cooking food and washing, which is heated in winter in the kitchen. Clothes do not vary much for the people of the interior, but the quilts of the cold guarecen area are woven on a loom and the wool of sheep and llamas make thick cloth for the raw winter days. The children attend schools and remain there during the week, returning to their homes on Saturday. Teaching occurs in summer due to the extreme temperatures that do not permit attendance during the colder months.

In addition to the workload and responsibilities of women, they remain victims of violence and abuse on an ongoing basis by men who have rarely married his partner. Alcoholism is usually responsible in these situations. This maybe highlights the strength of women to continue, in spite of this, and pursue their own lives and that of their household. In the north of Argentine, such as in Maryland, we have seen many cases of battered women and girls raped by their own parents, but none of these violations were reported, either out of fear, shame or custom.

The population of these areas clearly suffer from the lack of variety in food which prevents them from developing an optimal physical condition. They do not reach the height and weight inherent in the people of the city. It is very common that women have children at a very early age, with rarely any birth control being used, which means a malnourished mother is giving birth to a child under the same poor conditions they were brought up in.

Insecurity and lack of support is a constant problem. Hospitals are only to be found in nearby towns. Often health centres for primary health care (CAPS) are only served by nursing students and trainees, with a doctor attending on a rotating basis and only found rare occasions. If there is an emergency, there are virtually no ambulances or emergency services. In more serious cases, death is likely as in remote areas and with no way to communicate for assistance - which can be done only by helicopter - by which time it is too late.

Under these conditions it is very difficult to enable women to take other responsibilities given the environment and their poor education which ends at a primary school in the best of cases. Their future is limited to take care of household chores or migrate to the cities in search of work, which is generally limited to being employed as a domestic, living in the suburbs and inevitably surrounded by drugs and violence.

Our proposal

We believe priority should be given to education in providing greater strategic value. It could extend life expectancy and the socio-economic development of women who, because of their biological make-up and mental qualities, are educators, good administrators and protectors of the family unit. Education can change the way of life for them and their family.

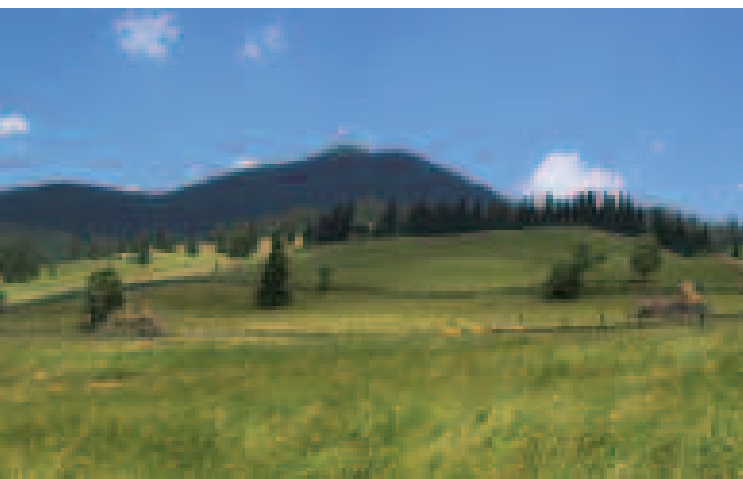
For this, it is imperative that the state, through its agencies and accompanied by civil society and through NGOs, builds a structure of sustainable development for the region. We must end the hand-outs and instead provide the essential skills and abilities, strong enough to carry out what is needed to satisfy basic needs of food, health and education. This can then help bring dignity to the lives of these women and the mountain population in general.

There are crops such as quinoa and amaranth known as kiwicha, that could be grown and although not produced in these areas, given their geographical and climatic requirements could be, but are not due to ignorance. The quinoa (*Chenopodium quinoa*) and kiwicha or amaranth (*Amaranthus caudatus*) are Andean grains that contain proteins characterised by high biological value (essential amino acids) and nutritional value, which have their roots in America. The rescue of these crops for Andean people has a very strong symbolic value from a cultural point of view as well as being of great nutritional value. An important point here is that 80 percent of those concerned and who are innovators with this crop are women. Only with training, incentives, awareness and the support of the state, can women succeed in regaining ownership of these developments.

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Maintaining Pastoralism in a Context of Competition for Land

Marie Guitton



Pastureland, Romania. Photo: Danut Ungureanu (CEFIDE, Romania).

This article is based on the report prepared by Euromontana "The Challenges of Pastoralism: Exchange of Innovative Experiences for Sustainable Development with a Future in Mountainous Areas" (Guitton M, Levret C., Delefortrie R., 2008). It presents the problem of the maintaining pastoral activities in a context of the competition for land and gives three examples of tools that can, at least partly, help in solving the problem of access to land.

Pastoralism is a stockbreeding activity in which natural spaces are used in an extensive and seasonal way. The activity may require the use of two (or more) farms: there is generally a main one where the family lives; and a second one, used during a shorter period in the year and that might consist of a small cabin or be more sophisticated. The migration from one farm to another is called transhumance. The territories used for grazing vary in diversity of vegetation (meadow, pasture, rangeland, undergrowth) and diversity in location from lowland to high altitude in mountains. Pastoralism is first of all a production activity: production of meat and of dairy products, mainly from cows, sheep and goats. Pastoralism also produces positive externalities: the grazing of the animals prevents bushes and scrubs from growing; maintains an open landscape appreciated by tourists and is also beneficial for biodiversity (habitats for wildlife). Finally, it also plays a role in the prevention of natural hazards, especially of fire in Mediterranean areas.

However, pastoralism has become a fragile activity in Europe. Apart from general economic difficulties, the question of access to land, especially in valleys and intermediate zones (zones of middle altitude, used generally in spring and autumn), remains a crucial issue. Those areas are used by breeders to make hay as reserves for the winter, but there is often competition for the use of land. The growth of transport networks and of urban areas leads to an encroachment of agricultural land. What makes it all the more problematic is that it is firstly the best land, in flat areas, that is bought for urbanisation purposes. Farmers are then forced to use the less productive and less mechanisable land that remains for agriculture. This implies that farmers will need additional land and working hours to collect enough hay for the winter season. It also makes it more difficult and expensive when they need to build new buildings. Competition also exists within the agricultural sector, between breeding and other activities. In the case of fruit production, the return from land is much higher than for pastoralism and it is very likely that pastures will become orchards. The consequences on pastoralism are that if breeders can not find enough land in the valleys, they can not make enough fodder reserves for the winter and they have to reduce the size of their herds. As long as large enough herds can be maintained, breeders still can continue their activity and they will just use less pastures or range in summer. There is therefore an abandonment of the most remote, the most difficult to access or lower quality land. In more serious cases, farmers may have to stop their activities altogether, if a herd of a sufficient size can not be maintained. In the central Pyrenees, it is estimated that the loss of 1 ha in valleys causes the loss of 2 ha in intermediate zones and of 10 ha in high pastures (D. Buffiere, written contribution, 2007).

In addition to the direct impact, the future of agriculture and of pastoralism is also threatened by the rise of land prices caused by competition. It is particularly difficult for young people to settle and to start farming when such high amounts of capital are required to buy land. The problems concern also farms where urban inhabitants in some regions have become very interested in buying summer farms or barns to transform into second homes. Often better off than people interested to start farming, city-dwellers are more likely to offer higher prices and buy farm buildings to the detriment of farmers needing new buildings (a problem encountered in Norway, Scotland, France and many other places).

Several types of solutions can be encountered across Europe to at least partly address the problem, such as the three initiatives from Italy, Spain and France presented below:

- **Urban planning: Example of the province of Trento, Italy (Piano urbanistico provinciale)**
The urban planning scheme was revised in 2007. The agricultural land can now be classified in three categories: agricultural zone (various cultures, fallow and uncultivated land), distinctive agricultural zone (permanent culture, arable land and pastures over 20 ha) and pasture zone. Two rules protect land used for pastoralism from being transferred to other uses. The main one concerns the protection of distinctive agricultural zone: the total surface area should not decrease. In the case some land classified in the category has to be used for other purposes, such as for projects of general interest, replacing land from forest land or urban wasteland should be reclassified as agricultural area.
- **Land Bank: Example of the province of Asturias, Spain (Banco de Tierras)**
The land bank is made up of land belonging to the province of Asturias, managed by a regional body. The agricultural land is entrusted to farmers, who have to request the use of land through a formal procedure. The Land Bank also manages the termination of activities of farmers which allows the identification of farms to be taken over and facilitate their transfer to new farmers. That way, land that would be otherwise be used for non agricultural purposes because no interested farmer can be found by the original user can be maintained as agricultural land.
- **Rural area management scheme in valleys: Example of Canton of Luchon, France**
The purpose of the management scheme at the scale of a valley, is to integrate the needs of different activities for a sustainable development of the territory. Thus, the scheme aims to take into account agriculture, tourism, urban needs, etc. All the stakeholders of a valley participate in the development. An architectural and landscape charter is established to improve the urban planning scheme of the valleys and measures are taken to favour pastoralism and to raise awareness of the importance of pastoralism for the sustainability of the economy of the valleys.

These three examples show that in order to support pastoralism and access to land, different kinds of tools can be used: urban planning schemes with rules to limit the reduction of agricultural area; anticipating the generation changes in farming to facilitate the taking over of land by another farmer; and involving not only farmers but also other economic stakeholders for a

better recognition of the role and importance of pastoralism. In particular, initiatives to raise awareness of the benefits of pastoralism among local economic stakeholders should not be neglected. A better understanding of the importance of the activity would help people to better take into consideration the needs to sustain that activity.

References

Assessorato all'Urbanistica e Ambiente, Revisione del Piano urbanistico provinciale - Documento preliminare, approvato dalla Giunta provinciale con delibera n. 2187 dd. 24.09.2004

Association Cantonale de Vulgarisation Agricole, Contrat de terroir - Plan de Gestion de l'Espace rural par Vallée assorti d'une Charte Paysagère, Rapport Final Tome I et II, octobre 2001, Luchon / Saint B at

Fern andez Garc a A. 2006. La vulnerabilidad del suelo no urbanizable, Escardar, N  11 2005-2006, pp. 10-15.

Fern andez Fano B., 2007. Banca de Tierras de Asturias, Pr sentation PowerPoint pr sent e par Gutierrez J.-A. lors de l'atelier « Terres agricoles : les pressions fonci eres dans les vall ees et les probl emes de gestion des p aturages d'altitude », conf erence Vers un d veloppement int gr  des r gions de montagne et leur meilleure prise en compte dans la politique agricole commune au sein d'un nouvel espace europ een, Roumanie, Comt  de Neamt, Ville de Piatra Neamt, 4-6 octobre 2007.

Garc a Dory F. Estudio de viabilidad para la creaci n de una escuela de pastores en Picos de Europa

Guitton M., Levret C., Delefortrie R. The challenges of pastoralism: exchange of innovative experiences for sustainable development with a future in mountainous areas, Euromontana, 2008, 102 p.

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Euromontana (<http://www.euromontana.org>) is a European multisectoral association for co-operation and development of mountain territories. It embraces regional and national mountain organisations throughout greater Europe, including regional development agencies, local authorities, agriculture organisations, environmental agencies, forestry organisations and research institutes. Euromontana's mission is to promote living mountains, integrated and sustainable development and quality of life in mountain areas. To achieve this, Euromontana facilitates the exchange of information and experience among these areas by organising seminars and major conferences, by conducting and collaborating in studies, by developing, managing and participating in European projects and by working with the European institutions on mountain issues.

The Incongruity of Territorial Perceptions as an Obstacle to Resource Management in Communal Land – Southern Morocco

Manfred Finckh and Holger Kirscht



Privately owned irrigated fields and collective rangelands in the M'Goun area. Photo: Manfred Finckh.

This article focuses on the management of collectively owned natural resources on the southern slopes of the Central High Atlas. It discusses conflicts which arise during the complex processes of decision making, especially when new management strategies are requested by outside agencies.

Pasture and arable lands are the key resources in rural southern Morocco. Due to permanent cultivation and commonly acknowledged water and land rights, the management of irrigated fields follows well established patterns which are regulated by the village communities. In contrast to the privately owned irrigated lands, pastures and the communal land (*agdal n'igram*) are - in theory - owned and managed by local tribal institutions, who traditionally set the rules for access and use. In practice, the use of collectively owned natural resources is variable, and often disputed between a variety of conflicting control bodies which consist of ethnically diverse actors with entirely different political and juridical backgrounds, representing incongruent territorial and juridical entities.

The administration of natural resources has been contested since the beginning of the French protectorate. The central government claims the right to manage common lands via central agencies like the forest service (*Eaux et Forêts*) or modern territorial bodies like the municipalities (*Communes Rurales*). In spite of the formal responsibility of governmental authorities, public confidence and acceptance still lies with tribal institutions and their management rules, although they exist to some extent only informally or in a "virtual" form today.

A semi-arid pastoral system

The M'Goun area in the Central High Atlas and its southern forelands up to Jebel Saghro consists of semi-arid to arid mountain ecosystems which are used predominantly by pastoralists. Less than 5 percent of the area is irrigated. This arable land is restricted to the oases. The rest comprises of mostly extensively used rangelands (see Finckh et al. 2007 for details), and a few fields used for rain-fed agriculture. Livestock management includes sedentary as well as mobile transhumant and entirely nomadic herding practises. For all patterns of utilisation, tribal affiliation is the principal key to gaining access to common lands.

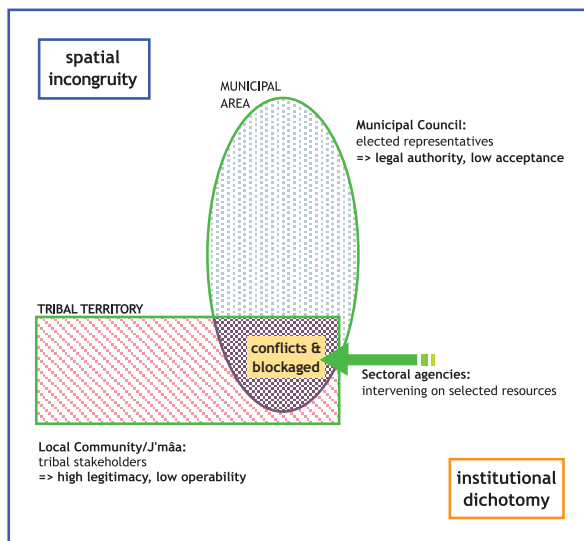
Three Berber tribes share the land rights of the M'Goun area: the Ait Zekri, the Ait Toumert and the Ait Mgoun. From west to east, they occupy neighbouring strips of land from the M'Goun Massif in the north, southwards to the Jebel Saghro. This territorial design follows a "transhumant" logic, combining grazing lands with divergent phenological dynamics. The land includes pastures solely used during spring and autumn. Summer and winter pastures, as well as lands used as a buffer are used during droughts.

Fragmented identities

The loss of the political and military functions of the Berber tribes, as well as the associated increase in power of the central government in the course of the so called "pacification" of southern Morocco in the 1920s, has not destroyed the traditional segmented structure of the tribes. Attempts have been made by colonial authorities to formalise informal Berber institutions, like the *amghar*, into a more centralised *J'mâa* (tribal assembly) so as to allow Berber tribes "to remain governed and administered in accordance with their own laws and customs" (Penell 2000: 166). The attempt of the colonial authorities to weaken the Arab influence and to enhance control by creating new leaders has had only limited effects. After independence, the fragmentation of Berber tribes remained strong, leaving local communities as principal cooperative units and political actors. Nevertheless, tribal identities and the idea of a common assembly persist at different levels, especially where a pronounced territoriality is present.

Spatial and political dichotomies and incongruities

The tribal territoriality in the M'Goun area of the Central High Atlas has led to discrete and exclusive tribal rangelands in the mountains and to common rangelands in the lowlands. Decision-making with regard to common land is still generally regarded as a tribal issue, notwithstanding the almost entire inoperability of the respective tribal institutions. Here, as in other regions of southern Morocco, municipal boundaries are not congruent with tribal territories. Tribal territories can touch more than one municipality, while the same municipality could contain more than one tribal territory. The implication of this territorial incongruity means that tribal decisions related to rangelands go beyond the boundary of the municipality where the user community is registered. In addition, municipal decisions regarding common tribal land are taken or at least codetermined by actors of different tribal affiliation. The first aspect complicates an integrated rangeland management system which is oriented towards the ecological necessities of mobile pastoralists, as



Spatial incongruity and institutional dichotomy.

municipal boundaries include just parts of the ecosystems necessary for maintaining an entire annual migration cycle. The second point affects the legitimacy of management decisions taken by the municipality, as actors belonging to a foreign tribe could be involved in the decision.

This local user perception of rangeland issues also does not completely coincide with the legal framework of modern Morocco. According to the forest legislation (code forestier), central authorities such as the forest service “Eaux et Forêts” have management rights regarding common lands covered with “forests”. The “Charte Communale” has allocated the land use management and planning to the municipalities.

Examples of blocked decisions

Two case study examples illustrate how territorial and institutional incongruities impede even small management decisions:

Case 1: Tree planting on common land

In the context of the IMPETUS project (<http://www.impetus.uni-koeln.de>), the vegetation ecology group



Implementation of experiments at Taoujgalt. Photo: Manfred Finckh.

wanted to conduct a small experiment in the surroundings of Taoujgalt, regarding the success of tree saplings planted with hydro-gel addition. It was planned to use 0.25 ha of common land for this experiment. Previous enquiries with local representatives from Taoujgalt had not shown any objections. Nevertheless, their attitude changed completely when it became clear that tree species would be used for the experiment. Public land with trees becomes per definition forest land that underlies the jurisdiction of the “Eaux et Forêts”. Local people feared the complete loss of control over their common land which would then be controlled by the legislation of the little esteemed “Eaux et Forêts”. In the opinion of local representatives, such fundamental decisions must be approved by the J’mâa of the Ait Zekri, the tribal institution that integrates the interests of the different communities. As the J’mâa of the tribe is nowadays virtually inoperable, it was impossible to get an approving decision.

As a way out, the village representatives suggested that renting a small plot of arable land. These lots were formally collective lands as well, but locally, de facto individual rights of use exist. For a small fee it was possible to rent the land and to establish the experiment.

Nevertheless, the experiment was destroyed within two weeks after implementation, because members of the municipal council, who are de jure responsible for land use decisions, felt that they had been ignored and sent people to eradicate the plants. As these council members belonged to the Ait Toumert tribe, none of the villagers had been in contact with them, because the issue was considered to fall within the Ait Zekri territories.

Case 2: Pastoral experiments

The second example regards pastoral experiments in the surroundings of the village Tichki, which belongs to the Ait Toumert fraction. It was agreed with the person responsible for the common land, that controlled grazing experiments should be realised in a small sector of the collective rangelands. It was agreed to pay compensation to the village. The representatives of the six local lineages should decide about the use of the money.

The vice president of the municipal council contested the validity of this agreement, because the Charte Communale attributes land use decisions to the municipalities. Such a contract should have been negotiated with the municipality, not with the village. On the other hand, the villagers from Tichki rejected the idea that council representatives from other fractions, not belonging to the Ait Toumert, would permit grazing experiments on Ait Toumert lands, and negotiate the amount and use of indemnities. As no consensus could be achieved, the accord was cancelled and the money paid back.

These two cases illustrate the mutual blockade of public authorities with low acceptance, inoperable traditional institutions with high legitimacy, and the incompatibility of modern and tribal spatial concepts. They exemplify how the incongruity of administrative and tribal territories impedes management decisions and blocks revenues resulting from activities associated with collective lands. They also illustrate the ambiguity of the legal status of common lands which often favour long-term strategies for land claims that might block current management decisions.

Conclusions

In southern Morocco, many obstacles to the sustainable management of collective natural resources arise from competing legal positions, provoked by incongruent perceptions of spatial management units and responsible institutions. As the examples have shown, disputed legal responsibilities over resources can block scientific experiments or development projects not only at the expense of the project themselves but also for local communities. On the other hand, the resulting insecurities could be used by individuals, who have the means to invest and create private revenues on collective land even against the interest of the communities.

Projects of technical cooperation should take seriously the phenomenon of incongruity, as it is one of the principle obstacles for successful and sustainable land use planning, not only in southern Morocco. A sound knowledge about the different actors on the political, administrative and territorial levels is essential to avoid the above mentioned problems.

Literature cited:

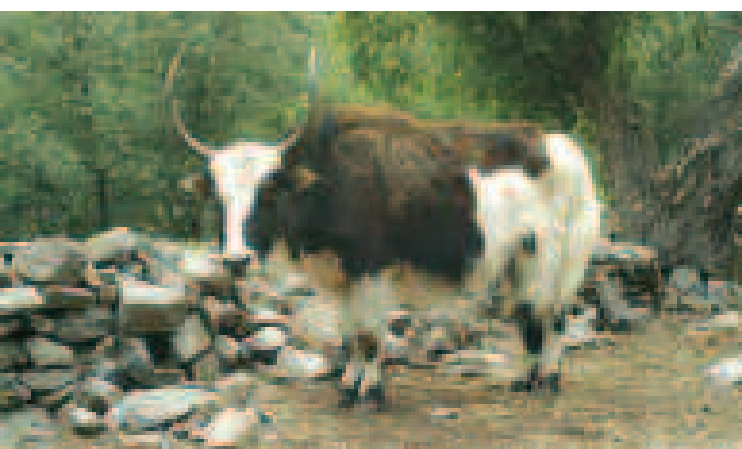
Finckh, M., Augustin, A. & Jürgens, N.: Monitoring Biodiversity on the Saharan Slopes of the High Atlas, Morocco. Mountain Forum Bulletin January 2007, 3-4.
Pennell, C.R. (2000): Morocco since 1830: a history. London, Hurst & Company.

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A Study on Yak Production in High Hills and Mountains of Nepal

K.R. Joshi, S.K. Shakya and C.N. Baidya



Yak, Nepal. Photo: K. R. Joshi.

The main objective of this study is to identify yak production in high hills and mountains of Nepal. The study was

conducted from mid July to September, 2005. Methodologies and different tools have been used and a multidisciplinary team was formed for the study. The study area covered Taplejung, Sankhuwasabha, Solukhumbu, Okhaldhunga in the Eastern, Dolkha in the Central, Humla in the Western and Darchula and Bajhang in the Far Western Region.

Yak (*Bos grunniens*) is a multipurpose animal living at altitudes from 3,000 m to 5,000 m. yaks only thrive in extreme environmental conditions. The yak's genetic capabilities to survive harsh winters with minimum feed are unmatched. yaks provide milk, butter, cheese, meat, leather, wool and transport to the people of the Himalayas and of the plateaus of Central Asia. From a socio-economic point of view, the yak is a very important animal in the mountainous country of Nepal.

Yak production

The total population of yak and chauri in Taplejung is 503. Sankhuwasabha has the second highest number of yak and chauri (8,391). The main trade route from this district to Tibet is via Kimathanka from where the export and import of yaks and yak products takes place.

Solukhumbu has the highest number of yak and chauri with 18,565 animals living in here. This district boasts the highest mountain in the world and many tourists come for mountain expeditions to Mount Sagarmatha. This is why there are several cheese factories and many farmers rearing yak and chauri.

Okhaldhunga does not seem to have pure yaks or naks but about 29 yaks seem to have been brought to cross breed with local cows to produce chauri. Dolkha has total population of 2,972 yak and chauri. Similarly, populations of yak and nak in Humla, Bajhang and Darchula are 3,187, 195 and 506 respectively.

According to the National Sample Census of Agriculture in 2001/2002, the population of nak and chauri was 55,089 (57.7 percent) and yak 40,357 (43.3 percent). Thus total population of nak, yak and chauri came out to be 95,446 (100 percent) (CBS, 2001/02). A recent survey conducted on the Tibetan plateau by American and Chinese scientists found an increasing population of wild yak compared to a previous survey taken 10 years earlier (Schaller, 2003).

It is seen that Solukumbu has the highest number of yak, with 3,977 (46.1 percent) and Bajhang has the lowest number with only 34 (0.4 percent). Regarding herd composition, the numbers of breeding adult female were highest (33.8 percent) and breeding adult male were the lowest (3.3 percent)

Looking at chauri herd composition, Solukhumbu had the highest number of chauri (9,279). Similarly in herd composition, breeding adult female were highest in number (33.9 percent) whereas heifers were least (2,095). Bajhang had the lowest total number of chauri (79).

Processing of yak products

A group discussion about milk and milk products from yak and chauri was held with DLSO, ADO, farmers and entrepreneurs in the survey districts. Solukhumbhu has a

potential to produce 43,978 litres of milk from naks and 424,716 litres from chauri, or 52 percent of total milk produced. Similarly, other survey districts also have a potential to produce milk and milk products. Milk generally starts to be produced 10 to 15 days after calving, which occurs in April and May, then continues for 5 months until winter comes. Production is highest in July, when grass is abundant and nutritious (Cheng, 1984).

Economic situation and income generating opportunities

Yaks are shorn every year between May and June. On an average, the weight of yak hair from one yak is 12 kg. Ropes are prepared from the outer hair whereas liu chauripot, Pakhi are prepared from fine inner hair. The yak tail is called chamer, which is used for religious purposes. A white chamer may cost Nrs. 800 - 1200. In addition, yak skin (hide) is equally important. From the skin, docha (warm shoes) and boots are prepared. Besides this, yaks are used for ploughing and transporting goods in mountainous areas. An adult yak or chauri generally can carry 60 - 75 kg of weight and can walk up to 13 - 16 km per day for several weeks. The cost of an adult yak is about Nrs. 25,000 - 30,000 whereas a nak is slightly cheaper and costs about Nrs. 22,000 - 25,000.

There is a need however, to upgrade the existing indigenous technology to produce safe and hygienic yak milk products at a commercial scale (Thapa, 1996).

Existing marketing situation of yak and chauri and opportunities

The existing marketing situation of yak and chauri in the mountains and high hills of Nepal is very critical for people's livelihoods. Yaks are imported from Tibet/China to Taplejung, Sankhuvasabha, Solukhumbu, Dolkha and Humla because Tibetan yak breeds play a very important role for yak populations to increase productivity in mountainous area of Nepal. Similarly, yak cheese, chhurpi and ghee are high value and low volume products that are in high demand in overseas countries. Export of yak cheese to overseas countries brings valuable foreign currency to Nepal, which helps to develop the economy.

Effective marketing channels should be established from the domestic market to the international market for income generation by the people in the high hills and mountains.



Yaks carrying gas in Khumbu, Nepal. Photo: Verana Schild.



Nak with calf. Photo: Verena Schild.

Problem and issues

Yak herd composition in the mountains and high hills is decreasing trend due to breeding problems. Nak and chauri milk production also is not sufficient for yak cheese processing. These problems are due to lack of proper knowledge, training and skills.

Recommendations

- Chauri calves are in high demand in Tibet, so a chauri breeding research programme should be carried out in livestock farms in Solukhumbu. Besides that, research and pasture management should be carried out in Rashuwa district.
- At present, yak cheese is in great demand for human consumption in the national and international market. It could be exported to South Asian and European countries. However, yak cross breeding would need to be improved genetically to increase milk production.

Conclusion

It was found that production of quality cheese and chauri calves are potential income generating opportunities for mountain and high hills people of the study areas. These commodities could be exported to Asia and overseas, providing an enhancement in the economic development of the country as well as addressing the issue of poverty reduction.

References

- APROSC (1998) Poverty situation analysis of Nepal, Agricultural Project Service Centre, Kathmandu, Nepal
- CBS, 2001/02 National Sample Census of Agricultural Nepal, Central Bureau of Statistics, Kathmandu, Nepal 2002
- Cheng P. (1984) Livestock breed of China Animal Production and Health paper 46 (E.F.S) Published by FAO, Rome 217 pp.
- Cox, T. (1985) Herding and socio-economic change among

Lantang, Tibetans, Contributions to Nepalese Studies, pp. 12, 63-74

DDPON (2002) District Demographic Profile Of Nepal, Informal Sector Research and Study Center, Kathmandu, Nepal.

Luke, A. Colavito (1997) High Hill yak Cheese Production In Nepal: An analysis of Privatisation Policy Incorporating in Impacts of Market for Agro-industries in Developing Countries, Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University, July 8, 1997

Joshi, D.D (2001) Yak in Nepal based on Information supplied, Kathmandu, Nepal.

Joshi, D.D., Awasthi, B.D. and Sharma, Minu (1999). An assessment of the yak Cheese factories in Nepal, National Zoonoses and Food Research Center, Kathmandu, Nepal,75

Paudyal, R.M. (1993) The yak and its importance in the Central Asia and particularly Nepal, M. Sc. Thesis, Centre for tropical Veterinary Medicine, University of Rdinburgh, pp. 67.

Schaller, P.B.S (2003). A survey conducted on wild yak in Tibet (China).

Shrestha P.K. (1990). yak husbandry in Khumbu and Role of Livestock Development Farm Syangboche to Encourage it, Khumbu, Nepal

Thapa T.B (1997) Diversification in processing and marketing of yak milk products,

DSP/National Development Board, GPO Box 7445, Kathmandu, Nepal.

World Bank (1980) Poverty and human development, Oxford, University, New York, United State America.

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Conflict in the Kugha Watershed

Farmer Tantoh



Water mains destroyed by angry Fulani. Photo: Farmer Tantoh.

The Kugha watershed covers an area of about 90 hectares on the Kugha Hill. It is located in Ndu Sub-Division, in the Donga Mantung Division of the North West Province of Cameroon. The Kugha Hill is the highest point in Ndu and is known to be the coldest place in Cameroon due to its altitude. It is bounded by Mbandfung village to the south-west, Ntumbaw village to the south, Wowo village and Kakar Quarter to the north and Sehn village to the east.

Of the numerous springs that flow from this watershed, 11 catchments have been tapped to provide potable water for the villages, quarters and individuals living within the communities of Kugha. With some water catchments still left unexploited, the watershed is seen to be a potential potable water source for surrounding communities and its environs if properly managed.

There are still some traces of natural forest in this watershed. However, some of the villagers enjoying potable water here are aware of the gradual disappearance of the forest and so have taken some measures to protect the watershed in their catchments. On the other hand, the Kugha Hill has witnessed an increase in human activities leading to the disappearance of the natural forest and the watershed within the years. Some Fulanis, who were considered nomads, have settled on this hill, and are now in their fourth generation there, with cattle rearing as their livelihood. Other indigenous people now take advantage of the availability of grazing land to rear their cattle, while farmers - mostly women - are scrambling for the fertile farmlands. Some have gone as far as putting boundaries on land that has been known for the past hundred years, to be a sacred place and a "no mans land". All of these factors have gone a long way to increase human activity on the Kugha watershed.

During feasibility study trips, conflict-related activities between the stake holders of the Kugha watershed could be seen. The whole watershed has been invaded by human activities that pose threats to the springs:

- Forest extinction: as far back as 1910 among the Wimbum tribe of the Donga Mantung Division, tampering with the water catchment area was unheard of. In addition, the Kugha watershed was a sacred place and the natural forest covering the catchment area used to be protected even from stray animals and hunters. With time, the respect given to such areas has faded as the forest is disappearing. The council members who used to keep these traditional laws are corrupt, as some of the members are even party to the sale of such forestland.
- Farm land expansion: there is a scramble over the fertile lands of the Kugha Hill that before was virgin and used only for grazing by Fulani. In the Ndu Sib Division, the daily concern of people is how to feed their families. The women shoulder this responsibility as their culture holds that they are the bread winners. Women are farming the same fields that their ancestors farmed during the past century. The men, who used to earn meagre wages from the Ndu tea plantation which used to be the only employing sector, were sacked during the privatisation that has occurred since 2003. Due to heavy pressure on arable land, this has caused women to tend to move up into the hills in search for more fertile farmlands located in the watersheds. They seem to have forgotten the dangers that threaten with uncontrolled exploitation of the watersheds.
- Eucalyptus plantations: the eucalyptus tree offers some

advantages to farmers. Most is used as a source of fuel, as poles for electricity and telephone cables and for income generation for making furniture and house roofs. Eucalyptus trees are providing a greater share of the income of their owners. Farmers of the Kugha watershed are ignorant even in the use of eucalyptus trees as boundary plants as they know little about the adverse effects they have to the watershed. Unproductive farmlands are being replanted with eucalyptus trees and are important to the farmers.

- Tea plantation: when the Ndu Tea Plantation was privatised, which used to employ over 50percent of the working population of the surrounding Kugha villages, over 364 laborers lost their jobs. Some of these laborers have started to cultivate their own tea plantations and the Kugha watershed is being invaded by two new plantations. Although the tea plants themselves are not destructive to the watershed, the tea farmers often use chemical fertilisers that pollute the springs.
- Human settlement: apart from the Fulani who were considered nomads, some farmers are gradually encroaching the watershed with their “farm houses”, some of which have become permanent homes. The Fulani now cry foul as the encroaching neighbours are threatening to take over.
- Water catchment construction: tapping of potable water from the Kugha Hill is done without any control. This involves digging and laying pipes which further exposes the spring catchments. If the catchment constructions were controlled, just four of the 11 constructed could served all of the beneficiary communities. Without control and proper management, this activity leads to frequent conflicts between the communities as other water mains are destroyed in the course of construction or in the search for springs’ sources. The Fulani are often deprived of the springs during construction and little care is taken over their water needs for domestic use.

Reasons for conflicts

Some of the conflicts that arise include:

- Farmer-grazer conflict: this is very common, not only in Ndu, but throughout the Western Highlands of Cameroon, as the Fulani do not welcome the idea of fencing farmlands that block passages for their cattle to greener pastures. So the Fulani often destroy

farmers’ fences, leading to their cattle feeding on the farmers’ crops.

- Farmer-tea farmer conflict: tea farmers impose tea planting on peasant farms, which leads to up-rooting plants and ending up as conflicts that have to be settled at local councils and eventually courts.
- Farmer-eucalyptus farmer conflict: eucalyptus trees, once grown up, render the land unproductive. This causes the farmers to abandon their farms in search for more fertile land and so conflicts arise between the two parties.
- Conflicts on spring catchments: depending on the financial strength of a village, they may go up stream to tap a spring source already tapped by a poorer village below, depriving that village from their spring. This often leads to conflicts as villagers destroy water mains and even storage tanks of their opponents. The Fulani also claim compensation of a stand pipe and drinking pool for their animals once any catchment is constructed. Without this, they will allow their animals to graze on the protected catchment areas and by doing so, expose and destroy the water mains with their animals’ hooves.

Proposals for conflict resolutions

The Kugha watershed needs Watershed Management Committees (WMC) made up of representatives from villages and individuals that tap potable water from this watershed. The grazers, tea farmers, peasants and eucalyptus farmers need to form a farmers’ committee that follows by-laws on how to better manage their land. Then the council, which is formed by the local government together with the administration, needs to recognise the watershed as the water source for the villages within its environs and control the better management of this watershed.

Practical actions

Watershed management committees and farmers’ committees are needed for better management of the Kugha watershed. Attention of the council and the administration of Ndu Sub-Division needs to be drawn to the importance of this watershed. With the help of the administration, control and better management of all activities on this watershed can be introduced.

The various committees should be sensitised on how to protect and better exploit the watershed and so avoid conflict with other stakeholders.

Feasibility studies were carried out by:

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Cattle path above an unprotected spring catchment. Photo: Farmer Tantoh.

Blaming the Victim? The State of Forest Governance in the Chittagong Hill Tracts

Biplob Chakma, Bihita Bidhan Khisa and Senti Chakma



Kaptai Reservoir. Photo: RESDO.

With 13,274 square kilometers of surface area, the Chittagong Hill Tracts (CHT) comprises three hill districts of Rangamati, Khagrachari and Bandarban and is geographically an isolated region of Bangladesh. It shares international borders with India in the north-east and Myanmar in the south. The area of CHT constitutes 10 percent of the total area of Bangladesh. There are at present 13 indigenous communities with distinct socio-cultural identities and people from Bengali ethnicity who are mostly government sponsored settlers living in CHT. During the end of British colonial rule in the Indian sub-continent, 98 percent of her inhabitants were indigenous communities. During the Pakistan period (1947-1971), there were migrations of Bengali traders and government employees into the region. However, after the independence of Bangladesh, there was a sudden flow of Bengali migrants under government patronage. Around 400,000 people from other parts of Bangladesh were given settlement in the CHT under a strategic population transfer plan during the period 1978-1984. As a result this planned population migration has resulted in land alienation, communal conflict and underlying causes of poverty in the region (Adnan: 2004).

Roughly 90 percent of the indigenous people living in CHT depend on non-timber forest products, such as fuel woods, bamboos, seasonal leafy vegetables, wild tubers, bamboo shoots and wild mushrooms. The main economic activities in the remote areas are based on a traditional subsistence agriculture system, known as shifting cultivation. It is locally termed as Jhumming and it has been practiced from the time immemorial. Jhumming includes clearing and burning of surface vegetation before harvesting mixed crops of rice, millet, sesame, maize, vegetables and some cash crops like cotton. This mixed nature of cropping ensures a steady supply of food throughout the year. For centuries, this system has worked effectively and there has been no serious deterioration of soil quality as the exhausted Jhum plots lay fallow for at least 7-10 years (Rasul and Karki: ICIMOD, Nepal).

According to the customs of the people of CHT communities, forest and lands were the common property of a specific clan or village community. The individual rights included the right to a particular Jhum (a forest area), the right to sufficient land for a homestead, the right to extract forest produce as well as hunting and the right to access to common grazing lands. These were all unwritten rules institutionalised in the form of social codes, norms mutually upheld by the community.

Soon after the annexation of CHT by the British administration in 1860, the concept of forest governance was introduced and four fifths of the CHT area were regarded as 'Government Forests' through section 2 of Act VII of 1865 (Ishaq, 1975:107). They regulated the use of these newly created 'forests', but their direct administration was vested to the Chiefs or Rajas and their subordinate indigenous officials endorsing the age-old customary rules (Roy and Halim, 2001, p.15). In the 1870's, one fourth of the total land of CHT was categorised as "Reserve Forests" under direct administration of the Forest Department, outlawing all previous rights of access to and use of forest resources in these areas (Roy, 2004, p. 151). Colonial forest laws were formulated and imposed on the communities in order to realise the sole purpose of increasing revenue through maximum commercial exploitation of forest resources.

This process of converting the "customarily held lands" into reserve forests was continued by the Pakistani government (1947-71) and by the government of Bangladesh since its independence in 1971. Subsequently, the forest laws turned out to be a powerful political tool to further marginalise the indigenous communities and it also provided a basis for corruption in the forest governance. The present forest governance of Bangladesh is a direct inheritance of colonial forest law and governance. Using special powers under forest laws, government notifications purporting to increase other areas of forest or reserve forests were used and are still valid today. Whenever such 'reserve forests' are declared, the government denies all claims based upon customary law.

A major blow to the people-forest relationship balance was due to the creation of the Kaptai Reservoir in the 1960s, inundating two fifths of total plough lands of the region and a large part of adjacent forests, displacing an estimated 100,000 indigenous people. The majority of these displaced people were forced to seek refuge (without rehabilitation from the government) in the forest areas in the region. Of the total displaced, 52 percent stayed in the vicinity of the reservoir, 29 percent moved to Kassalong reserve forest, 14 percent moved to the Chengyi-Myani valley and five percent moved elsewhere in the hills (ALARD: 1995, p 91). This has resulted in cleaning up (for agricultural purposes) and deforestation of huge forestlands, posing long-lasting environmental damage. Following the Kaptai hydroelectric project, the CHT was already facing a severe crisis of cultivable lands and pressure on forests. The population transfer programme started in 1978 further exacerbated the existing problem. According to recent reports, the government has again initiated settlement of hundreds of Bengali migrant families in the Kassalong reserve forest amidst protest from the people of CHT.

Conventionally, indigenous peoples are blamed for degrading forest resources with their traditional Jhum

cultivation, in spite of evidence of sustainability in the practice of Jhum cultivation in the CHT since time immemorial. There is a general attitude among policy makers, forest department officials and the general administration to deny the real causes of forest degradation, so they adopt a strategy of 'blaming the victim'. But the process of the degradation of forest commons started during the British colonial period: with the nationalisation of forests; establishment of reserved forests by denying the customary rights of indigenous people; entrusting management of forests to bureaucratic departments and; weakening the traditional institutions (Rasul and Karki: ICIMOD, Nepal). During the Pakistan era (1947-71), the construction of Kaptai Dam that submerged vast areas of forest and the commercial leasing of forestlands for plantation for supplying industrial raw materials, created enormous pressure on forest resources. During the Bangladesh period, forest degradation was further accentuated by the infamous population transfer project (1978 onwards).

Forest administration in the CHT carries the colonial legacy of British promulgated forest laws which were contradictory to the customary laws and forest tenure systems of the CHT. The forest governance in CHT therefore should be redesigned according to customary laws, usage and prevailing procedures in the region as well as in agreement to the CHT accord 1997 and Hill District Council Acts 1998. Some of the reform agenda for making the forest governance all inclusive and equitable are given below:

- Reform of the forest department: The forest department in the CHT should undergo political reform (devolution of power to DC's /traditional institutions), administrative reform (community involvement in forest management / jobs for the local people in the forest department) and financial reforms (fair access to forest revenue for the local people).
- Reduce population induced forest destruction: The ongoing process and recent initiative of new settlements in the reserve forest areas (Kassalong), illegal felling of trees and trafficking of timber should be stopped immediately.
- Livelihood promotion: Promotion of agro-forest based livelihoods opportunities for Jhumia and forest dwellers with backward and forward market linkages in order to reduce burden on forest and Jhum cultivation.
- Fair market access: Remedial steps should be undertaken with local communities for access to fair prices and markets as well as elimination of exploitation by middlemen in forestry related businesses. There should be provision of skills training on market value addition of forest produce for the people dependent on forest resources.
- Interventionist role of Government: Support from the government and NGOs should be provided to involve or build the capacity of local indigenous people in such economic activities like building up storage, processing and marketing facilities for non-timber forest goods.

The erosion of forest resources vis-à-vis environmental degradation has triggered long term ecosystem damage in the CHT. Many springs and aquifers that were traditionally used as sources of drinking water have begun to dry up during the dry seasons. The decline of animal and plant life, and wild fruits, which once formed an important nutritional supplement for the indigenous communities, is resulting in

nutritional deficiencies. Due to decline of natural herbaria, the traditional know-how of disease prevention and cure is now on the verge of extinction. Deforestation has also resulted in loss of many traditional occupations. For example: the Vadyas who use natural herbs, local artisans who use canes and bamboos etc. There is also a cultural impact of deforestation. For forest-based communities, their relationship with the forest is not only functional, but also symbolic, which is embedded in cultural manifestations. Against this backdrop, forest governance in the CHT must accommodate the functional and symbolic meanings of forests as well as the customary laws related to forest tenure and it should be different from rest of the country.

References

- Adnan, Shapan, 2004, Migration, Land Alienation and Ethnic Conflict, Causes of poverty in the Chittagong Hill Tracts of Bangladesh, Research & Advisory Service, Dhaka*
- Rasul, Golam & Karki Madhav, "Political Ecology of Degradation of Forest Common in the Chittagong Hill Tracts of Bangladesh", ICIMOD, Kathmandu, Nepal*
- Schendal, Willem van, Mey, Wolfgang & Dewan, Aditya Kumar, 2001, The Chittagong Hill Tracts: Living in a Borderland, The University Press Limited, Dhaka*
- Gain, Philip, 1998. The Last Forests of Bangladesh, SEHD, Dhaka.*
- _____(ed), 2000. The Chittagong Hill Tracts: Life and Nature at Risk, SEHD, Dhaka.*
- _____, 2001. Background and Context to the Forest (Amendment) Act, 2000, SEHD, Dhaka.*
- Halim, Sadeka, 1999.b. "Women and Social Forestry in Bangladesh" in Sociology, Health, Women and Environment, proceedings published by Bangladesh Sociological Association (BSA), Dhaka, October, 1999.*
- Ishaq, Muhammed. 1975. Bangladesh District Gazetteers: Chittagong Hill Tracts, Ministry of Cabinet Affairs, Dhaka.*
- Roy, Rajkumari Chandra, 2000. Land Rights of the Indigenous Peoples of the Chittagong Hill Tracts, Bangladesh, International Work Group for Indigenous Affairs (IWGIA), Document No. 99, Copenhagen.*
- Roy, Raja Devasish, 1998. "Perspectives of the Indigenous Peoples' on the Review of the Asian Development Bank's Forest Policy", Background paper presented at the Regional workshop on the Review of the Asian Development Bank's Forestry Policy at Manila, 14-15 February, 1998.*
- _____, 2000. "Administration", in Philip Gain (ed.), The Chittagong Hill Tracts: Life and Nature at Risk, Society for Environment and human Development (SEHD), Dhaka.*
- _____ & Sadeka Halim, 2001.a. "A Critique to the Forest (Amendment) Act of 2000 and the (draft) Social Forestry Rules of 2000" in Philip Gain (ed.), The Forest (Amendment) Act, 2000 and the (draft) Social Forestry Rules, 2000: A Critique, SEHD, Dhaka.*
- _____, 2001.c. "Valuing Village Commons in Forestry: A Case from the Chittagong Hill Tracts", in Chittagong Hill Tracts: State of the Environment, edited by Quamrul Islam Chowdhury, Forum of Environmental Journalists of Bangladesh (FEJB), Dhaka, September, 2001.*

____, 2005. "Protecting Forest Commons through Indigenous Knowledge Systems: Social innovation for Economic Needs in the Chittagong Hill Tracts, Bangladesh", in *Journal of Social Studies*, No.101, July-December, 2005, Dhaka, pp 16-60.

Sarin, Madhu. 1996. "From Conflict to Collaboration: Institutional Issues in Community Management". In *Village Voices Forest Choices: Joint Forest Management in India*, ed. Mark Poffenberger and Betsy McGean, 165-209. Delhi: Oxford University Press.

Taungya, 2005. Concept Paper on a Proposed Project on Protection of Village Common Forests in the Chittagong Hill Tracts: (A project on Sustainable Watershed Management). Taungya, Rangamati, Chittagong Hill Tracts, Bangladesh.

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Ancestral Bio-Indicators in Andean Highland Regions: Disaster Warning and Resilience Mechanisms

Sergio Alvarez Gutierrez and Lucio Tito Vilca



Rain, Pakajes. Photo:Sergio Alvarez Gutierrez.

During the last few decades, climate variations have been experienced worldwide, and the Andean communities have not been an exception. Agricultural production has been seriously affected by different phenomena such as uncommonly intense cold spells, snow storms and drought. If we consider the Gross Domestic Product (GDP) of these countries, it would seem like these events are not "transcendental" in socioeconomic terms. However, many men and women from the Andean highlands live under conditions of poverty and their economies are based on trade for their limited, year-round livelihoods.

Our fieldwork, done jointly with Andean communities and some institutions, has enabled us to identify age-old bio-indicators (also called biological or climate indicators) in Andean areas. In 2004, we identified more than 60 bio-indicators and now, in 2007, we have records of more than 89 such indicators in lands whose altitude ranges from 3,800 to 4,800 metres above sea level, from the Arequipa region in Peru to the province of Pakajes in Bolivia.

Our interaction with indigenous elders and sages has not only enabled us to understand but also to observe the use of bio-indicators as early warning mechanisms for hydro-meteorological phenomena that appear suddenly or over time and which may become disasters due to current vulnerable conditions. On many occasions, the same warning criteria have helped communities reduce the impact of disasters on their livelihoods, as well as recover faster when their losses do not surpass certain magnitudes. We identified many women with a good knowledge about climate signs where they are living and many times we saw how they are aware of change in the climate and seasons.

Reclaiming knowledge

We have seen how some areas have been seriously affected by climate variations, but also how some communities have used their ancestral knowledge about natural and climate signs, as well as celestial bodies as bio-indicators, considering them climate predictors.

We believe that not all communities have yet lost their knowledge about biological diversity and their rituals. But in order to contribute to keeping it, all climate bio-indicators must be gathered, systematised, validated, disseminated and put into practice. The challenge in the next few years will be to regain the social capital that Andean communities have and make it available to Quechua and Aymara populations in the Tawantinsuyo, and verify, through other actors, whether such indicators are applicable to other territories as well.

A number of related initiatives have been carried out and others are underway. Although different in terms of methodologies and goals, all of these efforts will be relevant to the extent that they enable Andean men and women to use this knowledge in their daily lives. We hope to obtain at least three outcomes from this process intended to recover local knowledge: first, comparative research on traditional indicators and the climate predictions of scientific institutions through a retrospective study of the last ten years. The second product is the validation of bio-indicators, drawing upon age-old knowledge and current experiences. Finally, the third anticipated outcome is to develop popular bilingual material to disseminate and promote the use of these biological indicators. An additional outcome would be

the development of an appropriate local follow-up methodology, as part of institutionalised mechanisms for disaster risk reduction.

Andean early warning: Traditional or scientific?

It is possible that decision-makers and staff working on early warning systems may become confused after reading this article, especially in terms of the level of accuracy of ancestral bio-indicators. Reality shows that these indicators are complementary to climate predictions issued by national meteorological services. However, in terms of the correlation between action and reaction, these indicators are effective since there is usually a real-time communication gap when issuing meteorological warnings.

In addition, after assessing the distribution of meteorological stations, it was found that the investment needed to broaden and strengthen the National Early Warning System does not always represent a priority, and there is the need to devote further efforts should a real connection be established between these warnings and their beneficiaries. Consequently, traditional knowledge becomes, in this context, a mechanism that allows Andean highlanders to have advanced warnings of any type of hydro-meteorological variations.

Some researches conducted in Bolivia and Peru, between 2001 and 2003, revealed that climate indicators used by Andean farmers had a high level of accuracy predicting climate characteristics in different farming cycles. In light of this reality, it is worth mentioning that, at the Andean level, both types of climate signals complement each other within an early warning system, and that ancestral bio-indicators vary depending on the altitudinal belts. For this reason, these indicators should be validated.

Resilience

Bio-indicators must be regarded as part of community strategies for disaster risk reduction, based on the knowledge they use for predictions.

In many cases, men and women in the country-side base their crops and other production strategies on local knowledge systems, which have been developed after years of observation and experience. Therefore, this age-old cultural and social capital must be regarded as a basic strategy that may build the resilience and response capacity of Andean peoples to hydro-meteorological hazards.

New challenges in the face of climate change

Climate change represents a global hazard, especially for Andean countries, since it could modify or eradicate those climate warnings that many Andean people use, which in turn would directly impact their lives. It is very likely that most of these indicators might disappear since, to an extent, they are related to water.

Meanwhile, the identification of these bio-indicators will continue to be part of the early warning and resilience mechanisms among the Andean populations.

We cannot simply overlook the traditional knowledge and the survival mechanisms that Andean indigenous peoples

have had for hundreds of years. A number of tasks undertaken in disaster mitigation and prevention are based on these practices, which must be revalued and, in many cases, used in the 21st century as alternate strategies.

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Signs of Climate Change on Roof-top of the World

Tsewang Namgail



Melting glacier in Ladakh. Photo: T.R. Shankar Raman.

Today, global warming (climate change) has become a major concern across the planet. A flurry of investigations is being carried out to understand the causes of the recent climatic changes and there is a common consensus amongst scientists that the increase in the greenhouse gases in the atmosphere is the primary factor. The level of greenhouse gases has risen intermittently throughout the Earth's history, but has been fairly constant for the last few thousand years. With the increased burning of fossil fuels, their levels have shot up in the last century, warming up the earth's surface temperature. Melting of ice sheets in Polar regions and glaciers on the major mountain ranges such as the Himalaya, Alps and the Andes are being increasingly reported due to such warming. Researchers contend that most of the Himalayan glaciers will disappear before 2050.

The Ladakh region of the Indian Trans-Himalaya is being affected by these climatic changes. Recent studies at different stations in the region have shown that the temperature in the region is increasing annually by almost 0.20°C. Climatic models predict that the earth's surface temperature will increase by almost 5°C by the end of this century.

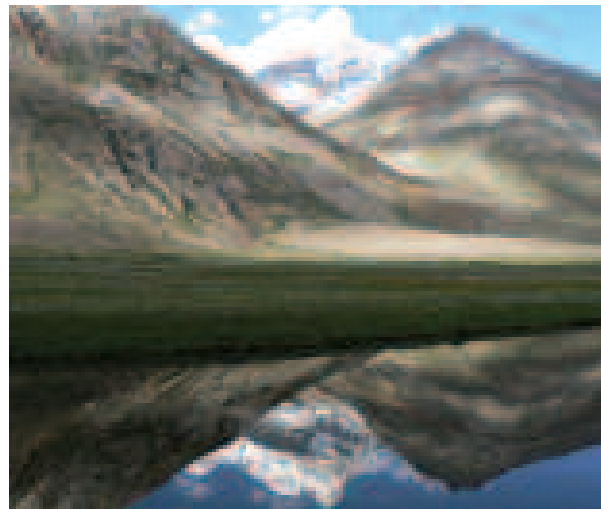
Would the oases in Ladakh survive such climatic change? Should the people of the region be concerned about shortages of water associated with global warming? These are the questions that have become more relevant today than ever before. Agriculture and livestock production have been the mainstay of the economy of rural Ladakh since time immemorial. Nevertheless, with the sustained climatic change in Ladakh as elsewhere on the planet, one wonders if the aforementioned sectors will continue to support the burgeoning population of Ladakh. Experts have suggested an acute scarcity of water all across the Himalayan region in this century. People of Ladakh are completely dependent on glacier run-off for irrigation and drinking water. Skirmishes over water for irrigation have not been uncommon in the past and may increase as the water level in the streams is declining fast.

Glaciers, the jewel in the crown of the Ladakhi mountains, are melting apace under the intense heat of the sun. A recent preliminary study in the region showed that glaciers are retreating at an alarming rate of 7-10 metres per year. If they continue to melt at this rate, the glacial streams in Ladakh may reduce to trickles in the next couple of decades. The rapid melting of glaciers also causes erosion of agricultural fields and riverine pastures. Flashfloods have become a nightmare in recent years and the unprecedented heavy rain in 2005 and 2006 affected thousands of people as floods washed away agricultural fields and claimed more than a dozen human lives. The erratic climatic patterns are also threatening the multi-million livestock industry. The heavy snowfall in the winter of 2004-05 killed more than three thousand livestock (1,288 sheep, 1,789 goats, 128 yaks and 39 horses) in the Hanle valley of eastern Ladakh.

Ladakh, a.k.a. Little Tibet, has many historical monuments and monasteries that attract a huge number of cultural tourists every year. They have managed to withstand high velocity winds and the intense sun heat of the arid Ladakh, but not rain, flashfloods and mudslides. Climate change is thus threatening these cultural and religious structures. Heavy rains in the last decade have caused major damage to unique murals of several monasteries including the monasteries at Alchi, the oldest, and at Hemis, the richest. Glacial lakes in Ladakh are also bursting, causing damage to human property. For example, the Shang valley was flooded in August 2007 due to such an incidence, when roads were destroyed and trees washed away.

The Indus river flows through Ladakh and frequent flooding from the tributary rivers of the Indus in the region will lead to increase in sea level. Trans-Himalayan glaciers supply millions of cubic feet of water to Asian rivers such as the Ganga, Indus and Brahmaputra. It is estimated that the melt of the glaciers in the Himalayan region contributed to more than 20 percent of the rise in the global sea level in the last 20 years as reported by World Glacier Monitoring Service (WGMS).

Global warming is also jeopardising winter sports all over the world, as the snowpacks from the mountains disappear. Ski resorts around the world are being hit hard by global climatic change. Although Ladakh is not a popular destination for winter



Glacial lake in Ladakh. Photo: T.R. Shankar Raman.

sports, the Chadar trek, a week-long trek over ice-sheet on the frozen Zangskar river, which is very popular amongst adventurous tourists, would be affected. With changing climate patterns and increasing temperatures, the river may not freeze in winter. The rising temperature will also push animals and their habitats higher and higher until they are annihilated (IPCC, 2002). There have been reports of marmot colonies shifting upwards in several parts of Ladakh. The melting glaciers will inundate the critical habitats of migratory birds around glacial-fed lakes. There have been reports of the submergence of the habitats of the endangered Black-necked Crane from several wetlands in eastern Ladakh.

Although there is anecdotal information on the negative impacts of climate change in Ladakh, there has been no study till now. With the growing concern of global warming affecting the livelihoods of people in mountainous regions, it is imperative to initiate studies on the global warming-related issues in the region. In the meantime, it is the responsibility of all mountain dwellers to act sensibly and use mountain resources sustainably. One solution for the problem of global warming is to turn to other clean and environment-friendly sources of energy, which people in Ladakh have been doing for the last few years. Fortunately, more than 80 percent of days in a year are sunny in Ladakh and thus solar energy has been harnessed to meet energy requirements. Hydel projects have also been installed to generate electricity. Wind energy, especially in the eastern plains, is another option which needs to be explored.

References

- IPCC, 2002. Climate Change and Biodiversity. IPCC Technical Paper V.
- UNEP, 2007. Melting Ice a Hot Topic: Climate Change and the Cryosphere. Our Planet, UNEP Magazine.
- Rees, H.G. and Collins, D.N., 2006. Regional differences in response of flow in glacier-fed Himalayan rivers to climatic warming. *Hydrological Processes*. 20: 2157 - 2169.

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People's Participation in Forest Resource Management in the Uttaranchal Himalaya

Dr. Vishwambhar Prasad Sati

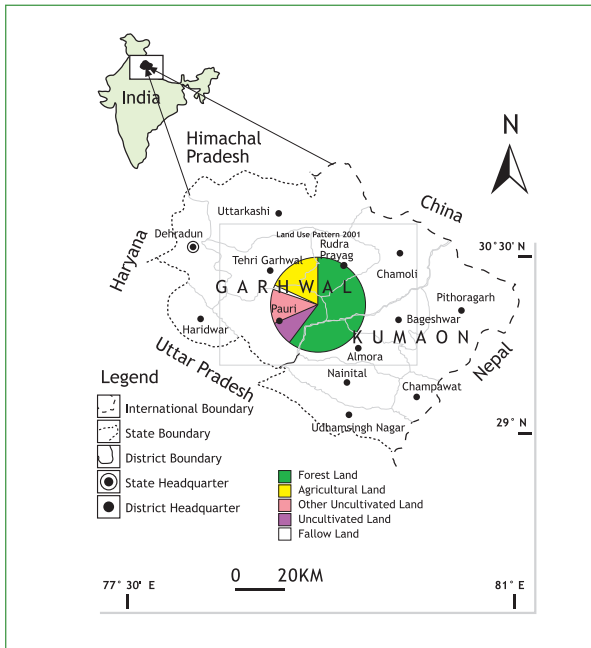


Figure 1: Location map of Uttaranchal Himalaya.

Forests play a key role in regulating climate, maintaining ecosystems, providing livelihoods in the form of firewood, fodder, medicinal plants, wild fruits, feasible climatic conditions and other environmental services in mountain regions. Many mountain communities are directly and indirectly dependent on the forest for their livelihoods. In addition, mountains are the home of the major rivers, which is a lifeline for the downstream areas. The Uttaranchal Himalaya is located in the centre of the Himalayan Mountain System (HMS). Forest covers 60 percent of the land, where a rich diversity in forests is found which ranges from sub-tropical to sub-temperate, temperate and alpine.

Uttaranchal occupies an area of 51,125 sq km and a population of about 6 million (94.4 per square kilometre). This state lies between 28° 53' 24"-31° 27' 50" N and 77° 34' 27"-81° 02' 22" E (Figure 1). Of its total geographical area, about 47,325 sq km (92.6 percent) is covered by mountains, while 3,800 sq km (7.4 percent) forms Tarai plains. The total snow covered area of the mountainous region is 7,632 square kilometre (16.1 percent), with an elevation of over 4,000 metres. The mid Himalayan region (1,000 to 3,500 metres) has many high mountain peaks, fertile lands, meadows, rivers, streams and valleys. The entire region is geographically important and is comprised of the two distinct landscapes: the Garhwal and Kumaon Himalayas comprising thirteen districts.

The study is mainly based upon data collected from secondary sources of government records of the State Economic and Statistical Directorate, Dehradun. District

data from 1974 to 2001 was collected and the exponential growth rate (EGR) and change in percent of collected data were calculated. Field visits to observe forest resource management were done to facilitate further interpretation of data. The main objective of the study was to assess the role of people's participation and government initiatives in forest management in this mountainous region.

Change in forest cover 1974-2001

District data from 1974 to 2001 shows the change in forest cover areas varied from one district to another (Table 1). The overall change in forest cover area in Uttaranchal Himalaya was 1.3 percent, which indicates that even though the high pressure of population on the land increased during the last few decades, the forest cover increased too. Only two districts, namely Pauri and Almora reported negative changes with -5.6 percent and -2.1 percent forest cover in Pauri and Almora respectively. In an area of very high concentration of population in the Doon valley, forest cover increased by about 10.6 percent. This was followed by Chamoli District (4.8 percent), which has the largest area under perpetual snow. Similarly, forest cover area increased in Tehri (3.2 percent), Uttarkashi (2.2 percent), Pithoragarh (1.7 percent), and Nainital (0.7 percent). (See: Table 1 on page 23)

People's participation

Local people's participation in both decision-making processes and implementation of management plans is crucial for sustainable forest management. Local involvement is achieved in many areas. Extensive community grasslands and fodder trees are managed by local people themselves and they are also supporting the government forest department. During the eighties, the popular "Chipco Movement" was launched by local people in Uttaranchal and that movement spread throughout the state. People were able to preserve the forest of the region from the hands of the contractors appointed by the Forest Department for mass cutting of trees. In the basin, the Gram Sabha (village assembly), the lowest unit of governance in the federal system of India, works for taking decisions on the various developmental works including forest resource management. It has control over community forestlands and grasslands and it has managed to meet the needs of the people. At the same time, for timber requirements of the inhabitants, a policy was framed by the Forest Department. According to this policy, application is made to the Forest Department stating his or her requirement for timber. The department then will evaluate the application with the help of the Gram Sabha and finally allot trees based upon need.

Government Initiatives

The Soil Conservation Department (SCD) was established during the 1980's as a part of Forest Department. State forest is controlled by the Forest Department; community and private forestland is negligible. Extensive grazing land is owned by community people. People plant trees to meet their specific household needs, which often change over time, whether on private or community land. The role of the SCD is to plan for areas where less forest cover is found. Tree plantation according to local conditions is carried out by the department. The department also has the responsibility to check on the illegal felling of trees. There are more than five

Table 1: Forest cover change 1974-2001 (Percentage of geographical area)

District	Forest cover (five year average)					Forest cover change	
	1974-79	1979-84	1984-89	1989-94	1994-2001	(1974-2001)	
						EGR	%
Chamoli*	59.10	57.60	57.30	57.20	61.89	1.0017	4.8
Dehradun	56.50	65.80	64.89	64.45	62.60	1.0037	10.6
Pauri	60.89	59.02	58.70	58.30	57.50	0.9978	-5.6
Tehri	63.50	70.74	70.73	70.70	56.50	1.0011	3.2
Uttarkashi	85.04	85.01	85.01	85.40	86.93	1.0008	2.2
Almora*	50.33	49.35	49.12	49.11	49.29	0.9992	-2.1
Nainital*	48.22	48.41	48.71	48.72	48.58	1.0002	0.7
Pithoragarh*	47.18	46.96	46.97	46.96	48.00	1.0006	1.7
Uttaranchal**	59.17	59.80	59.67	59.63	59.93	1.0004	1.3

Source: Calculated from the secondary sources of Government records. * Chamoli District comprises Rudrapur District, Almora comprises Bageshwar, Nainital comprises Udham Singh Nagar, and Pithoragarh comprises Champawat District ** Data from Haridwar District not included. EGR: Exponential growth rate

sub-offices of SCD in each development block with one headquarter. Recently, most of the areas where complete depletion of forests had taken place in the past, reforestation has been possible with the help of SCD. These areas are located along the courses of small perennial streams. The Forest Bill (FB) of 1982 was successfully implemented and as a result of rigorous implementation, regeneration of forest is noticeable across the entire hilly area.

Discussion and conclusions

Tremendous depletion in forest cover areas in India has been noticed after independence where the forest cover area decreased from being about 21 percent in the 1940s to 19.7 percent in the 1990s. India as a whole registered tremendous growth in population including Uttaranchal State and depletion of forest land was obvious. Meanwhile in the Uttaranchal Himalaya, a 1.3 percent increase in forest cover was registered during the last three decades (1974-2001). There were various factors which led to this. The first factor was out-migration. People from rural hilly areas migrated to the other parts of the country for better living standards instead of extending their agricultural fields in forest land. The second factor was people's participation in conserving the forest. People felt the need of conserving the forest for their future. In the 1970s, large scale felling of trees was observed in this area, so the people started the 'Chipko Movement' against felling of trees. The third factor was government initiatives towards forest management where heavy fines were imposed on the community for illegal felling of trees. Due to these initiatives, an increase in forest cover was registered. Only in Dehradun District, was there a 10.6 percent increase in forest cover during the last three decades, even though the district is densely populated following heavy migration from all parts of Uttaranchal. The Forest Act of 1982 and establishment of SCD has also contributed to the conservation of forest in this hilly state. Reduced requirements of firewood and timber due to the availability of LPG for fuel and use of cement and bricks for the construction of houses has also paved a way for this increase in forest cover.

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Sikkim University: A new university in the eastern Himalayas

The Sikkim University has been established by an act of Parliament in July 2007 and fulfils a long cherished aspiration to have a higher institution of learning in the area. The eight month old University has just set up its office at 6th mile, Tadong, Gangtok with a small and highly committed team. The University has three major activities at this stage. They include: drafting rules, regulations, ordinances and statutes; designing academic programmes, admission policy, recruitment of faculty and other administrative staff members; and building and developing infrastructures.

The State Government has been very generous in providing all the basic facilities that is required for initiating the ambitious task of building a university of international standard. It is being designed to make it known for academic excellence and research, for its all inclusive institutional character and provide a strong instrument of regional development and integration. The main campus will be built at Yangang in south Sikkim.

The university expects to attract students and faculty members from both within India and neighbouring countries including Bangladesh, Bhutan, China, Myanmar, Thailand and Nepal. It is trying to bring in the best practices of academic programmes, teaching methods and curriculum designing both from within and outside India. It is examining various partnership programmes with private organisations for access to financial, academic and physical resources. It is expecting to start its teaching programmes from 2008.

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Natural Resource Management Based Micro-Enterprises Development in the Garhwal Himalayas

Ashok Pokhriyal and Laxmi Prakash Semwal

Micro-enterprise development is widely known for employment generation and local area development. During recent years, a lot of self-help groups have been formed by the government and non-government development organisations in the country under various schemes, but most of these groups have centered their activities on saving and credits. To examine the potential and analyse the problem of natural resource based enterprise development by these self help groups, a study in the Garhwal Himalayas area has been conducted and the following key economic factors observed:

- Organisations generally provided funding rather than integrated planning of resources, institutional development, or technical, marketing and entrepreneurial development training.
- On the basis of a sample survey of groups, potential natural resources planning needs have been identified. The livelihood system of group members needs to be linked with the group's activities. For example, for an agriculture based self-help group, it is necessary to look at the cultivation practices, agro-ecological conditions and possible diversification areas for improvements in income generation and productivity.
- Generally self-help groups are working as a saving and credit kitty requiring business organisation, institutional development and shared commitment to the cause. In the case study of groups in the Garhwal Himalayas, it is seen there are no business plans and members meet only once a month to collect savings and distribute loans to members. The micro finance system should be linked with the economic enterprises' development which requires planning of available resources, value addition in the present products, proper supply chain management and quality brand development for marketing of products.
- In the study areas, there is a lack of technical and management training. The skills of the groups observed are very poor as compared with existing market competitors. This results in the poor quality and sub-standard products of these groups. Along with micro finance support, the groups' technical and managerial capacities need to be enhanced to enable them to compete with other producers. Generally most of the groups are in rural areas where there are limited training opportunities, but this could be sourced through service providers, existing government development projects and self-help group promoting institutions.
- Finally, marketing products should be looked at in terms of value addition, quality, packing, processing and supply chain management which needs one-off financing. The major finding of this study is that for promotion of natural resource-based enterprises of self-help groups, one time bulk finance for basic infrastructure support and other common facilities is a key factor for economically viable groups. This finance could be repaid by the group or a federation of groups in the long term out of the profits generated from the enterprises.

Integrated model of micro finance and bulk finances for infrastructure and value addition studied in the Nogaun area of Uttarkashi district

An organic farming group was visited where it was found that a local non-government organisation, Shri Jagdamba Samiti, is implementing a project with the apple producing farmer groups with a combination of micro and bulk finance.

- The groups of apple producer farmers are financed for input supplies during the cropping season and the loan repaid by these groups after harvesting of apples. These advances are routed as micro finance to individuals.
- A common infrastructure for apple collection, grading, packing and pre-cooling has been set up by the organisation with the assistance of bulk finance from a company from the Netherlands which is supposed to be repaid in five years.
- Farmer groups have formed their own producer company and sell their produce to this company at 5 percent higher prices than the market price. After value addition (proper grading, packing and pre cooling), the company sells these apples at 20 percent higher rates.
- After deducting the operational charges of collection, the company distributes 50 percent of net profit to its farmer groups and the balance is utilised for repayment of the bulk finance.

This model of Nogaun Uttarkashi apple growers could be a suitable financing system to develop the local resources based on enterprise development.

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Shri Jagdamba Samiti is a voluntary organisation working in the Utrakhand Himalayas, India since 1991 in the field of sustainable agriculture promotion through organised farmers' groups.

Resource Management: Conflict, Use and Role of Women

C.L. Chowdhary



Girl collecting grass, Nepal. Photo: Marianne Heredge.

Women are regarded the primary resource users. Most of the responsibility for growing and collecting food, medicines, fuel, housing materials, providing cash income for schooling, health care and other family needs rests on their shoulders. They outdo men in terms of involvement in use and management of water, agriculture, livestock, forestry and fishery. However, they face exclusion and denial of equal sharing of benefits from natural resources (Upadhyay, 2005). Women in rural Nepal have a very close relationship with forests. They primarily collect fuel wood, which meets 95 percent of the cooking-energy consumption; and fodder and other forest products (FAO, 2008). Women as participants and decision makers, share the responsibility of planting, transplanting, weeding, harvesting, carrying grains to the mill for grinding, collecting wood, water and fodder. Their involvement is very significant in the care and management of livestock and poultry, as well as kitchen gardening.

Despite women's important role in agriculture, traditional social norms and customary laws, generally biased in favour of men, are barriers to women's equitable access to productive resources (Kumar and Hotchkiss, 1989). Girls are subject to widespread and at times, systematic forms of human rights violations that have mental, emotional, spiritual, physical and material repercussions during armed conflict because husbands and sons are caught up in the fighting and are unable to provide for their families (Mazurana and Carlson, 2006). The new role as primary provider exposes many women to further abuse. Conflict shatters the comfort of predictable daily routines and expectations. Women and girls are equally affected in a fragile environment where social services they once depended on, degrade or disappear (USAID, 2007). Besides the armed conflict, women in developing countries such as East Africa, spend up to 27 percent of their caloric intake in fetching 40-60 litres of water per day (Lewis 1994); village women have to travel eight to nine kilometres to collect firewood; 12.36 hours per person per day is spent on agricultural work in the hills areas of Nepal (Sharma, 1995). The women who spend eight hours a day gathering firewood are still doing that. Women are still subjected to domestic violence and employment of women remains limited to relatively few fields and low-paid jobs.

Women must not only be seen as passive victims of armed conflict (USAID, 2007), but as capable actors as well. Seven major women's roles in internal conflict can be seen: women as victims of (sexual) abuse, as combatants, in peaceful roles in the non-governmental sector, in formal peace politics, as coping and surviving actors, as household heads and in employment (Bouta and Frerks, 2002). The Beijing Conference 1995 concluded that unless the contribution of women to the environment and resource management is recognised and supported, sustainable development would remain elusive. Moreover, promoting women's participation in natural resource development activities by improving their access to and control over resources would make more effective women's networks for disseminating information to communities (USAID, 2007).

Case study of CECI- Sahakarya project

The Canadian Centre for International Studies and Cooperation (CECI) has implemented the Sahakarya ("Working together" in Nepali) project in five districts (Jumla, Dailekh, Surkhet, Baitadi and Dadeldhura) from

2003-08 and Jaivik Jadibuti (organic farming of non-timber forest products (NTFPs) in two far west districts of Baitadi and Darchula) from 2004-2005. The project area was in a conflict affected area of Nepal. The goal of the project was to contribute to poverty reduction in the Mid and Far Western Regions of Nepal. The project integrated community health and income-generating activities with the institutionalisation of community based organisations (CBOs).

Since 1996, when armed conflict started in Nepal, many people were displaced from the hills. This not only marginalised a large section of the population, but also led to basic human rights abuses. Since the beginning of the conflict, economic activities have slowed down. Usual effects of armed conflict on development projects included: low budget disbursements, difficulties in accessing public services such as health and education, scarcity of qualified staff and active organisations, low mobility, difficult transportation and lack of employment opportunities resulting in low socio-economic activities (Regmi et al, 2005). Within this challenging context, Sahakarya projects have succeeded in building a foundation of organised and self-managed civil societies in the targeted communities. This was possible through mobilisation of communities in capacity-building to address developmental issues by establishing and strengthening member-based organisations such as savings and credit organisations (SCOs); producers groups (PGs); community forest users' groups (CFUGs), water users' groups (WUGs) and mothers' groups (MGs). Among them, non-timber forest products (NTFPs) are managed in community forests and private land. District Federation of Community Forest Users Nepal (FECOFUN) implements activities in the community forests.

Approaches and coping with conflict

Given the intensity of conflict in the project area, Sahakarya adopted conflict and peace development related approaches to enhance the capacity of rural people to cope with the situation. During the peak intensity of the armed conflict in the area, most development projects withdrew their activities due to worsening security situation. Government bodies localised their programmes to areas surrounding the district head quarters. Sahakarya partners raised security issues such as being threatened by armed groups, donations being demanded, cross-firing, kidnapping and travelling alone in the village areas that they had to cope with in the emerging insurgency. Sahakarya introduced tools of peace and conflict impact assessment (PCIA), with gender and social inclusion (GSI), interest based negotiation (IBN), right based approaches (RBA), and community mediation (CM) which enhanced rural women's capacity to dialogue with combatants and disputants.

Implementation of gender equality and social inclusion policy at the community level enhanced the participation of women in community activities and decision-making, allowing inclusion of women and minority groups in all stages of the project. Some gender policies favoured pregnant and lactating women, subsidising food allowances to provide care where they had small babies with them. By arranging community level training rather than at a district level, this increased the participation of lactating mothers. Likewise, to enhance women's participation, Sahakarya relieved them from other pressing burdens at home and provided transportation costs (NRs 500) to carry project



Woman weaving, Langtang, Nepal. Photo: Marianne Heredge.

materials and equipment. To encourage women's participation in the CBOs and their decision making bodies, Sahakarya provided NRs 100,000 for a CBO office building on condition the CBO met a minimum criteria of at least 50 percent women as general members and it at least 40 percent of any decision making body. To expose community people to the outside environment and marketing opportunities, Sahakarya supported excursion tours. To ensure women's participation in such events, Sahakarya required that at least 50 percent women participated to get the tour programme approved.

Women in management and utilisation of non-timber forest products (NTFPs)

Women from remote areas need a basic education and skills to generate income. It is important to understand that women have equal potential and capabilities to take on responsibilities focusing on women priority activities. Participation by women was encouraging in cultivating, managing and marketing of NTFPs in the project area.

Over five years in the project districts in the case of NTFP production, collection and marketing, of 3,508 cultivators, 51 percent are women and out of 1,976 entrepreneurs, 30 percent are women entrepreneurs. Similarly, 62 percent are engaged in collection and 38 percent in production.

Women's participation by caste and ethnicity shows involvement is highest amongst Janajati women than Brahmin-Chhetri, Dalit and others, because of their knowledge on forest related products. They have a high

mobility. There are no cultural barriers in their community to go out of their houses.

Women are involved in marketing of NTFPs, motivated to work effectively by the development of various skills through training and other capacity building programmes. Women's involvement in NTFP trading has increased from 396 (in 2005) to 444 (in 2006) (CECI, 2004 and 2007).

Conclusions

Even during the social and armed conflict period, women actively participated in managing and utilising natural resources: community forests, NTFP production and marketing, bee-keeping, off-farm vegetable production, kitchen gardening, goat-raising and off-farm enterprises. The majority of women member-based groups lead women in decision-making. However, keeping a token number of women in male-dominated groups looks can be more like a ceremonial role, with women making the quorum of the group instead of actively participating in major decisions. For the success of projects, more resources are required to increase women's participation. Community-based training and orientation and practical sessions are effective in enhancing women's skills. Increased income reduces most of the domestic conflicts and community based empowerment increases the capacity to raise a voice against armed conflict.

References

- Bouta, T. and Frerks, G. 2002:* Women's Role in Conflict Prevention, Conflict Resolution and Post-Conflict Reconstruction: Literature Review and Institutional Analysis. Netherland Institute of International Relations, Clingendael, Conflict Research Unit, Nov 2002. <http://www.conserveafrica.org.uk/women.html>
- CECI 2004. Progress Report - Conservation of Medicinal and Aromatic Plants for Sustainable Livelihood in Baitadi District of Nepal.
- CECI 2007.* Final Technical Report - Medicinal, Aromatic and Natural Dye Plants for Sustainable Livelihoods in Nepal (MADP), March, 2007
- FAO, 2008.* General profile of Bangladesh, Bhutan, Cambodia, China, India, Lao PDR, Nepal, Pakistan, Sri Lanka and Vietnam. <http://www.fao.org/sd/WPdirect/WPre0110.htm>
- Kumar, S.K. and Hotchkiss, D. 1989.* Consequences of Deforestation for Women's Time Allocation, Agricultural Production and Nutrition in Hill area of Nepal. Research Report NO 69. International Food Policy Research Institute, Washington D.C.
- Lewis, N. 1994.* Safe womanhood: a discussion paper. International Federation of Institute of Advanced Study, Toronto, ON.
- Mazurana, D. and Carlson, K. 2006.* The girl child and armed conflict: Recognising and addressing grave violations of girls' human rights. United Nations Division for the Advancement of Women (DAW). In collaboration with UNICEF Expert Group Meeting, Elimination of all Forms of Discrimination and Violence Against the Girl Child, Florence, Italy, 25-28 September 2006

Regmi, S., Monette, M. and Thapa, P. 2005. Integrated Multidisciplinary Community Development Approach for Poverty Reduction: A Sahakarya Approach

Upadhyay, B. 2005. Women and natural resource management: Illustrations from India and Nepal. *Natural Resources Forum*, Volume 29, Number 3, August 2005, pp. 224-232(9). <http://www.ingentaconnect.com/content/bpl/narf>.

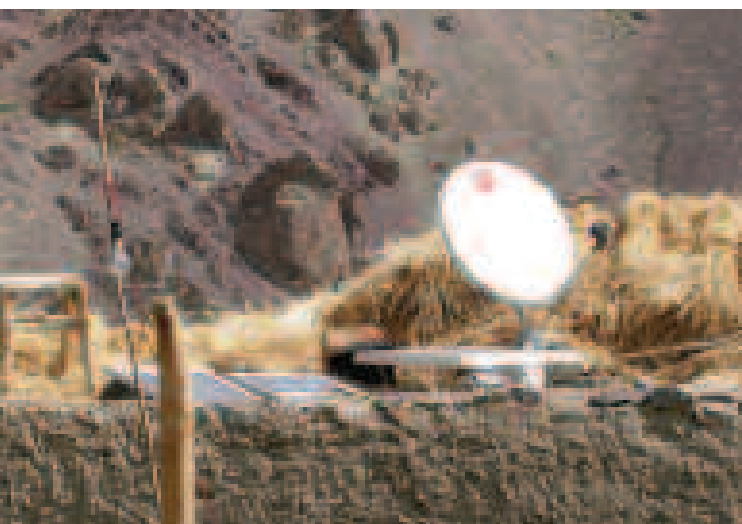
Upreti, B. 1999. A study on SDC approach of management of Natural Resource and Biodiversity: Experiences and Lessons Learned from Nepal

USAID, 2007. Women and Conflict, an introductory guide for programming: http://www.usaid.gov/our_work/cross-cutting_programs/conflict/publications/docs/cmm_women_and_conflict_toolkit_december_2006.

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Earth Hour, the Power of One and Shaping Nepali Environmental Thinking

Surya B. Prasai



Solar energy, Ladakh, India. Photo Agustina Barros.

March 29, 8.00 p.m. local time was the day to reckon with the Power of One. Whether in Caracas, Kathmandu, Manila, or Washington DC, it makes a difference to see millions of people around the globe, raise their global environmental consciousness by turning off the lights for one hour. The net effect of turning off the light even for one minute would be great; an hour would be

environmentally significant. As an individual act, it could give new meaning on how you care about the environment around you, your extraordinary potential as an Earth Saver.

The Power of One was exhibited on Earth Hour to remind the global society of the need to manage our resources directly e.g. the rain forests, the river water that flows closest to our village, town or city, the forest lands, national parks, the tilled or barren land, energy whether it is produced using hydro electricity, kerosene or diesel; natural resources such as forest wood, leaves and coal. The Earth Hour also engendered our thinking, for instance: the role of women in our households, how they help save electricity or other precious fossil fuel resources while cooking for the entire family. It was also a day to remember the problems that arise from the unbalanced management of resources, conflicts of interest or conflicts over resources, resource management-induced disasters and how communities can respond to them.

Last year, on March 31, 2007, 2.2 million people and 2,100 businesses in Sydney, Australia, captured the attention of people around the world by simply switching off their electricity. Many Australians turned out at Sydney Harbor for a beautiful evening stroll, using it as a time of reflection on what can be done to conserve non-renewable energy supplies at the current non-sustainable pace. In Nepal, this year, some of the country's environmentalists plan to do the same in their local neighborhood diverting everyone's focus to the Power of One, although Nepal is already facing several hours of load shedding each day, due to short sighted energy planning in the eighties and the nineties. According to Australian environmentalists, the simple-act-turned-massive-collective-measure reduced the city's energy consumption by over 10 percent—the equivalent of taking 48,000 cars off the road for an hour.

According to Jim Hacker, a well known American environmental writer, the people of the United States represent less than five percent of the world's population, but consume 24 percent of the planet's resources. He believes, if the rest of the world rose to the U.S. level of consumption, four additional planets would be needed to supply the resources and absorb the waste. Hacker believes though, America can level off without living "off the grid".

If thermostats in every American household were lowered by 1 degree Fahrenheit, the nation would save 230 million barrels of crude oil—enough to fill an oil tanker 400 times, the amount that's coming in from Iraq every year. If 40 million Americans living in two American states, spent one minute less each day in the shower over their lifetimes, they would save 4 trillion gallons of water—the total amount of snow and rain that falls over the entire lower 48 United States in a day. If every American household turned off the lights for one hour at 8 p.m. local time on March 29 during the World Wildlife Fund's Earth Hour 2008 (<http://www.earthhour.org>), it would prevent more than 16,610 tons of carbon dioxide from being released.

This year's Earth Hour took place on a larger scale globally. Millions of people around the globe, in cities large and small, switched their lights off for one hour.

In Nepal's context, the Power of One has a special meaning on a different plane. The Bali meeting on Global Climate Change focused on four main issues that matter a lot to Nepal: global climate change and its impact, mitigation,



Solar water heating, Langtang, Nepal. Photo: Marianne Heredge.

adaptation, financing and technology adoption. In the post-Bali period, Nepal's environmental development received a definite boost from the World Bank in the form of USD 514,786 for Nepal's role in reducing emission of greenhouse gases. Such incentives can work wonders for those who advocate the Power of One! It can propagate Nepali environmental education, rechanneled to push biogas and alternate energy consumption projects in Nepal at a larger scale, and launch bio-gas and solar energy alternatives.

There are three major threats to the Nepali environment in 2008 and beyond: one, the increased chemical pollution of Nepali rivers has created a future resource grave for those living by its banks; two, the near 46 percent aviation market lurch has seen over-extensive use of Nepali open skies affecting the ozone and increasing carbon level; and three, cutting down trees for fuel wood by 46 percent of the Nepali families still living below USD 2 a day has meant over dependence on forestry resources thus posing a serious environmental threat to the Himalayan ecology. It was felt in the Bali Conference's sidelines that it was time

that countries such as Nepal, Maldives and Fiji accelerated funding and coordination efforts to make poverty reduction programs environmentally viable. This is where the Power of One comes in handy by encouraging matching individual Nepali efforts to the global environment crusade.

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The Role of Women in Using Natural Resources

Nitin Chauhan

In today's societies, whether developed or third world countries, the role of women is important in developing or maintaining societies. In both third world and developed countries, they work more than men and are more responsible. In the rural and tribal societies of North India (or for that matter anywhere in India), it is the women who manage the household from cooking food to bringing water or wood which is used as fuel. Natural resources are mostly managed by women in the household. This can have disadvantages to the environment due to lack of education in terms of use of natural resources and minimising the impact on the environment.

In many remote pockets of the Himalayas, the natural environment is facing big changes and due to pollution, crops have started to fail and communities are suffering major problems. The suicide rate in India amongst farmers is very high, the sole reason being crop failure, when the farmer is often unable to pay back the loans they have taken out from the bank or moneylenders. In many places, farmers now are trying to find other sources of income which certainly will bring changes to the agriculture sector and the price of consumable goods will rise.

This will be a major set back to the still developing countries since the supply of food will be short. UNESCO is suffering major cuts on its projects to feed deprived communities since the agriculture industry is suffering major turmoil.

If educated on environmental impact and new techniques, women can bring a lot of reform to any community. Due to the pressures of present day population, it is the environment that suffers most from the lack of education among people in the villages. There is ignorance about causes of floods and other major weather changes, where if women are educated, more could be done to protect the environment since the women are the more responsible in any community.

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25 Years for Mountains and People - ICIMOD Celebrates its Silver Jubilee

ICIMOD in 2008

In 2008, the International Centre for Integrated Mountain Development (ICIMOD) celebrates 25 years of working for mountains and people in the Hindu Kush-Himalayan region. ICIMOD is an independent regional knowledge, learning, and enabling centre serving eight member countries in the Hindu Kush-Himalayan region, as well as the global mountain community. Founded in 1983, ICIMOD is based in Kathmandu, Nepal, and brings together a partnership of regional member countries, partner institutions, and donors with a commitment for development action, to help secure a better future for the people and environment of the region. Under its new strategy and medium term action plan 2008-2012, ICIMOD is working towards a future where the mountain population of the greater Himalayas enjoys improved well-being in a sustainable global environment. The new strategy focuses on understanding the impacts of climate change, and finding ways to strengthen people's resilience and support adaptation.

ICIMOD is celebrating its silver jubilee with a year-long series of events focused on raising awareness of the impacts of climate change and the need to enhance the adaptation and resilience of mountain communities as well as ICIMOD's way forward. The last five years have seen an increased awareness of how climate change directly impacts livelihoods, as well as the impact it has on natural hazards. ICIMOD is taking this opportunity to enhance the role played by the Centre in the region, and among global stakeholders, in promoting coordinated efforts to face the challenges of climate change.

We also expect that the 25th Anniversary celebrations will make ICIMOD better known to a larger audience - both regionally and globally. There will be additional awareness campaigns and in-house reflection on the contribution ICIMOD makes in the region and the global arena. Finally the celebration will be used to launch the ICIMOD Foundation, which is being developed as a basis for autonomous funding. We will approach the international corporate world as potential sponsors for ICIMOD and its programmes.

The Celebration Calendar 2008 can be found at <http://www.icimod.org/home/page.php?p=25th>

Eco Everest Expedition 2008

The Eco Everest Expedition 2008 is one of the flagship events of the 25th Anniversary celebrations. The expedition is the brainchild of Dawa Steven Sherpa of Asian Trekking shocked by the realisation of what climate change will do to his people, to Sagarmatha National Park, to the Khumbu, and beyond. Dawa and Asian Trekking have joined with ICIMOD and UNEP in a plan to use climbing to draw the world's attention to the problems resulting from climate change and the need to help the people of the region, and the world. The expedition is also supported by the Nepal Ministry of Tourism and Civil Aviation, Tourism Board, and Department of National Parks and Wildlife Conservation and various local organisations.

The expedition has been endorsed by the renowned Japanese alpinist and conservationist Ken Noguchi, who is the senior advisor, and other world renowned mountaineers including Reinhold Messner, Conrad Anker, and Peter Habelar, and is also supported by numerous local, regional, and international organisations.

The Eco Everest Expedition 2008 will draw attention to the melting glaciers, potential risks of glacial lake outburst floods, and other impacts of climate change, but just as important, scientific expeditions are being carried out in parallel to monitor glaciers and glacial lakes in the region and gather information that can be used to help communities and develop early warning systems. ICIMOD is conducting a scientific expedition that will conduct field investigations to assess the present status of the Dig Tsho glacial lake, which had a devastating impact when it burst in 1985, and will implement a pilot early warning system for Imja lake (in collaboration with the Department of National Parks and Wildlife Conservation and Keio University of Japan), one of the fastest growing lakes in the entire region. ICIMOD in collaboration with local organisations will hold workshops to raise awareness of the risks and look at ways of reducing impact; and will provide information to international groups in support of calls for action.

A Trust Fund has been set up, managed by ICIMOD, which will be used to support development of early warning systems for the local communities, scientific investigations that will help assess risks, monitoring of the melting glaciers, and removal and disposal of waste in eco friendly ways.



Celebrating 25 Years of ICIMOD at Everest Base Camp: Andreas Schild presenting the flag to Dawa Steven Sherpa. Photo: Sarad Joshi.

The Eco Everest Expedition 2008 was launched at the Everest Base Camp on 18 April 2008. To mark the start of their climb, a traditional Buddhist religious ceremony or 'puja' was conducted. Dr. Andreas Schild, Director General of ICIMOD, handed over the ICIMOD Silver Jubilee flag to Dawa Steven Sherpa, the leader of the climbing team, to take to the top of the world. On the same occasion the Eco Everest Information Centre, and a repeat photography exhibition, '50 Years of Change - Glaciers, Landscapes, People and Resilience in the Mount Everest Region, Nepal' was also opened at Everest Base Camp. The photographs demonstrate the changes in the climatic, cultural and physical landscape of the Khumbu over the past half century. Dr. Schild stressed the need for immediate action focusing on understanding the impacts of climate change and finding ways to strengthen people's resilience and support adaptation. A press release was issued from the ICIMOD Headquarters in Kathmandu, Nepal. Scientific reports, dispatches, photographs and other updates relating to the Eco Everest Expedition 2008 can be read at this site: <http://www.ecoeverest.net.np>

Interviews: Thoughts on the Eco Everest Expedition 2008

Marianne Heredge and Ujol Sherchan

Dr Andreas Schild, Director General of ICIMOD, gives some of his thoughts on climate change in the Himalayas; Dawa Steven Sherpa, Expedition Leader, explains what gave him the idea of the Eco Everest Expedition and his thoughts on lessening the negative impacts of mountaineering on the fragile environment in the mountains; and Samjwal Bajracharya, Geomorphologist/GIS Analyst at ICIMOD describes some of the work being done by ICIMOD on climate change in the Himalayas.

Interview with Dr. Andreas Schild



Dr. Andreas Schild at Everest Base Camp. Photo: Samjwal Bajracharya.

MF: Who had the idea of going to the top of Everest to publicise the effects of climate change?

Andreas: The initiative came from Dawa Steven Sherpa, who wanted to promote environmental principles in trekking and wanted to check how scientifically this made sense. ICIMOD decided to support the expedition: we favour advocating environmentally friendly expeditions like rubbish collection; at the same time it is an opportunity to look at the critical glacial lakes - Tsho Rolpa and Imja which are particularly critical areas.

I would like to see how far certification of eco-friendly expeditions could be used. If it is just up to the government there are problems implementing it. The idea is that each mountaineer pays USD 2,000 into a trust fund that is used to build an early warning system for glacial lake outbursts, improving awareness and preparing the local community. ICIMOD could manage this trust fund. The 25th anniversary of ICIMOD and photo exhibition are being combined to show at Everest Base Camp, using it as an opportunity to appeal to the international community. Everest is a national symbol, but is representative of what is happening in mountain systems of the world.

The most dramatic increases in temperature have occurred here. Everyone looks at the glacial lakes and melting glaciers, but they are the tip of the iceberg, representing a larger, dramatic change with consequences downstream.

The attention we can get from the highest mountain can be used to alert of the consequences downstream, including the vulnerability to flash floods and increased incidence of droughts which all impact livelihoods.

MF: What changes have you seen personally that might be attributed to the effect of climate change in the Himalayas in Nepal?

Andreas: The mid-hills area used to be the main habitat of people and the impact of climate change is not very visible. Rather, the prevailing influences here are globalisation and migration. Young men are working abroad or only have the idea to leave. This has social consequences, impacting roles and changes in gender relations. When I walk in the hills and compare with thirty years ago however, I do not share the pessimism that nothing has changed. I am impressed and see important changes such as the composition of crops, such as an increased use of potatoes and more vegetables. Thirty years ago goats were running free and were local, traditional species. Now there is stall feeding and new species. Walking through the forest, thirty years ago there were shrubs unless you were near a temple. Now there are trees. There are piles of firewood outside people's homes now. Sanitation and rural electrification did not exist then. Poverty persists as modern mechanisation has not been possible, so growth is very limited. Through migration and young people going to school, there are other expectations. Before people did not know anything beyond their immediate environment. Women before were not in self-help groups and the position of women now has changed. There is greater political virulence and dynamism in the hills.

There have been more big events like droughts and floods and farmers have coped fairly well. There is a degree of resilience and adaptation in rural and mountain communities. They still have this resilience, though it is threatened by globalisation.

MF: How far do you think awareness of the problem of climate change is really understood?

Andreas: I believe that there is more awareness in industrialised countries. In rural countries like Nepal, change is perceived but not always recognised as climate change. In Nepal particularly, the years of civil war have been perceived as an overwhelming experience. Those closer to the higher mountains seem to have greater awareness in terms of less snow coverage. The Sherpas are worried that there is no snow in the winter, so will we get water? There the awareness is much more acute.

MF: How do you think ICIMOD can heighten awareness of the problem and who to?

Andreas: ICIMOD has not done much publicity and tends to work with a small group of specialists. We should work more with policy makers and planners. We need to translate our publications to make them more easily readable by non-experts. We cannot remain a closed scientific organisation with closed doors but need to help partners in the field in practical projects. We should have an influence in policy settings; we should show options and constraints; we should be convincing. If we can add an economic and social dimension, this helps convince the development relevance in the eyes of stakeholders.

We cannot change policy as we are not part of the policy decision makers. Information needs to go not just to policy makers but NGOs and communities to promote awareness, supporting them with facts and figures so that they can have influence. Global temperature will continue to rise in the next hundred years, so we have to enhance resilience and promote adaptation. Adaptation calls for situation-specific measures. A specific set of measures are needed for mountain areas and this specificity needs to be clear to the global community. Mountain systems are particularly vulnerable. They are the water towers all over the world, but the Hindu Kush Himalayas are the water towers of Asia. There will be an increasing water crisis and the next big issue will be over water availability.

We have to be aware of what is happening in the Hindu Kush Himalayas not just for 100 million people but for all those in the river basin of the ten larger river systems, where there are 1.3 - 1.4 billion people living in these water basins. Indirectly, taking food and energy production into account, this impacts over 3 billion people.

A specific mountain focus is needed and we are calling public attention to this. I would like to walk to Everest Base Camp if this can help make this statement.

Interview with Dawa Steven Sherpa



Dawa Steven Sherpa talking about rubbish collection on Everest. Photo: MFS.

Dawa Steven Sherpa manages Asian Trekking, a mountaineering and trekking company in Kathmandu. His Sherpa roots are in Khumjung, on the way to Everest.

MF: What gave you the idea of this expedition?

Dawa: Last year when I was crossing the icefall after having climbed Everest, I met some frightened Sherpas coming down who told me to go back. They persuaded me to go back with them as the ice was melting. As I turned to go down with them, the icefall behind me - where I would have climbing if I had continued - collapsed. If I had continued, I would have died there. There were many others still up on the mountain and I felt it was like a warning. Our Sherpa cook has been on the mountain for 25 years and said it was the hottest season he had ever experienced.

So I felt I had to do something. There is something very

wrong that so many people's lives were at risk. Three of Asian Trekking's Sherpas died last year. The glaciers are melting and the lakes are the biggest threat to Sherpas' lives, livelihoods - everything if Imja bursts. Its more than just the icefall, as it threatens all mountain life there. So I resolved then to do something the next year. I thought, let's raise awareness using Eco Everest Conceptual. I wanted to fight for a vision. I didn't know how at that stage.

I opened a bakery at Base Camp. Most people come in for tea and apple pie. So I thought this was the opportunity for something - to publicise and use that. By chance I met Basanta Shrestha from ICIMOD and mentioned my idea and suggested sponsorship which is how we became partners.

There are two aspects to the expedition. One is to climb commercially with 12 paying clients. Some are very accomplished climbers, other less so. There will be 14 Sherpas on the expedition, including a Sirdar and a technical director who will be the manager at Base Camp looking after everything there.

The research expedition - ICIMOD is not going to the top - will be opening the exhibition and some are carrying out research on the glacial lakes.

MF: How do you feel about climbing Everest?

Dawa: I climbed Everest last year, in May. I will be going up with another famous Sherpa, Apa Sherpa to summit for ICIMOD. People say there are too many expeditions to Everest, but it's a major source of income for thousands of people, so a decrease would destroy the local and national economy. It's not the number of people but the management that is a problem. An eco code of conduct is needed. There are pressing things like the amount of garbage up there. I'm paying every Sherpa a sum of money for every kg they bring down. If there is too much snow so they can't see the rubbish, this money will be there for next year. There are already a thousand Sherpas on the mountain, so this is an incentive for them to earn some money.

There's a lot of human waste. We're taking clean mountain cans to bring down human waste and individual bags which we'll test out. We have to see what cultural sensitivities there may be if Sherpas are unwilling to carry the waste cans. The first cans will be carried by myself and the Sirdar, so we hope to set an example. We'll be using solar power for cooking and use this conspicuously to draw attention to its use. The solar dish concentrates the sun. We'll be using these at Base Camp.

MF: What are your thoughts on how tourism can be made more environmentally friendly?

Dawa: A negative way of looking at tourism is that it is just seen as a way of earning income, with it seen to be ignoring cultural problems and being too commercialised. I see nothing wrong with working for money, but many ignore the fact that to make money, there should be principles. The problem is that many places are undeveloped and with development, tourism will come and without a model, they will go down the path of Namche Bazaar. I come from Khumjung and have been working with people there. Khumjung is lucky as the trekking route bypasses it. Kunde

Interview

and Khumjung are very beautiful. They are trying their own programmes on their own initiative rather than through NGOs. The villagers want to do things and have come to me with ideas.

We have been promoting homestays in the village. The village has lodges but the villagers also see the attraction of homestays to bring people to the village. They are also building a visitor's centre. It is being suggested that a climate centre is set up in Khumjung. The Green Valley Project was an idea where the villagers decided to paint their roofs green - all the same colour - 'Khumjung Green'. There are a lot of very big rocks around there. The young people of the village have nothing to do, so we developed some rock climbing routes with the youngsters there actively involved in this. We got an American donation of climbing equipment that helped a lot. So these are the sorts of projects that are being developed to make tourism in this area more environmentally friendly and help local people.

Interview with Samjwal Bajracharya



Samjwal Bajracharya. Photo:ICIMOD.

Samjwal Bajracharya is a Geomorphologist/GIS Analyst working in MENRIS (Mountain Environment and Natural Resource Information Systems) at ICIMOD.

MF: What kind of work has ICIMOD done in the Everest region over the years?

Samjwal: ICIMOD's work in the Everest region goes back to 1985, with the publication of a monograph on the Dig Tsho Glacial Lake Outburst Flood. It was written by Dr. Jack D. Ives. But ICIMOD's inventorying of glaciers, glacial lakes and glacial lake outburst floods in the Hindu Kush-Himalaya started only after 1999, thanks to UNEP and Asia Pacific Network for Global Climate Change (APN). From 1999-2002, ICIMOD conducted inventory studies in Bhutan and Nepal, and from 2002 onward in major basins of India, Pakistan and China. ICIMOD published a book, "Impact of Climate Change on Himalayan Glaciers", which was launched by Executive Director of UNEP Achem Steiner in Norway in June 2007. The inventory studies and the book have garnered enormous attention ever since and have been oft-cited. The main research finding - that glaciers are retreating at alarming rates across the Himalayas - touched a nerve. Now the

world is trying to figure out how to deal with the implications of retreating glaciers. ICIMOD has also worked with Ev-K2-CNR on land cover change in high altitude wetland areas of the Everest region and with several partners on Vulnerability GLOF Simulation of Imja as well as real time monitoring of Imja lake, just to cite a few.

MF: What is ICIMOD's main role going to be in Eco-Everest Expedition 2008?

Samjwal: An ICIMOD team will be going to the base camp to kick off the Eco Everest Expedition 2008, which is being organised to celebrate ICIMOD's 25th Anniversary. Mr. Dawa Steven Sherpa and his team are scheduled to summit Everest at the end of May carrying an ICIMOD flag, and read out a message to the world. This is a symbolic gesture on the part of the Eco-Everest expedition team to draw the world's attention to the many problems facing the Everest region, not the least garbage and retreating glaciers.

ICIMOD will set up an information booth at the base camp from April 6 - June 6 to impart information on glacial lakes and GLOFs to researchers, mountaineers, and local communities so that they are better informed and prepared. It will kick off a GLOF Awareness Workshop in Namche on April 25. ICIMOD will also lead a team of researchers to Dig Tsho to observe the impacts of the 1985 GLOF and later to Imja to observe the rapidly growing glacial lake.

In the future, ICIMOD intends to establish an internet-based early warning system in the villages that are likely to be impacted by GLOFs and train the local communities to manage it themselves.

MF: As far as climate change studies is concerned, how do you see ICIMOD positioning itself in what is fast becoming a "crowded field"?

Samjwal: ICIMOD has over the years accumulated volumes of data and knowledge on what's going on in the geo/physical mountain environment of the HKH region. Its work on glaciers, glacial lakes and GLOFs has filled a long-felt gap to a large degree. ICIMOD works with partners and governments in 8 countries of the HKH region. It also works with partners from other parts of the world. ICIMOD, therefore, is in an enviable position to forge regional cooperation to conduct transboundary studies, implement initiatives at regional level, or upscale pilots. This is ICIMOD's comparative advantage. I see ICIMOD carving a niche for itself as the "climate change hub" for all of the HKH region, and indeed of South Asia in future.

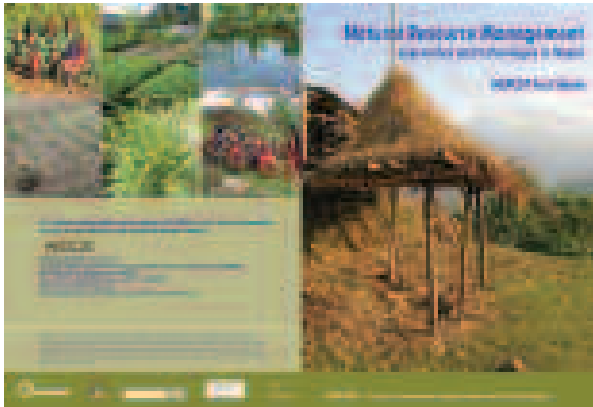
Eco Everest Trust Fund

The concept behind the Trust Fund is not to let the Eco Everest Expedition 2008 become a one-off event. It aims to leave the people of Khumbu better equipped at coping with adverse effects of climate change.

For anyone interested in contributing towards the removal of waste from high mountain areas at USD 1 per 1kg (in multiples of 10kg, please visit <http://www.ecoeverest.net>. np)

Join the Eco Everest effort and contribute directly to the initiatives mentioned above!

Natural Resource Management – approaches and technologies in Nepal: NEPCAT Fact Sheets



ISBN: 978 92 9115 087 8

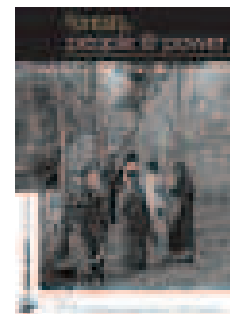
This publication can be downloaded from ICIMOD's Books Online (<http://www.books.icimod.org>)

Thirty technologies and approaches from the Nepal Conservation Approaches and Technologies (NEPCAT) database, are documented and are being published as printed fact sheets to make it easier to share with a wider audience. The fact sheets are designed to support the efforts of rural development, especially in Nepal, and provide impetus and ideas for decision makers, development actors, and land users. They cover adaptations of methods and new options for land use and rehabilitation and growing and processing crops that increase productivity and support income generation. Users are encouraged to print out, copy, and distribute the sheets in any form that facilitates sharing. All new contributions to the database and fact sheets are welcome. The sheets are also available on a CD-ROM.

Factsheets cover a wide range of topics: on improving terraces with farmers, farmer-led experimentation, integrated plant nutrient systems, drip irrigation, integrated watershed management for landslip and stream bank stabilisation, rehabilitation of degraded communal grazing land, improving drinking water quality, improved cattlesheds for urine collection, improved terraces, legume integration, organic pest management, low cost drip irrigation, improved compost preparation, better quality farmyard manure through improved decomposition, improved farmyard manure through sunlight, rain and runoff protection, landslip and stream bank stabilisation, rehabilitation of degraded communal grazing land, gully plugging using check dams, System of rice intensification (SRI), black plastic covered farmyard manure, drinking water quality improvement through conservation measures, rooftop rainwater harvesting system, polypit nursery, low cost micro-sprinkler irrigation, plastic-lined conservation pond to store irrigation water, cultivation of fodder and grasses, urine application through drip irrigation for bitter gourd production.

Forests, people and power: The political ecology of reform in South Asia

Edited by Oliver Springate-Baginski and Piers Blaikie



The book examines reform in forest management policy in India and Nepal, in particular focussing on the three major Indian states of Orissa, West Bengal and Andhra Pradesh and the mid-hills and plains or Tarai area of Nepal. Much policy debate revolves on the role of local people in forest management. 'Participatory forest management' or PFM refers to any policy that claims to be participatory and some of the concluding chapters examine the purposes of participation in various contexts. Many claims to 'participation' are made for many different reasons, whether by policy-makers, activists, politicians, funding agencies, forest users - who range from landless tribal people to village elites.

Since the mid 1990s there has been much literature about how the promises of participatory forest management reform has not been fully realised. The book argues that participation in forest management is justified on the basis of social justice and law because forests, until recently, have provided major support for rural livelihoods before being undermined by state control at the expense of local people and their traditional rights of access and use. The process of the state undermining local rights continues and even sometimes under the guise of PFM. A couple of chapters in the book address why policy continues along this path and why reform is so difficult.

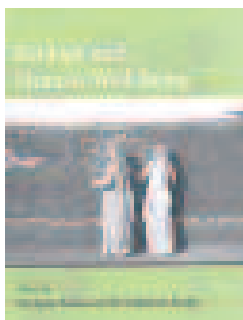
The book describes how there has been a long struggle between the state and different sectors of civil society and local people over the control, management and use of India and Nepal's natural resources, especially over what are classified as forest lands and resources.

New issues have emerged in recent years in forest policy reform debates, supported by international agencies, intellectuals and the increasingly marginalised sections of society such as Dalits and castes in Nepal and India. All focus on how basic needs can be provided for from the forest and the participation of local forest users (especially poorer groups) in forest management. PFM has been the main focus of official policy reform in different guises. The policy also often coexists uncomfortably with local people's informal and traditional forest management practices.

The authors have taken a less conventional approach by adopting a middle way between the academic and professional, combining a discursive approach with empirical evidence and hypothesis testing. All of the questions raised in the book are political and the framing of hypothesis are shaped by a particular political stance.

Forests, people and power: The political ecology of reform in South Asia. Edited by Oliver Springate-Baginski and Piers Blaikie. Earthscan 2007 London and Sterling, USA. ISBN: 9781844073474 £65

Reviewed by Marianne Heredge (m.heredge@mtforum.org).



Ecology and Human Well-Being

Parthasarathi Mondal

Ecological economics is fast emerging as an alternative framework of natural resource management in a globalising world. This volume, based on some of the papers presented at the Fourth Biennial Conference of INSEE at Mumbai in 2005, seeks to contribute to an understanding of the Indian subcontinent scenario by conducting an in-depth discussion on section-wise themes related to ecological and social resilience, ecosystem services and quality of life, policy reform for sustainable development, valuation for ecosystem changes, communities and collective action.

In the first section, Z. A. Islam narrates the detailed measures which riverbank erosion causes in Bangladesh before, during and after their displacement from their original homelands. R. Nallathiga shows how land and water degradation in Andhra Pradesh is conditioned by natural, anthropogenic and socio-economic factors. J. Sathyapalan and S. Iyengar discuss how over-exploitation of groundwater leading to salinity affects the Gujarati society. In their effort to reconcile strong with weak sustainability, B.S. Sri and M.S.V. Prasad re-examine the concept of total capital from the perspective of ecological economics and recommend the need for improved institutional and policy support.

In the next section on ecosystem services and quality of life, A.C. Gupta and R.N. Bhattacharyya integrate an economic biodiversity index and environmental quality variable under different biodiversity scenarios in the case of fisheries in West Bengal to show the need to minimise the conflict between conservation and profits. A somewhat similar conclusion is reached by K. Gupta et al in the case of fisheries in West Bengal and Orissa. A. Shah works out a local and participatory methodology to balance biodiversity loss and economic costs in the context of Gir Protected Area, Gujarat.

In the section on valuation of ecosystems, D. Mondal et al work out a detailed methodology to quantify wetlands in West Bengal and the rest of the papers here extend their efforts towards valuation of urban wetlands, mangroves in coastal Orissa, and forested areas. In this context the detailed discussion of Index of Sustainable Economic Welfare in B. Bley's paper is noteworthy. The papers on community and natural resources management which follow investigate various issues related to human-forest interaction, roots of collective action amongst private landowners and public land users, and the role of people's values on natural resource management. P. Sudha et al discusses these issues in the context of joint forest management in Karnataka whilst H.N. Chanakya et al critically examine - through the study of food security in Tamil Nadu - to what extent India's policies favour community participation. S.C. Srivastava's paper shows how these policies favour the market economy, and Z. Hussain

highlights these issues by doing a comparative study of fisheries in Kolkata, and tiger reserves in Rajasthan and Karnataka.

The papers in the last section insist on policy reforms which would make economic development come to terms with 'limits-to-growth' and thus promote sustainable development. There is an emphasis on locally sensitive planning and management of resources although it is noticeable that the paper by S.V. Subramaniam calls for strengthening the "distributive governance of existing sectoral departments". This book is a valuable contribution to the debate on natural resources management from the ecological economics perspective. It is likely to appeal to both practitioners and academicians alike.

Edited by Pushpam Kumar and B. Sudhakara Reddy. 2007, New Delhi, Sage Publications Pvt. Ltd. £45. ISBN: 0761935533

This book was reviewed by Parthasarathi Mondal (pmondal@tiss.edu) from the Centre for Development Studies, School of Social Sciences, Tata Institute of Social Sciences, Mumbai, India



Nepalmaa Biodiesel ko Kheti (Jatropha Handbook)

Dr. Narayan Chaulagain

Biodiesel is gaining worldwide popularity as one of the sustainable solutions for the growing threat to environmental degradation, energy security and rural development. Recent environmental and economic concerns have prompted resurgence in the use of biodiesel throughout the world. Considering all the options available among non-edible Tree Bearing Oil (TBO) seeds, *Jatropha curcas* has been identified as the most suitable seeds. Influenced by the many attractive features of *Jatropha curcas*, there has been unprecedented enthusiasm for planting of *Jatropha* as an energy crop by a good number of countries. The low cost of seeds, high oil percentage, small gestation period, growth on fallow and marginal land in both low and high rainfall areas, convenient plant size for collecting seeds and the high degree of intercropping potential to maximise returns make it popular.

Considering all these things and influence of *Jatropha* activities in neighboring countries, Nepalese farmers are eager to grow this diesel crop, even without reliable and authentic information. Numbers of NGOs/INGOs and private sector organisations are showing a keen interest to enter in this sector. Mr. Parbakhar Poudel has attempted to bring all the basic information about *Jatropha* in this book, which has been written with the objective of introducing the plant to rural poor communities.

Probably the first book about biofuel in Nepal, the following can be said about it:

- Landmark publication on the *Jatropha* plant.
- Direct communication of scientific knowledge to farmers and grass-root level people.
- Collection of more than 25 local names helps identify them easily.
- Well organised writing from background information to commercial cultivation practices.
- Suitable for farmers and community people.
- Economic analysis does not seem very realistic, as the estimated yield of 4Kg of seeds per plant is over-estimated.

Nepalma Biodiesel ko Kheti (*Jatropha Handbook*)

By Parbakhar Poudel. Published by: Khagendra Prasad Poudel. ISBN 999462499-7, pp: 54+14
Price: NRs 101/-

Reviewed by Dr. Narayan Chaulagain, Executive Director of People Energy & Environment Development Association (PEEDA), Lalitpur, Nepal.

Some Recent Additions to the ICIMOD Library

ICIMOD publications:

Sharma, E.; Chetri, N.; Gurung, J.; Shakya, B. comp. The landscape approach in biodiversity conservation: A regional cooperation framework for implementation of the convention on biological diversity in the Kanchenjunga landscape. Kathmandu: International Centre for Integrated Mountain Development. 2007

Xu Jianchu; Shrestha, A.; Vaidya, R.; Eriksson, K. The melting Himalayas: regional challenges and local impacts of climate change on mountain ecosystems and livelihoods. Kathmandu: International Centre for Integrated Mountain Development. 2007

Subedi, N. R. comp. Advocacy strategies and approaches: A resource manual. Kathmandu: International Centre for Integrated Mountain Development. 2008.

Subedi, N. R. comp. Advocacy strategies and approaches: A training of trainers manual. Kathmandu: International Centre for Integrated Mountain Development. 2008.

Oli, K. P.; Dasgupta, J.; Dhakal, T. D.; Kollmair, M. Comp. Glossary of access and benefit sharing terms. Kathmandu: International Centre for Integrated Mountain Development. 2007.

Other:

Kleinn, C.; Yang, y.; Weyerhaeuser, H.; Stark, M. eds. The sustainable harvest of non-timber forest products in China : Strategies to balance economic benefits and biodiversity conservation. Kunming: Chinese Academy of Sciences 2006.

Xu Jianchu; Melick, D. Towards community-driven conservation in Southwest China: Reconciling state and local perceptions. Kathmandu: Nagarjuna Pub. 2007.

Weyerhaeuser, H.; Tennigkeit, T.; Yufang, S.; Kahrl, F. Biofuels in China: An analysis of the opportunities and challenges of *jatropha curcas* in Southwest China. Kathmandu: Nagarjuna Pub. 2007.

Jun, H.; Stark, M.; Min, D.; Weyerhaeuser, H. Small mushrooms, local process, and global trade: Bridging gaps between markets and policy in sustainable management of non-timber forest products (NTFP) in Southwest China (working paper). Kathmandu: Nagarjuna Pub. 2007.

Ghate, R.; Jodha, N. S.; Mukhopadhyay. eds. Promise, trust, and evolution: Managing the commons of South Asia. London: Oxford Univ. Press. 2008.

Merino, L.; Robinson, J. eds. Managing the commons: conservation of biodiversity. California: Ford Foundation. 2005.

Dick, M. D. R. S.; Gregoria, M. D. eds. Collective action and property rights for sustainable development. Kathmandu: IFPRI Consultants Research Group. 2004. Chaudhary, R. P.; Aase, T. H.; Vetaas, O. R.; Subedi, B. P. eds. Local effects of global changes in the Himalayas : Manang, Nepal. Kathmandu: Tribhuvan Univ. / Bergin: University of Bergin. 2007.

Dahal, P. Carbon sequestration status at Sunaulo Ghyampe Danda community forest, Kathmandu. Kathmandu: Tribhuvan Univ. Central Dep. of Environmental Science. 2007.

Livelihoods and Forestry Programme. LFP's pro-poor and social inclusion strategy: Creating a common understanding and approach for social inclusion. Kathmandu; Livelihoods and Forestry Programme. 2007.

Awasthi, K. D. Land use change effects on soil degradation, carbon and nutrient stocks and greenhouse gas emission in mountain watersheds. Oslo: Agricultural Univ. of Norway. 2004. 126p.

Livelihoods and Forestry Programme. LEP's animation and social mobilisation: empowering local communities to access benefits and resources. Kathmandu; Livelihoods and Forestry Programme. 2007.

International Centre for Trade and Sustainable Development. Climate, equity and global trade. (Trade and sustainable energy series: selected issue briefs, 2). Geneva; International Centre for Trade and Sustainable Development. 2007.



ICIMOD Library. Photo: ICIMOD.

Asia Pacific Mountain Network

Mountain GIS e-conference (January 2008)

APMN provided backstopping support to the Mountain Forum Secretariat and the Mountain Environment Natural Resources' Information System (MENRIS) Division of the International Centre for Integrated Mountain Development (ICIMOD) in organizing Mountain GIS e-conference, 14 - 27 January 2008. About 750 participants from over 70 countries joined the event making it one of the most successful e-conferences. The event proved to be instrumental in introducing an idea of Geographic Information (GI) and Earth Observation (EI) in the mountain context. More information: <http://www.mtnforum.org/rs/ec/index.cfm?econfid=15>.

E-discussion on 'healthy wetlands, healthy people' (January - February 2008)

APMN, with support from wetlands project of ICIMOD, facilitated an e-discussion between 16 January and 26 January 2008 on "healthy wetlands, healthy people" in its [mf-asiapacific] discussion list to support this year's main event to celebrate the World Wetlands Day 2007 in Nepal. The main event was jointly organized by ICIMOD together with its national partners, including, Department of National Parks and Wildlife Conservation (DNPWC), Worldwide Fund for Nature (WWF), World Conservation Union (IUCN), National Trust for Nature Conservation (NTNC) and many Kathmandu based local organisations. The e-discussion received over two dozen contributions from 20 wetlands conservation and management experts and researchers from and outside Nepal, who shared their diverse research findings, conservation activities, experiences and recommendations for future plans. Synthesis of the e-discussion was drafted by APMN and shared among the partners (mainly the contributors themselves) on the main event day, in order to make the report more representative and coherent. Final synthesis of the e-discussion has appeared in the summer issue of the APMN Bulletin and will also be featured in upcoming issue of ICIMOD Newsletter and DNPWC Newsletter.



Increasing population has added pressure to urban water bodies. Photo: Tek Jung Mahat/APMN.

Project updates (March - June 2008)

APMN is conducting a mapping exercise on "Who = Who in Sustainable Mountain Development" in the Asia Pacific Region as part of the agreement among Mountain Partnership Secretariat (MPS), MFS and MF regional nodes. Led by MFS the exercise is being carried out in North Africa and the Middle East, Asia-Pacific, Australasia (Australia and New Zealand), Central Asia, Europe, Latin America, Central America and North America. A preliminary list of organisations is expected to be ready by June 2008.

'Mountains and People' global digital photo contest (March - June 2008)

APMN, ICIMOD and MFS are jointly organising a Global Digital Photo Contest to mark the 25th Anniversary of ICIMOD, whose slogan is "For Mountains and People". The Global Digital Photo Contest calls for entries on any of the four categories: 1. Mountains - Geo/physical elements (mountain range, massif, mountain landscape, high altitude rangeland, bodies of water, waterfalls, rivers, etc), 2. Mountains - Hazards/Disasters (landslides, floods, earthquakes, volcanic eruptions, potentially dangerous glacial lakes, mud-slides, dangerous roads, trails & river crossings, etc), 3. People - Livelihoods (farming, shifting cultivation, grazing, hunting, fishing, transhumance, trade, portage, tourism, etc) and 4. People - Culture (festivals, shamanism, rites of passage, dance, etc).

The top two entries - as determined by a panel of judges - will receive the ICIMOD Hindu Kush-Himalayan Prize and the Mountain Forum Global Prize. In addition, four Special Mentions will be awarded, one for each category. The "top 50" entries may be exhibited in select Hindu-Kush Himalayan countries. Participation in the photo contest is open to anybody from anywhere in the world, subject to certain conditions. For more information <http://www.icimod.org/photocontest/>

Mountain Forum's Asia Pacific (APMN) Board election 2008 (March - April 2008)

APMN held an email and web-based election in March - April 2008, to elect a regional representative from among its membership to serve on the Mountain Forum Board of Directors. Mr. Prabhu Budhathoki from Nepal won the contest by securing a total of 146 points out of 314 and became MF-APMN Board Member for next three years. Congratulations to Mr. Prabhu Budhathoki. Dr. Madan Koirala from Nepal and Mr. Munir Ahmed from Pakistan secured 94 and 74 points and became first and second runner-ups respectively. Mr. Budhathoki will be joining upcoming board meeting of the Mountain Forum in Chambery, France from 25 - 31 May 2008. For more information <http://www.mtnforum.org/apmn/election2008/home.cfm>.

E-discussion on 'Building resilience of mountain communities to climate change' (April - June 2008)

APMN is facilitating an e-discussion on the theme of the World Environment Day 2008 as a part of the series of events being organised to mark the 25th Anniversary of ICIMOD, its host. Outcome of the e-discussion will be published and shared at the main event in Wellington, New Zealand (Asia Pacific) on 5 June 2008. More: <http://www.icimod.org/apmn/buildingresilience/>



Livelihood of mountain people depends on natural resources. Photo: Tek Jung Mahat/APMN.

APMN Bulletin thematic issue on 'Climate Change and the Mountain Areas of Asia Pacific'

The summer issue of the APMN bulletin has been published. Current issue covers a wide range of thematic issue on 'Climate Change and the Mountain Areas of Asia Pacific'. The bulletin will be available online from 15 May 2008 at http://apmn.icimod.org/publications/APMN-bulletin_vol_9_no_1.pdf.

APMN participation in regional and local events

Tek Jung Mahat, APMN Node Manager attended the 'International Workshop on Cryosphere & Hazards for the Hindu Kush, Himalaya and Tibetan Plateau (31 March - 2 April, 2008), Kathmandu, Nepal' and prepared summary of the same. Organised by the International Centre for Integrated Mountain Development (ICIMOD), it was supported by UNO, MAIRS, GLIMS, IDI, MRI, NSF, Lounsbery Foundation, INSTP, The Smithsonian Institution and Sida, and attended by over 70 scientists from around the world. By establishing a cross-border scientific dialog by face-to-face, electronic and paper means, significant advances in science quality in the region are expected, as well as the building of future continuing cooperative links.

Mr. Mahat also participated in an interactive forum on protected areas and world heritage sites in Nepal - 'Making the Most of World Heritage Convention in Nepal' held in Kathmandu, Nepal on 21 February 2008. The event was organised by the Office of WCPA South Asia and IUCN Nepal. Dr. Uday Raj Sharma, Vice Chair, WCPA South Asia, Mr. Peter Shadie, Head, IUCN Asia Regional Protected Areas Programme and many other distinguished participants delivered speeches on the opportunities and limitations of using the World Heritage Convention for further conservation initiatives in Nepal.

Staff changes at APMN

Daan Boom, a Dutch national joined APMN in March 2008 as its Project Coordinator. Daan is also Coordinator Information and Knowledge Management (IKM) in ICIMOD. Prior to joining APMN/ICIMOD, Daan Boom was heading the KM Center of the Asian Development Bank (ADB) in the Philippines. Daan graduated in Library and Information Science. APMN family likes to thank Dr. A. Beatrice Murray,

Senior Editor and Head, IT+C division of ICIMOD for her coordination support from October 2006 to March 2008. Dr. Murray was instrumental in improving and reorienting APMN services and the network.

Mr. Utsav Maden joined APMN in April 2007 as a consultant to conduct a mapping exercise. Prior to joining APMN, Mr. Maden had already worked with ICIMOD, Kathmandu and United Nations Environment Programme - Regional Resource Centre in Bangkok.

Mr. Bijay Bagale joined APMN in February 2007 as an Intern. He has a Master's degree in Environmental Science from Tribhuvan University and over two years of working experience with local organisations based in Kathmandu, Nepal.

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InfoAndina – Latin American Mountain Forum

Andean Forum on Water and Food
Bogotá, 29th-31st January 2008



Banner for the Forum. Photo: InfoAndina.

The Andean Forum on Water and Food held in Bogota, Colombia (January 29-31, 2008) was an opportunity to showcase research results from the Challenge Program on Water and Food (CPWF) projects in Latin America. It

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Field trip: Andean Forum of Water and Food. Photo: InfoAndina.

facilitated interaction between nearly 80 researchers, policy makers and other regional stakeholders working in the water and food related issues.

InfoAndina, as part of CONDESAN, supported the by implementation of its website and logistic support, including the hosting of the conference papers.

Participants had a first-hand overview to the achievements of the project Sustaining Collective Action that links Ecological and Economic Scales (SCALES-PN20) and Payment for Environmental Services as a Mechanism for Promoting Rural Development in the Upper Watersheds of the Tropics (PN22). Both projects are part of the CPWF Andean System of Basin coordinated by CONDESAN with the support of InfoAndina.

From the SCALES project, Fundacion Humedales gave an account of Fuquene lake and the process they follow to engage different stakeholders in a dialogue to improve the natural resource management at the lake. PN20 support local stakeholders to better use a Colombian constitutional instrument called "Conversatorios" that allows communities to establish a formal dialogue with their local authorities. From PN22, there was an opportunity to hear from CAR (Corporación Autónoma de Desarrollo - Cundinamarca) about the positive impact of the use of "conservation agriculture" in the maintenance of water quality in the Fuquene basin. In both cases the research done by the CPWF allows local stakeholders to take better decisions. This is the case too, of the research done on the effluents and sediments from the upper part of the basin to the lower basin. The research found that due to the agrochemicals attached to the sediments, the main cause of the lake's eutrophication is the inappropriate agricultural practices in the upper basin and not necessarily the downstream livestock activities. This reinforced the idea of working with conservation agriculture for a better water quality downstream. See <http://www.infoandina.org/site.shtml?apc=Ca-ix22550x-x-1-ix=19529&i=7a3c45541432f9d3408d04dea440af02> for more information.

ICT for development

From March 5th to 7th more than 50 people from all over Peru met at the 4th National Telecentres Meeting with the

aim to promote the dialogue, reflection and learning for different stakeholders related with information and communications technologies (ICT) for rural and peri-urban development. During the meeting, a conference was held to examine strategies to increase the access and discuss the most appropriate technologies. The event were held in the Pontificia Universidad Católica in Peru and were organized by InfoAndina - CONDESAN, Soluciones Practicas ITDG, CEPES and Engineering without Borders.

One of the training workshops was lead by the InfoAndina Team, Ruth Hidalgo and Adam Sanchez, and was related the Action Application as a Content Management with huge potential to develop interactive websites. For more information: <http://www.infoandina.org/telecentros>

Ruth leaves CONDESAN-InfoAndina

After 4 years of excellent hard work, our colleague, Ruth Hidalgo, InfoAndina Webmaster, is leaving CONDESAN-InfoAndina. She started as a trainee and worked closely with Musuq Briceño, InfoAndina's Information Officer. Subsequent to that, she assumed the leadership of the development team as a webmaster. During the past two years Ruth led the development of the InfoAndina platform.

InfoAndina wish her every success and thank her for her hard work and true friendship. She will be very much missed!

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Ruth Hidalgo: training workshop. Photo: InfoAndina.

North American Mountain Forum



Bow Valley. Photo: NAMF.

Understanding and managing amenity-led migration in mountain regions

In May 2008, Mountain Culture at the Banff Centre hosted a conference: Understanding and Managing Amenity-led Migration in Mountain Areas. The conference brought together scholars and practitioners from around the world with an interest in communities impacted by in-migration - specifically, when people come for the beautiful landscapes and other amenities so common in mountain areas.

The conference was designed to explore the current state of knowledge about amenity migration, to gather existing and proposed ideas for planning and management, and to draft guidelines that help mountain communities to manage the changes that come with amenity-led migration. Researchers, land managers, community administrators, and political representatives aimed to discover common ground for developing positive solutions.

An electronic resource network will be established to assist conference-goers - and those who did not attend - in sharing ideas and solutions to the challenges they face in their own mountain communities.

For more information <http://www.banffcentre.ca/mountainculture/mtnconferences/am/>

Bow Valley Mountain Forum

The Bow Valley Mountain Forum is now two years old and continues to grow with over 200 local members and 86 subscribers to the Bow Valley Update bi-weekly newsletter. This local website publicizes opportunities for nearby residents and visitors to get more involved in Bow Valley communities. The site focuses on community events and activities that affect economic, social and environmental sustainability in the region. The local calendar and homepage on the Bow Valley Mountain Forum are updated on an ongoing basis. If successful, we hope the idea will be replicated in other mountain communities.

Parks Canada continues its close working relationship with Mountain Culture at The Banff Centre and the North American and Bow Valley Mountain Forums. Parks Canada is also working with the Bow Valley Mountain Forum to provide a private, online 'clubhouse' for members of the new Banff National Park Volunteer Program. Volunteer Coordinators use the private 'Clubhouse' to communicate with volunteers, by distributing information updates and learning resources, and publicizing upcoming events.

Staff changes at the North American Mountain Forum

In December 2007, the North American Mountain Forum (NAMF) welcomed a new Node Manager, Amélie Peck, a long-time Banff resident. Ms. Peck replaces Amy Krause who will be helping to create a new Mountain Partnership decentralized hub in the department of Mountain Culture at The Banff Centre. Amy has done an exceptional job as Node Manager over the past 5 years. NAMF looks forward to continued collaboration with Amy in her new role with Mountain Partnership.

Upcoming events

GEOBIA, 2008 - pixels, objects, intelligence: geographic object based image analysis for the 21st century
Calgary, Alberta, Canada. 6 - 7 Aug 2008 (deadline for abstract: 21 Jan 2008)

Contact: geobia@ucalgary.ca

Web: <http://www.ucalgary.ca/geobia/>

Third I.A.G. /A.I.G. SEDIBUD Workshop
Boulder, Colorado, USA. 8-13 Sept-2008 (deadline for abstract: 15 May 2008)

Contact: armelle@nnv.is

Web: <http://www.geomorph.org/wg/sb/SEDIBUDBoulderFirstCirc.pdf>

Sierra Nevada Alliance Annual Conference

Kings Beach, CA, USA. 12-14 Sept 08

Contact: sna@sierranevadaalliance.org

Web: <http://www.sierranevadaalliance.org/conference/>

The 11th International Conference on Thermochronometry
Anchorage, Alaska, USA. 15-19 Sept 2008

Contact: garverj@union.edu

Web: <http://www.union.edu/ft2008/index.html>



Banff Centre, Alberta, Canada. Photo: NAMF.

Mountain Forum News

Climate, Ecosystems and Resources in Eastern California-
White Mountain Research Station Symposium #5
Bishop, California, USA. 5-8 Nov 2008

Contact: wmsinfo@ucsd.edu

Web: <http://www.wmrs.edu/projects/CEREC%202008/announcement.htm>

Banff Mountain Festivals

Banff, Alberta, Canada. 1-9 Nov 2008

Contact: mountainculture@banffcentre.ca

Web: <http://www.banffmountainfestivals.ca>

Lake Management in a Changing Environment - 28th
International Symposium of the North American Lake
Management Society

Lake Louise, Alberta, Canada. 11-14 Nov 2008

Contact: ljackson@ucalgary.ca

Web: <http://www.nalms.org/Conferences/2008LakeLouise>

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Mountain Forum Secretariat

Mountain GIS e-Conference

The MFS provided an e-conference platform, technical backstopping and overall coordination to the "Mountain GIS e-Conference" undertaken together with ICIMOD/MENRIS and Asia Pacific Mountain Network (APMN) from 14-27 January, 2008. Some 750 participants from over 70 countries registered for the event, in which discussions took place on such themes as a) Capacity building and networking; b) Mountain databases, tools, and methods; and c) Thematic applications and decision support systems. The overall conclusion of the e-conference was that there is such a thing as 'Mountain GIS' (that sets it apart from 'plain GIS') and that it should go beyond map-making leading to development of a spatial data infrastructure at all levels combined with applications to address real mountain issues. More: <http://www.mtnforum.org/rs/ec/index.cfm?econfid=15>

Mountain Forum regional board elections

The Asia Pacific Mountain Network (APMN) and the Latin America Mountain Forum (InfoAndina) - both regional networks of the Mountain Forum - successfully conducted elections in their respective regions to elect one representative each from

among their respective regional memberships to serve on the Mountain Forum Board for the next three years, beginning May 2008. Mr. Prabhu Budhathoki, Conservationist and former Country Representative at IUCN-Nepal, was elected from the Asia-Pacific. He received 146 points out of 314 (46 percent). Mr. Robert Hofstede, Regional Director for South America, IUCN, Ecuador, was elected from Latin America. He received 18 of the 34 votes cast (54.4 percent). These elections underscore the Mountain Forum's commitment to the principles of democracy.

Global digital photo contest

The MFS coordinated the "Mountains and People" Global Digital Photo Contest (March - May 2008) undertaken together with ICIMOD and APMN in the frame of ICIMOD's 25th Anniversary. As of 7 May, some 700 entries were received from over 50 countries from all corners of the world on the following four categories: a) Geo-physical elements; b) hazards/disasters; c) culture; and d) livelihoods, including over 100 comments from viewers on some of their favorite entries. The judges will award two Grand Prizes as well as four Honorable Mentions, one for each category, to the winners. The "top 50 pictures" may be exhibited in select Hindu-Kush Himalayan countries to advocate for mountains and [mountain] people everywhere. More: <http://www.icimod.org/photocontest>.

Mountain Forum "Products & Services" survey

The Mountain Forum Secretariat and regional networks conducted an online survey among its members in Spanish and English language to assess the appreciation of the Mountain Forum products and services, and solicit suggestions for improvements. The survey conducted from 29 April through 6 May generated over 300 responses, which will inform the Mountain Forum's Strategy for the period 2008 - 2011.

Who's Who mapping exercise

Within the framework of collaboration between the Mountain Partnership Secretariat and the Mountain Forum Secretariat, the Mountain Forum and the regional networks in Europe, L.America, N. America and Asia Pacific conducted a Who's Who mapping exercise of organizations working in sustainable mountain development from March through June 2008. The objective of the exercise was to identify traditional and new actors in sustainable mountain development, explore opportunities to enhance synergies and use comparative advantages between the many mountain stakeholders. An analysis of key organizations active in geographical or thematic areas, indicating potential synergies, is due in June 2008.

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Energy Saving and Drudgery Reducing Technology Initiative

Jagriti, India



Woman cooking using LPG. Photo: Jagriti.

In rural mountain societies, if women are to become empowered, they need to be freed from routine drudgery that takes away a good part of their day. In the hills, the dependence of most households on firewood, for cooking and heating is well appreciated. For women the burden of firewood gathering is relentless; daily, 365 days a year, all their working life. Forest loss and degradation in recent decades exacerbates the situation. This burden, in addition to women's reproductive role, confines women to their house, effectively barring them from any active participation in community social life.

The primary objective of the project in Kullu was to reduce the daily drudgery of poor mountain women. As a result, women and girls are spending less time and energy on gathering firewood, cooking, washing blackened utensils and heating water in inefficient ways. The time saved by women is productively used in learning skills that help generate additional income for themselves and to get together in groups to save money, begin small individual or group enterprises and more importantly, to either talk about and participate in community social development work, or simply for leisure.

In December 2003 the project commenced with distribution of LPG connections (Liquefied Petroleum Gas) to women members of Women's Savings and Credit Groups. This was supplemented by adding pressure cookers in July 2004 and further consolidated by distribution of hamams (local water heating devices) in November 2005 to address wasteful firewood use traditionally employed. Till now 383 LPG connections (124 for Scheduled Castes - SCs) on a 60 percent cost sharing basis, 207 pressure cookers (34 for SCs) and 362 hamams (121 for SCs) on a 90 percent cost sharing have been distributed. The enthusiastic response from women (seeing the obvious benefits) and willingness to share costs, has helped Jagriti expand and strengthen the drudgery reduction initiative over the years.

At the same time, there has been a gradual but consistent accumulation of savings by women. Through intra-loaning

within groups, incomes from small enterprises like milk and cheese production or making and marketing of vermicompost or honey has further added to groups' bank balances. Even small improvements in economic status have made women more enthusiastic about group activities and learning new skills. The project has diversified to improve existing knitting and weaving skills and help with marketing of new products. More women members now talk confidently in village council meetings and are improving their skills in negotiating with men to further their interests. Leadership is beginning to emerge as evidenced by some women recently winning village council elections. Interventions were initially donor funded, but have carried on and later, in the case of hamams, have been subsidised by 10 percent by Jagriti's own fund. Judging by the good response received, the basic aim has been achieved but more is to be done. Unintended positive outcomes include non-members procuring energy and time efficient devices; men and children more willing to help women with cooking and water heating; members' realising the economic and political potential of working in a group.

The three devices: LPG, a pressure cooker and a hamam cost IRs 2,200 (the subsidy being IRs 1,200 and more for SCs). These devices free up five to six hours daily. Daily trips to the forest are reduced by one to four trips per week. Heating 25 litres of water in a hamam used two kg of agricultural waste or twigs compared to 10 to 12 kg of hard wood. The freed time helps women generate income to pay for the LPG and save, as well as greatly reducing effort in gathering firewood.

Impacts

- **Reduced fuelwood consumption:** Hot water is required throughout the year with double the demand during winter. Average hot water requirements per day per household in the winter months (i.e for six months) is 50-60 litres. Hot water in the winter is not only required for bathing but also for washing utensils, clothes and as drinking water for livestock. A comparative study of fuelwood consumption in a traditional chullah as against a hamam suggests that to heat 20 litres of water in a traditional chullah takes roughly 10-12 kg of hard wood and 35-40 minutes whereas, in a hamam it takes two kg of household litter, crop residue or small twigs to heat 20 litres of water in 15-20 minutes. So, with use of a hamam for approximately 130 days in year, a household saves one and a half tons of fuelwood. In a household of six members, on average 10-12 kg of fuelwood is saved per day by cooking on LPG. In the three to four summer months, an average of three cylinders is used with each lasting for one and half months. Roughly, by using LPG each household in a year saves about 1.4 tons fuelwood.
- **Time saved:** Time saved in cooking and in fuelwood collection is very significant and has important implications for empowerment of women by greatly reducing their drudgery and toil, freeing them to engage in other income enhancement activities and/or socially rewarding pursuits. Fuelwood collection for most women involved a daily, backbreaking grind varying between two and six hours (depending on the distance of the forest), first thing in the morning. For those who bought LPG, the time spent was reduced to one to four trips (two to six hours) per week. In nine cases, the collection frequency was down to one to four

Member Initiatives



Woman member lighting up the hamam. Photo: Mamta Chandar.

trips per month.

- Active participation of men and children in household chores: Since a hamam is easily portable and is placed outside the house in an open area, most of women members indicated that children and other elders have now taken up bringing water and heating it in the hamam. When water was heated on a traditional chullah, the responsibility automatically fell on women. The children are now more willing to take a bath and wash their own clothes. In one village they carry the hamam to the stream, use twigs and fallen pine needles to heat the water and then wash clothes or bathe there. Some women indicated that men and children are more willing to share cooking responsibilities. Often, when women are away for some work, men and children prepare food themselves whereas, earlier women had to prepare it before leaving the house.
- Increased scope for engaging in economic activities: There has been a noticeable increase in women's participation in daily waged work especially during summer when there is heightened agriculture activity.
- Reduction in indoor pollution: According to a study "LPG: A key to empowerment of hill women" supported by NORAD, women mentioned positive health impacts in terms of less coughing, eyes not hurting or watering and less respiratory problems. Women also mentioned that the use of LPG leads to better cleanliness, less sweating in summer and clothes not getting as dirty as before.

There is less drudgery involved in washing utensils.

- Environmental impacts: The preferred firewood in the valley is green oak (*Quercus dilitata*), a slow growing tree, difficult to regenerate. Less lopping for firewood benefits this species. Fallen pine needles and cones are good for burning with a hamam. Greater production of vermi-compost (using an indigenous species of *Eisenia foetida*) and its use in agriculture fields reduces the application of chemical fertilisers, at the same time helping soil texture and microfauna. Similarly, growing use of vermi-wash lessens the use of chemical pesticides. Both encourage organic farming. Encouragement and training to farm indigenous bees, *Apis cerana*, is helping to revive their populations and benefitting local flora. With the use of LPG, a near smoke-free environment exists in kitchens with obvious health benefits.

A measure of sustainability is that the project has survived three years beyond its initial funding period, 2001-2004 (the hamam initiative was introduced after). As women members save one rupee a day and are making supplementary income, they can buy and sustain the use of devices like LPG. Not one woman member has so far discontinued use of LPG. Jagriti has played a key role in group mobilisation, supporting and encouraging poorer women to organise, save and then invest. This support is crucial in helping women overcome the initial economic, social and psychological barriers to change.

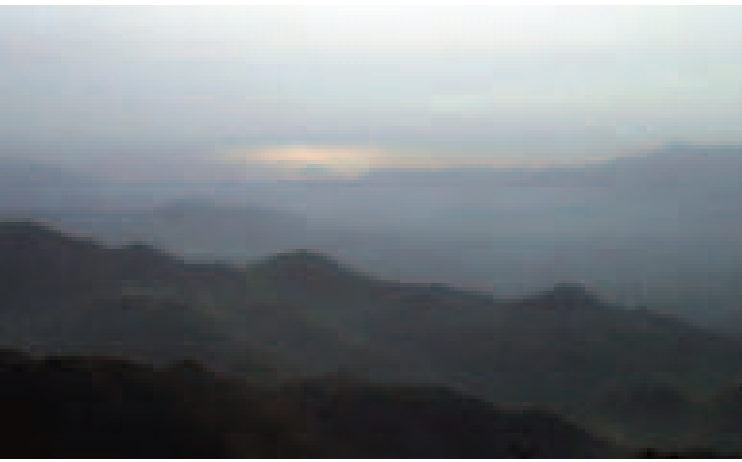
The organisation of poor women into savings and credit groups has had several other benefits. When a woman has a bank balance, a growing or potential income and time, she will go regularly to group meetings, to the bank, to the market and even to visit government offices. Her social status and confidence grows as does her network. Women begin to keep records and understand money matters. Back in the village many women are beginning to understand social development and gender issues and to participate in grassroots democracy. Women with more exposure to the outside world begin to look more closely within their own household. Possibly she will have fewer children. Her concern for children's health and schooling increases. The higher enrollment of girl children among women members illustrates this.

The high initial cost of LPG was a big barrier to its adoption by poorer households the project targeted. Costs were brought down by negotiating with stove manufacturers: LPG dealers waived charges for tubes, less security for the cylinder and providing a free igniter. Bulk buying brought down prices. Phobias among women about gas cylinders or pressure cookers were assuaged by demonstration. It was difficult to convince women that using LPG was actually cheaper than other fuels including firewood if one factored in the cost of collection. Eventually, getting a few women to use LPG and share their experiences proved more convincing than calculations. Once a few women in a group began to use LPG, then demand surged. By the time the hamam was introduced there was general acceptability of these devices and women adopted them eagerly despite only a nominal subsidy.

Mamta Chandar (mamta@jagritikullu.org) is Director of Jagriti (<http://www.jagritikullu.org>), a community based organisation working for empowerment of poor, disadvantaged hill women.

Biodiversity and Cultural Conservation in Sierra Nevada de Santa Marta, Colombia

Proyecto de Conservación de Aguas y Tierras (ProCAT)



View of the Sierra Nevada de Santa Marta mountains. Photo: ProCAT.

Proyecto de Conservación de Aguas y Tierras (ProCAT) is an international non-profit organisation with the purpose of improving the knowledge of tropical Meso and South-American mountain ecosystems and species using an interdisciplinary approach, making a contribution to scientific knowledge to help management and conservation decision-making. The project's initial focus was tropical mountain forests and the jaguar as a key species in Costa Rica, but the continual advance of conservation problems made the study move to a wider range of terrestrial species and marine ecosystems. Currently, one of the focus areas of ProCAT is the Sierra Nevada de Santa Marta (SNSM) in Colombia, a critical area for conservation because of its important hydrological resources, its high levels of endemic species, variety of ecosystems and richness both biologically and culturally. Due to historical, political, social and economic problems in Colombia, the SNSM has faced a chaotic, uncontrolled process of land usage and unsustainable natural resource exploitation that has led to a decrease of 80 percent of the natural ecosystems (ProSierra, 1997; Pro-Sierra, 2000; Vilorio de la Hoz, 2005; Rodríguez-Navarro, 2006). The socio-political situation has limited the development, research and protection of natural areas, as seen in a small number of recent reliable studies and projects.

ProCAT's project in the SNSM evaluates the conservation status of terrestrial and marine ecosystems in the region. It will try to improve the conservation planning and actions through ecological research and the establishment and promotion of environmental friendly practices, including the key actors and main interests from institutional, ecological and cultural points of view. Current conservation activities in the area include national universities' monitoring programs in both terrestrial and aquatic ecosystems; and landscape conservation planning by government entities and international and national NGOs. ProCAT's project looks to add to these efforts in order to fill the gap on the terrestrial-freshwater-marine ecosystems interface and

human-dominated landscapes conservation across ecosystems. Here we describe some of the strategies to meet these goals, to produce tangible results that can be translated into reliable data, patterns, and potential modelling for conflicts and ecological tendencies. This will use a model that was in part explored in Talamanca, Costa Rica (Gonzalez-Maya et al. in press; Gonzalez-Maya et al. in press).

- Evaluate the conservation status of the area based on the ecology of endangered key species. Currently, one of our projects is focused on the study of three species of felids that are classified as Near Threatened on the IUCN red list (*Panthera onca*, *Puma concolor* and *Leopardus pardalis*), joining our efforts and knowledge for the conservation of local populations and endangered habitats in the SNSM and Talamanca. All the data derived from the study of these species is one of our key components for conservation planning.
- Making rapid biological assessments to identify current threats, priorities and conservation needs by using complete social surveys in the local communities and identifying the human-wildlife conflicts in the region. From these results biodiversity functional groups will be selected as development choices (for example tourism, wildlife species farming, alternative agriculture methodologies).
- Identify key actors and joining with them in the conservation process of the region, including them in projects in the region; and working with them in local workshops for conservation planning of the entire region. The inclusion of decision-makers and local people in research projects helps to reduce the wide distance between science and conservation, and helps to direct efforts towards the causes and main problems previously identified.
- The entire project will be a joint effort of project staff and strategic alliances with national universities, NGOs, local communities and governmental authorities to respond to the growing threats to regional biodiversity, trying to produce the most reliable information on species distribution ecology and status, and the main threats associated with these ecosystems.
- Implement and promote a strategic conservation plan including socio-cultural and ecologic aspects of mountain conservation. This will be moving towards a 10 year goal, where strategic alliances and clear objectives will be designed in order to reach a full plan implementation and monitoring where all the actors, including NGOs, decision-makers and stakeholders, will be included as central and main actors responsible for the total fulfilments of the plan.

References

- González-Maya, J., Finegan, B., Schipper, J. & Casanoves, F. In Press. Densidad absoluta y conservación de jaguares en Talamanca, Costa Rica. Serie Técnica. The Nature Conservancy. San José, Costa Rica.
- González-Maya, J., Finegan, B. & Schipper, J. In press. Conservación de jaguares y sus presas en Talamanca: estado de conocimiento prioridades y acciones. The Nature Conservancy. San José, Costa Rica.
- ProSierra. 1997. Plan de desarrollo sostenible de la SNSM. Fundación ProSierra Nevada de Santa Marta. Santa Marta, Colombia.

Member Initiatives

Pro-Sierra. 2000. Bases técnicas para la formulación de una estrategia de conservación ecorregional. Proyecto Conservación y uso sostenible de la biodiversidad en la Sierra Nevada de Santa Marta. Fundación ProSierra Nevada de Santa Marta. Santa Marta, Colombia.

Rodríguez-Navarro, G.E. 2006. Sierra Nevada de Santa Marta: Understanding the basis for natural resource management. In: Harmon, D. (Ed.) 2006. People, Places, and Parks: Proceedings of the 2005 George Wright Society Conference on Parks, Protected Areas, and Cultural Sites. Hancock, Michigan: The George Wright Society.

Viloria de la Hoz, J. 2005. Sierra Nevada de Santa Marta: economía de sus recursos naturales. Documentos de trabajo sobre economía regional. Banco de la República. Centro de estudios económicos regionales (CEER) - Cartagena.

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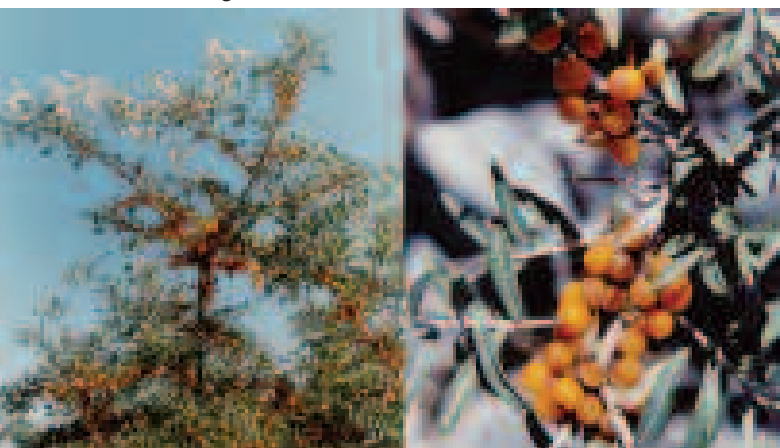
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Proyecto Conservación del Área Talamanca (ProCAT) <http://www.procat-talamanca.org> has the goal of improving the state of biodiversity knowledge for the Caribbean Talamanca Region of Costa Rica so that management and conservation decision-making can be based on a solid scientific foundation.

Seabuckthorn

Helga Ahmad



Seabuckthorn, far and close-up view. Photo: Ujol Sherchan.

A message flew in from the Mountain Forum which forced me out of the role of silent reader and encouraged me instead to share with you all some of my experiences in the valleys of the Karakorum.

During one late autumn trip, I noticed ripe orange berries on thorny bushes, which made memories of my childhood days burst forth. Questioning the locals on how they use these berries, I was amazed to find that only goats and sometimes children eat them. Growing up in the Bavarian Alps, these berries, called Sanddorn, were a homemade cough syrup in most households. During the Second World War, barely any medicine was available. As kids, we spent most of the summer holidays in the forests, collecting herbs, mushrooms and wild berries. These supplemented a nutrient-deficient rationed food diet, and we were fortunate in being surrounded by forests.

With missionary zest, my campaign progressed wherever I found this bush growing. I became very familiar with its local name, though the English translation required a German-English dictionary. "Seabuckthorn" became my dream from then on, as its ecological benefits are enormous for this mountainous terrain. People must have thought me deranged, but Memsahibs are generally humoured. In the end nothing came of it, other than my final exit from this area on the back of men and donkeys. Sadly, the after effects of multiple fractures never allowed me to climb up to these areas again.

Years later, while in Gilgit, someone shouted: "Madam, Madam!" Curious, I stopped and there he was, that man from Nagar, who used to translate my 'sermons' on seabuckthorn into the local language.

Some years back his whole family fell ill (he has 8 children) and he was forced to borrow from relatives. His meager income made it difficult to make ends met during the coming months. However, the following autumn, with seabuckthorn berries hanging heavy on the branches, he went off into the thorny shrub-woods with his clan to cut berry-laden branches, which were then collected in baskets and carried home. The berries were removed from the stems by the nimble fingers of his children and carefully cleaned by the elders. Then a clean cloth was spread in one of the rooms, where the berries were left to dry. After that, cotton bags stitched by the girls, were filled and whenever wheat was being ground, handfuls of dried berries were added. Nutrient-rich bread was always on the table.

My 'sermons' had focused on the benefits of the juice: at least 3 teaspoons per person per day were required. So my friend designed a juice press with his nephew, a welder. I was thrilled with his practical approach of how to work out the amount of berries required for 30 teaspoons of juice a day. Easy. Take a spoon and measure the amount of juice one kilo of berries provides. He also experimented with the residue by feeding a specific quantity to his cow. After one week the family had 25% more milk. The berries also can be dried and the husks mixed into the local bread or biscuits, while precious oil is extracted from the seeds.

I was able to collect recipes on sweets and jams and slowly we made progress. Unfortunately, the water used for domestic consumption is badly contaminated, so it is difficult to prepare a marketable product. I am still seeking an organisation that can train people on how to produce marketable products from their homes. This man has been using his mind and is keen to find employment with some of the international groups working on "saving the environment" in that part of the world, as he is an excellent teacher. His shortcoming is that he only speaks broken English.

With ICIMOD's publication on seabuckthorn in hand, I tried to explain at different forums and government institutions the enormous benefit if this plant is promoted, to the Northern Areas, which is also the watershed of Pakistan's river systems. The intensive root system of the plant helps to prevent landslides and rockfalls. With no awareness in that region of the importance of the plant to the ecology of their region, more and more of this shrub wood is falling to the fuel wood seeking axes.

Helga Catrina Ahmad (rina@comsats.net.pk) is a Mountain Forum member living in Pakistan. At the age of 72, she is now unable to get out into the mountains as much as she would like. As well as helping to develop the use of seabuckthorn, Helga is involved with the Girl and Boy Scout movement and dreams to work with them in the Northern Areas of Pakistan.

From Spain: Update on RedMontañas Activities

Redmontañas



"Not a single mountain without protection". Photo: RedMontañas.

Last spring (2007) a "Mountain T-shirt Solidary Project" was launched as a way of sharing the common purpose of caring for the mountains with many small conservation groups from all over Spain and Portugal. Three thousand T-shirts were made with a design that tries to express unity in diversity in six different languages: Castellano, Catalán, Euskera, Gallego/Asturiano, Portuguese and French. Coupled with a small leaflet featuring the values of mountains and the importance of protecting them, the T-shirts were distributed to 14 groups at cost price, so that they could be sold for fundraising as well raising social awareness about mountains.

Just before the summer, a second "multi-summit, national-scale action" was started. Using web and e-mail contacts for spreading the campaign, over a thousand people climbed 225 summits all over Spain on a single weekend,

expressing the common claim "Not a single mountain without protection" with banners in the four official languages of Spain. Banners were created as digital documents in three different sizes for people to download from RedMontañas' website. A photo gallery was set up on the web, that classified the mountain ranges and autonomous regions, and automatically counted and registered ascents as a testimony for politicians and society.

The photographs, with comments about the dangers and risks that lurk in all of these beautiful mountains, can be seen in the "Galería Montañas en Red" in <http://www.redmontanas.org>.

Photographs and other graphical material were used to make "Juego Limpio para las Montañas" (Fairplay For Our Mountains), a video aimed at educating and making everybody aware, especially young people, of the value of mountains, the need to protect them and importance of lobbying and telling politicians and decision-makers that they must listen to people. It is necessary to understand the huge ecological, social and economic role of mountains to effectively protect these last refuges of nature and wildlife against the many pressures that are threatening them.

Last autumn, the Ministry of Environment was persuaded to sponsor a workshop on 'Mountain Areas and Mountain Biosphere Reserves', that analysed the environmental benefits derived from mountain ecosystems and sustainable practises. There was also a focus on ways to support local mountain people to ensure their wellbeing can be made compatible with the preservation of biodiversity and landscapes. The workshop was held in December 2007 and formed a meeting point for conservationists, mountain dwellers, scientists, academics and environmental managers from all over the country. It formed a melting pot for many different expectations, perceived needs, hopes and ways of devising sustainable ways of life and environmental preservation.

The ministerial sponsors were so impressed by the positive results of the workshop that the National Parks Department agreed to fund 500 DVDs of RedMontañas' "Fairplay for Our Mountains" video, which was then sent to over 250 high schools and universities and to more than 200 mountaineering associations all over the country. DVDs and a copy of the document "Conclusions and Recommendations for Mountain Preservation" that was produced in the workshop were sent to the main political parties in the country to take the recommendations into account in their environmental programmes while they are working out their approaching national electoral campaign due in March 2008.

From the recommendations made in the workshop, in the following three months, RedMontañas was busy creating a "Program for Awareness, Support and Promotion" aimed at the Ministry of Environment for the conservation of Spanish mountain areas. This is intended to define main objectives and strategic priorities, and to agree all levels of the national administrative structure, the measures, involved departments, institutions and stakeholders, legal and organisative instruments and financial sources for each purpose.

Rosa F. Arroyo is the President of RedMontañas and can be contacted at coordinacion@redmontanas.org. RedMontañas <http://www.redmontanas.org> is a national level Spanish

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association aimed to unify, organise and keep in contact with local groups and individual efforts to form a single, solid voice to protect Spanish mountains. Its primary mission is to promote the creation and enforcement of a sound political and legal framework to enhance the protection of mountains, conservation of biodiversity and landscapes, and promote the equitable and sustainable wellbeing of mountain inhabitants.

Centre for Mountain Studies: Scotland

Martin Price



Blair Castle, Scotland. Photo: Martin Price.

2007 was a year of major developments and growth for the Centre for Mountain Studies (CMS). In September, four new PhD students, chosen from a very strong field, began their work within the project 'Sustainable Estates for the 21st Century'. This is fully funded by Henry Angest and is the first major project to take an integrated look at estates in Scotland's uplands. It recognises three key issues:

1. the significant proportion of the land in private ownership, with many very large estates (one of the most distinctive characteristics of the Highlands and Islands);
2. the purchase of some of these estates by NGOs with conservation, recreation, sustainable development interests (National Trust for Scotland, John Muir Trust, RSPB, etc.), especially in the last two decades; and
3. the purchase of estates by their local communities, especially since the 2003 Land Reform Act.

The primary objective of the project is to understand both the complex driving forces influencing these estates, and how their owners and managers make decisions that permit them to ensure that their estates fulfil their diverse roles,

while at least breaking even. Other key issues to be examined will be the economic and employment benefits of estates to local communities, and the connections between land ownership and land management, exploring motivations, objectives, and constraints.

Two of the dissertations will focus on groups of privately-owned estates:

- Landowner motivation and perceptions of sustainability; exploring visions for the future of the Scottish uplands (Pippa Wagstaff)
- The role of private landownership in facilitating sustainable rural communities in upland Scotland (Annie McKee)

The others will focus on community- and NGO-owned estates:

- How successful are community-owned estates? A study into the motivations and management of community land use and its interaction with other land users and government agencies (Amanda Calvert)
- The identification, selection and implementation of indicators for evaluating the sustainability of multi-functional, upland, NGO-owned estates in Scotland (Jayne Glass).

The dissertations are being supervised by Professor Martin Price, Director of the Centre for Mountain Studies, together with Dr. Charles Warren (St. Andrews University) and Dr. Alister Scott (University of Aberdeen). To ensure the on-the-ground and policy relevance of the project, an advisory board has been established, with representatives from the Scottish Government, the Scottish Rural Property and Business Association, Environment Link, Cairngorms National Park Authority, and the Knoydart Trust. The project will conclude with a synthesis phase which will draw on the dissertations and establish a coherent picture of Scottish upland estates, providing an input to future well-founded management and policy.

CMS staff are also active in other parts of Europe. During 2007, the CMS concluded its work within a three-year project on spatial planning in northern Europe funded by the European Commission's Northern Periphery Programme (NPP: see <http://www.spatialnorth.eu>), and also organised the final conference. The CMS also worked with partners in Finland, Greenland, Norway and Sweden to plan a major project on local adaptations to climate change. This three-year, €2.5 million project was approved by the NPP in December, and will be led by Clive Bowman at the CMS (see <http://www.clim-atic.org>). The CMS is also involved in another European project (2007-9) on quality foods from mountain areas, with partners from Austria, France, Norway, Romania, Scotland, and Slovenia. This work is being done mainly by Rob McMorran, who will also complete the first PhD from the CMS, on multifunctional forestry in the Cairngorms, in 2008. In 2008-9, Professor Price will coordinate a major report on Europe's mountain areas for the European Environment Agency.

Dr Martin Price (martin.price@perth.uhi.ac.uk) is on the Mountain Forum Board of Directors and is Director at the Centre for Mountain Studies at Perth College in Scotland.

The Global Change Research Network in African Mountains

Mountain Research Initiative



Moonlight on the typical sandstone rock formations in the Cederberg mountains, Western Cape, South Africa. Photo: Fran Hunziker.

What makes the sub-Saharan African mountains and highlands different from others?

First, unlike temperate or boreal mountains, they are often highly productive agriculturally and prime human habitats. There is a high degree of correlation between population density and elevation, especially in drier regions and in Eastern and Southern Africa. While the importance of mountains in temperate regions frequently relies on that which is exported from them (e.g. water or tourist experiences), African mountains are important because a vast number of people live there, deriving much of their livelihood from them. Global change in African mountains will directly impact a large number of people.

Second, African mountains exist within a development context. While the conservation ethos is not absent in Africa, economic development remains the dominant discourse within which the response to global change is embedded. While one frequently reads that global change has human dimensions, in African mountains it is more appropriate to state that the development trajectory has a global change dimension.

Third, many of the more comprehensive research programs are run by universities outside of Africa. They reflect the concerns of the funding nation, not necessarily those of African stakeholders. The lack of longer term base funding within Africa renders African researchers more dependent on the vagaries of international agencies or NGO funding, where priorities are set in contexts distant from African realities. As a result the knowledge of different mountain ranges in Africa is fragmented and often subject to loss over time. The prospects for large improvements in understanding simply through better coordination and communication among researchers is perhaps greater in Africa than anywhere else.

The Network

The Global Change Research Network in African Mountains (GCRN_AM) was launched at the Kampala Workshop in July 2007. Its origins are many. After the Perth Open Science Conference “Global Change in Mountain Regions” in 2005, the Mountain Research Initiative (MRI) committed itself to launching regional research networks in different regions of the world. At the same time, MRI understood that other organisations had related interests in global change and African mountain regions: The Global Mountain Program of the CGIAR, UNESCO, the African Highland Initiative, the Center for International Forest Research, the Global Mountain Biodiversity Assessment of DIVERSITAS, as well as the universities of Makerere (Kampala, UG), Egerton (Nakuru, KE), Bern (Switzerland), and Witwatersrand (Johannesburg, ZA).

The MRI and its partners have now assembled a network consisting of 450 members with the following objectives:

- promote research on global change in African mountains,
- create synergies between research and on-going local, regional and global initiatives,
- support data sharing by means of conferences and workshops, mailings, and database access,
- provide scientific based information to stakeholders and policy makers,
- influence policy and decision-making to improve livelihoods and the environment of African mountains and highlands,
- establish a transboundary network of global change research sites.

MRI hosts the GCRN_AM website and produces a bi-monthly GCRN_AM Newsflash. The MRI experts' database and the “Who is Who” list of African scientists working in mountain regions gives access to more than 6,000 global change scientists around the world, with 450 of them in Africa.

Products

The network has already catalysed new activities. For instance, the planning workshop on “Establishing High Altitude Climate Observatory Systems in the Ethiopian Highlands” held in January 2008 at Addis Ababa University occurred because of contacts made in Kampala. It was co-organised by the Faculty of Science, Addis Ababa University; the Global Mountain Programme; the Horn of Africa - Regional Environment, Centre/Network; and the University of the Witwatersrand.

The first aim of the workshop was to deliberate on climate change trends and its impacts on various sectors (livelihood, environment, agriculture, energy, management, etc.) of the Ethiopian Highlands. The second objective was to launch a working group for the establishment of high altitude climate observatories in Ethiopia. The workshop was a success, with 40 delegates attending, including representatives from the Global Mountain Programme, FAO, UN/ECA, UNDP, UNEP and the Netherlands Embassy. It concluded with two major outputs:

- i. The participants agreed that a proposal would be drafted during 2008 for the establishment of high altitude climate observatories on at least six summits in Ethiopia.

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- ii. A climate change research network for Ethiopia was established and will be hosted and coordinated by the Science Faculty of Addis Ababa University.

For further information on the Ethiopian mountain research initiatives contact Dr Gete Zeleke (g.zeleke@cgiar.org). The organisations supporting the GCRN_AM hope that other research institutions and programmes will follow this example and start initiatives in their respective fields.

To get involved in the Global Change Research Network in African Mountains, please contact Dr. Bob Nakileza (nakilezab@yahoo.com) Mountain Resource Centre, Makerere University, Kampala, Uganda or Claudia Drexler (drexler@giub.unibe.ch) Communication and Event Management, The Mountain Research Initiative, Switzerland.

Revival of Mountain Tourism in Earthquake Affected Areas of Kaghan Valley in Northern Pakistan

Aftab-ur-Rehman Rana



Hotel in the Kaghan Valley, Pakistan. Photo: Aftab Rana.

Tourism is an important sector of local economy of Kaghan Valley in NWFP, Pakistan. Around 180,000 mainly domestic tourists were visiting Kaghan Valley each year before the deadly earthquake hit the area in October 2005. The total direct economic impact of tourism in Kaghan Valley before the earthquake is estimated to have been USD 18.8 million per year. The October 2005 earthquake which brought large scale devastation to lives and properties, also heavily impacted the tourism sector. Considering the importance of this sector, the Improving Livelihoods and Enterprise Development Project (I-LED) has adopted a systematic approach to help establish a solid development base for economic growth with expanded enterprise and employment opportunities in the tourism sector. A detailed assessment of the tourism sector was conducted in the March 2007 and a Tourism Implementation Plan was developed to best utilise I-LED's limited funds on a priority basis.

Due to the earthquake some 40% of tourist accommodation capacity was completely lost but luckily most of the hotels in

upper Kaghan Valley were only slightly damaged and remained intact. The road leading to the area was heavily damaged and remained closed for large part of the tourist season in 2006. Due to this blockage and the negative perceptions of people from down-country that Kaghan is no more a safe destination for holidays, only 5% of the usual market returned, managing less than USD 1 million in turnover for the local economy.

I-LED conducted number of meetings with concerned tourism industry stakeholders and reached the conclusion that as a first stage, it is very important to restore the confidence of tourists from down-country. It was decided that this would be achieved by launching an effective tourism publicity campaign to promote Kaghan Valley as a safe tourist destination. Initially it was planned that financial support would be provided to the Kaghan Hotel Association to launch the campaign but as the hoteliers of Kaghan had faced heavy losses in 2006, they had a shortage of funds to contribute their 33% share in the budget of this publicity campaign. The idea was discussed with the Pakistan Tourism Development Corporation (PTDC), a national organisation under the Ministry of Tourism and working for the promotion and development of tourism in Pakistan. Realising the importance of this campaign, the management of PTDC decided to contribute the matching funds to launch this promotion campaign.

Within a moderate budget of USD 48,500, efforts were made to attract around 80,000 domestic tourists to Kaghan Valley in the tourist season of 2007. CNFA I-LED's Tourism Industry Development Specialist, Mr Aftab Rana, designed this campaign based on the most effective and cost efficient media mix to reach out to potential visitors to Kaghan Valley through print and electronic media.

Focusing on the three tourist segments: families, friends and groups of domestic tourists, press advertisements were designed and released in the leading daily national English/Urdu newspapers, a short 20 seconds video spot was released on the famous Pakistan's news channel "Geo New", and a twice-a-week travel advisory talk show was conducted on the national network of FM 100 Radio to help listeners to plan their trips for Kaghan Valley. A comprehensive tourism website <http://www.visitkaghan.com> was launched to provide detailed and up to date information to the visitors of Kaghan Valley. This new website was well received by the Pakistani public and around 35,000 people visited the site within one and half months of it being launched. Besides this, tourist information briefs were emailed to major tour operators dealing in domestic tourism about road conditions after the earthquake, with updates on tourist facilities.

In an impact assessment survey conducted in mid August 2007, most of the hoteliers reported a positive impact of this publicity campaign on their business. Room occupancy increased from 35 to 90 percent.

Another independent impact assessment survey was conducted in late August (here the season was low due the start of Ramadan) by interviewing 67 tourists, which revealed that 28 percent had seen the advertisement on TV, 37 percent knew about the website, 13 percent had seen the advertisement in the newspapers and 3 percent came to know about the area through the FM Radio Kaghan's Tourism Talk Show.

According to Mr. Mattiullah, President of the Kaghan Hotel Association, more than 110,000 tourists visited Kaghan Valley during the summer holiday season of 2007. This campaign has

directly benefited more than 6,900 local entrepreneurs linked with tourism in the area. While talking to a media representative during a visit, Mr. Aftab Rana, was able to state that the results of impact assessment showed this modest tourism promotion campaign, using an effective media mix, created a very positive impact on the overall economic activity of Kaghan Valley with an estimated direct economic impact of around USD 11 million.

He further stated that many hoteliers who were depressed after the earthquake and demoralised by the bad business year of 2006 have now started repairing their damaged hotels and restaurants to restart their businesses once again and they are hoping that next year will bring even more tourists to Kaghan Valley. He also said that I-LED is providing financial and technical support to local entrepreneurs to renovate and rebuild their damaged hotels along modern lines, ensuring the new buildings are earthquake resistant and reflect best practices for reducing negative impacts on the natural environment.

To improve the standard of services of hotels and restaurants and to provide new job opportunities to unemployed local young people, I-LED has also launched a training program in the tourism and hotel management. 187 young people have received training and are working in the local hotel industry; 113 more will get a training opportunity at the start of coming tourist season.

Aftab Rana (arena@cnfapakistan.org) is Tourism Development Specialist for CFNA Pakistan. Please contact him for further information about tourism sector activities. The Improving Livelihoods and Enterprise Development Program (I-LED) is a three-year initiative implemented by CNFA Inc., a Washington-DC based non-profit organisation funded by USAID to assist communities affected by the October 8, 2005 earthquake.

Reconciling Community Development Needs and Great Apes Conservation: The Twin-Track Approach

African Conservation Foundation



Cross River gorilla, Limbe Wildlife Centre, Cameroon. Photo: Arend de Haas.

Great apes throughout West and Central Africa - gorillas, chimpanzees and bonobos - are being hunted for food and face the rapid loss of their habitat. Cameroon harbours two of the most threatened African great apes: the critically endangered Cross River gorilla (*Gorilla gorilla diehli*), the rarest of the gorilla sub-species with 250-300 individuals left in the wild; and the Nigeria-Cameroon chimpanzee, also the most endangered chimpanzee subspecies in Africa with a population numbering less than 6,500. They are both keystone species in the montane forest ecosystems of the border region of Nigeria and Cameroon.

The main goal of the Western Cameroon Great Apes program is to protect and conserve the Cross River gorilla and Nigeria-Cameroon chimpanzees across the Lebialem Highlands forest area in western Cameroon through research and development of participatory biodiversity management strategies.

The program is jointly implemented by the African Conservation Foundation (ACF) and the Environment and Rural Development Foundation through a partnership agreement under the auspices of the Ministry of Environment and Forestry.

With core financial support of the Conservation Division of the Forestry Bureau, COA, Taiwan and the Tusk Trust, systematic surveys were conducted in the Bechati-Mone Forest Corridor in order to establish and protect the ecological and genetic connectivity between great ape populations in Lebialem and Mone River Forest Reserve. The survey findings confirm that the Bechati-Mone Forest Landscape homes a fragile and important population of gorilla and chimpanzee. This area, which is drier and has a hilly topography, appears to be a last resort for the two great apes species. The level of hunting and agricultural activities is however increasing in this remote area and so is the pressure on the great ape populations and their habitat.

Highlights of the activities in the project year 2007-2008 include:

- Discovery of four new potential gorilla locations in the Bechati-Mone Forest Corridor.
- Confirmation of the presence of gorillas in the Lebialem forests through laboratory DNA tests.
- A short comparative study has been conducted on the nesting ecology of great apes in two disturbed habitats in the Lebialem highlands.
- Inclusion of the Lebialem Highlands project site into the Regional Action Plan for the Conservation of Cross River gorillas in Cameroon and Nigeria.
- Mapping of the apes' migratory route between Bechati and Mone Forest Reserve.
- Forest Management Committees established in nine out of ten villages in the Bechati-Fossimondi-Besali forest block: Fossimondi, Bechati, Folepi, Banti, Igumbo, Besali, Bangang, Nkong, and Bamumbu.
- Four community micro-finance structures for supporting sustainable community development actions in forest adjacent communities were initiated in Menji, Lewoh, M'mock and Lower Mundani areas.
- Socio-economic surveys were launched around the Bechati-Fossimondi-Besali forest block.
- Increased conservation awareness among the

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communities of Bechati-Fossimondi-Besali forest block through a sequence of community meetings and school visits.

- Canadian high realist artist Daniel Taylor has created the first-ever portrait painting of a Cross River gorilla.

The Upper Nkongho-Mbo forest block has not yet been surveyed due to lack of resources, while Mak-Betchou and UFA11002 have been partially surveyed in 2007. All of these blocks are key chimpanzee locations and gorilla presence may be confirmed after further research.

Identified threats to the survival of Cross River gorillas, chimpanzees and other primates in the Lebialem Highlands and the Bechati-Mone Forest Corridor are encroachment i.e. conversion of rainforests to farms and plantations, commercial logging, habitat fragmentation, great ape population fragmentation and most especially hunting and the illegal trade of bushmeat.

The results of the first and second phases of this program are being applied immediately as the situation is very critical. We are working with the Cameroon Ministry of Forestry and Wildlife on upgrading the conservation status of the forest areas to fully co-managed protected areas (three community wildlife reserves). This will contribute significantly to the protection of the Lebialem watershed which provides water to over 300,000 people.

The community-led and managed micro-financing mechanisms introduced in the previous project phase are being strengthened and the Community Funds created, capitalised to support the alternative livelihood schemes of the local hunters, trappers and farmers.

Since Cross River gorillas inhabit a region of high species richness combined with very high levels of endemism, measures that conserve the gorillas' habitat will at the same time protect many other endangered species that are restricted to this range.

We hope that our program results will encourage existing donors to renew their generous support and inspire other supporters to join in our efforts.

Internet references

ACF (African Conservation Foundation):
<http://www.africanconservation.org>

Art for Africa: <http://www.art-for-africa.net>

Environment and Rural Development Foundation:
<http://www.erudef.org/>

Arend de Haas (arend@africanconservation.org) is co-founder and conservation director of the African Conservation Foundation (ACF). He is coordinating integrated conservation and development projects in Kenya, Tanzania and Cameroon.

Louis Nkembu (lnkembu@yahoo.com) is director of the Environment and Rural Development Foundation and co-founder of African Conservation Foundation-Cameroon. He is a native of the Lebialem Highlands.

Education in a Remote Hill District of Nepal: Deusa Secondary School, Solukhumbu

Marianne Heredge



Exams at Deusa Secondary School. Photo: Marianne Heredge.

In April 2008 I visited Deusa, a day's walk from Saleri, in the lower part of Solukhumbu. Four days from the nearest road and off the trekking routes going to the Everest area, this is a very poor and remote area. Home to about 6,000 people, Deusa has one secondary school with about 600 students (Class 1 to 10), a lower secondary school with 320 students (Class 1 to 8), two primary and a couple of infant schools.

After a year of involvement with Deusa Secondary School, the visit was encouraging. Friends have helped to support the salaries of two extra teachers (English and science) as well as provide teaching materials and books to start a school library. Money raised by the Sheikh Zayed Private Academy for Girls in Abu Dhabi will cover the salary of a further teacher for the coming year and has helped buy land adjacent to the school on which additional classrooms can be built.

During the year, a small school library was set up and some sports equipment and musical instruments were sent to the school.

As well as the two teachers supported from the UK, an additional primary teacher joined the school in the autumn, funded by Jalim Bihani Samaj, a Nepali organisation. Seventeen teachers teach about 600 students in 12 classes (there are two divisions in Grades 1 and 9). Splitting two of the largest classes in April 2007 meant most teachers now teach 5 lessons a day instead of the typical 4 classes a day they were teaching before.

A major improvement of the year was the construction of a 5-toilet block replacing a single boys' latrine that had served the 600 students until now. Med Himal, a German funded INGO, with the help of the local community and students, who dug the hole and brought up sand from the

Dudh Kosi River several hundred metres below, built new toilets that are now the pride and joy of the school.

Most important however, was a general improvement seen in the attitude of many of the teachers, students and the head teacher. Punctuality has improved. Splitting Classes 9 and 1 into more manageable classes has been a big help too. Students seemed more interested in trying to practice their English. There has been great enthusiasm in writing to girls in a school in Abu Dhabi and in some classes, English is a favourite subject among many of the students. In the next session, it is hoped to start corresponding with some students at a school in Arizona, USA. This will particularly please the boys who were very disappointed at not being able to write to the girls in Abu Dhabi! A volunteer recently spent six weeks helping teach English, which again has done much to motivate students and teachers.

There are still many areas for improvement however.

- **Classrooms:** Two classes were split, and more could be except there are not enough rooms. A room is needed to teach science. Currently no practical demonstrations are possible and overcrowded classrooms and lack of resources make this subject one of the toughest to teach to the senior classes.

Negotiations with a farmer proved successful and recently the land adjacent to the school was purchased with a view to building extra classrooms.

In May 2008, Deusa VDC (Village Development Committee) announced that they might have funds in the coming financial year, so PAN is now discussing the construction of the classrooms with them.

- **Extra teachers:** As in most government schools in Nepal, there is a shortage of teachers. Especially in remote areas, the teaching of English is poor and usually the subject most students fail. Dev Chandra Rai, a farmer from Deusa attended school in India and speaks very good English. He was persuaded to join the school and started teaching English at the beginning of 2007. He learned how to teach mainly from books and British Council materials, so is teaching English in a progressive and interactive way - to the amazement of all around him. He has just registered to study for a BEd in Saleri, the District Headquarters, a day's walk from Deusa.

There were no qualified teachers of science. Lila Kharki from a neighbouring village was recruited in April 2007. Now about to complete his third year bachelor's degree in science, he is teaching with much enthusiasm and energy.

- **School management:** The head teacher is a good maths teacher, but hates administration. A third teacher is starting in May 2008, primarily to assist the head teacher manage the school. As well as being an excellent English teacher, Mohan will teach music and art, to give the children the chance for a broader education.
- **Teacher training:** The teaching style of most of the teachers is very traditional and in particular the primary class teachers have received little or no training. These teachers urgently need some training. Global Action



Students playing Volleyball at Deusa Secondary School. Photo: Marianne Heredge.

Nepal (GAN), a UK NGO is working with the British Council on teacher training in the region. In the meantime, teacher training books have been taken to the school to encourage the teachers.

- **Attendance and performance:** Over half the students in every class failed their end of year exams in March 2008. When asked why, some of the older children confessed that they had been skiving school to practice volleyball. The market at Nele Bazaar, 4 hours walk away every Tuesday draws many of the students and teachers from school. Seven percent of the students dropped out, four or five from each class. Nothing was done to follow up to find out why. These are problems to be addressed in the coming session.

As well as the general understaffing and lack of resources, all of the schools in the area have serious problems. Thirty minutes from the secondary school is a very poor infant school where mainly Dalit ('untouchable') children go. With three classes, over 60 children and one teacher, (no toilet), the walls of the building are badly cracked and the school is ready to fall down.

Three hours walk away is the lower secondary school. There are over 300 children, no toilets at all.

Sadly these problems are very typical for most rural areas in Nepal.

Marianne Heredge (m_heredge@yahoo.co.uk) is Programme Officer/Librarian at the Mountain Forum Secretariat in Kathmandu. With a bit of a background in education, she is particularly interested in helping to improve the quality of education in Nepal. As well as being involved in teacher training, with the help of friends outside of Nepal, she is helping support four teachers at two government school in hill areas of Nepal.

William L. Brown Center for Plant Genetic Resources

Rainer Bussmann



Orchid tree. Photo: Marianne Heredge.

“To study, characterise and conserve useful plants and associated traditional knowledge for a sustainable future”

Plants provide humankind with our most basic resources - food, medicines, fibre, and a whole array of other useful products. Relatives of wild crops and traditional varieties - the repository of genetic diversity within and among food plants - have been the foundation of crop domestication, plant breeding, and indeed the modern agriculture that feeds the earth's 6 billion people. Plants provide the molecular basis of many pharmaceuticals, as direct compounds or molecular blueprints. Modern science begins to confirm that the distinction between nutrition and medicine is blurred.

With economic development empowering a greater percentage of the world's people, urban areas continuing to expand, and human populations projected to double in the next 50 years, it seems certain that natural resources will face increasing threat. Habitat loss, unsustainable extraction of plants, spread of invasive species, climate change, and other human activities will have tremendous impact. Plant species will be lost, genetic diversity of surviving species will be diminished, and traditional knowledge associated with plant use will be eroded. Perhaps never before in human history has there been a more pressing need to discover, understand, conserve and sustainably use the plant resources that are essential for the benefit of humanity.

The William L. Brown Center for Plant Genetic Resources is uniquely positioned to respond to these issues and to play a leading role in addressing the problems outlined above. The Center is located in one of the largest herbaria in the world, making a wealth of plant data available from collections. Access to advanced scientific methodologies allows more rapid characterisation of useful species, chemicals or genes that lead to new nutritional and pharmaceutical products. The Center has access to improved information technologies that facilitate the rapid communication of data, and allow repatriation of data to the countries where it is needed to make intelligent decisions about the use of natural resources. Appropriate partnerships between the Center and collaborators in developing countries enable capacity building to ensure that countries have the infrastructure to make sound development and conservation plans. Finally, partnerships between the Center and both national institutions and local communities permit the implementation of integrated conservation and sustainable development programs.

With the William L. Brown Center for Plant Genetic Resources, Missouri Botanical Garden is a global leader in discovering, explaining, and disseminating information about the diverse and dynamic relationships between people and plants throughout the world : <http://www.wlbccenter.org>.

Existing areas of programmatic strength

Mountain systems are highly bio-diverse, they are the most important sources of crop species and medicinal plants, and are heavily affected by climate-change. The programs of the WLBC concentrate on medicinal and food species in mountain regions, especially the Andes, the Himalayas and the African Highlands. This allows WLBC to fill a critical gap, while focusing on the core areas targeted by the research programs of the Missouri Botanical Garden, namely the Andean Region, Indo-China and Madagascar.

- **Discovery:** The Center has extensive partnerships aimed at the discovery and sustainable use of natural products. The Center is perhaps the world's most active group in the collection, identification, and supply of plant samples, development of strategies for the selection of species for research, and other aspects of collaborative natural products work.
- **Ethnobotany:** Numerous projects utilise information from local people to better understand how communities rely on locally available natural resources and to design solutions so that they can be used sustainably. Jan Salick's and Rainer Bussmann's ethnobotany programs are internationally recognised as leading scientific efforts to understand the relationship between plants, people, the environment, and associated traditional knowledge.
- **Useful plants:** WLBC is a leader in the compilation of databases on traditional medicinal and food species. The center plays a leading role in the preservation of traditional knowledge for indigenous and local communities, and in the production of useful plant volumes for ongoing floristic projects of MBG.
- **Communication:** The Center plays a leading role organising symposia, meetings, and workshops to

facilitate scientific exchange. The Garden is an international leader in developing the legal and ethical frameworks for conducting international programs in natural products discovery, medicinal plant research, and ethnobotany. These frameworks ensure compliance with the Convention on Biological Diversity and equitable distribution of benefits that arise from such research, including efforts to value, acknowledge and equitably compensate traditional knowledge.

- Conservation and capacity building: Projects conducted by the WLB Center include training programs ranging from botanical field techniques and ethnobotanical research to collections management, market development, sustainable production and public health. Projects have significant conservation components and these activities include programs aimed at medicinal and other useful plants as well as those that incorporate traditional knowledge in the conservation of natural resources.

Rainer W. Bussmann, Ph.D. (rainer.bussmann@mobot.org) is Curator of Economic Botany and Head of the William L. Brown Center for Plant Genetic Resources at Missouri Botanical Garden, St. Louis, USA (<http://www.wlbcenter.org>).

Visit to Harsing, a Beautiful Old Tea Garden in Darjeeling

Nirnay John Chettri



House destroyed in Harsing. Photo: MARG.

I was disheartened to hear that in the last rainy season, Harsing, a beautiful old tea garden, had to suffer for our profanities of nature. Landslides crashed through this village causing heavy losses. My friend Siddhartha Pradhan, one of the founder members of Mankind in Action for Rural Growth (MARG) and I decided to visit the place.

It was a bright Sunday morning when we set off. A fresh new blanket of snow covered the mighty Kanchenjunga and the nearby hills surrounded the Darjeeling town like a mother embracing its baby.

The air was crisp. However, it got warmer as we descended from Darjeeling to Lebung and we had to remove our jackets. On our way, we were greeted by children playing on the sides of the road, women washing clothes outside their houses and some on their way to Darjeeling. The road was narrow and steep.

As we reached Harsing, the local youth team gathered to welcome us. They were helping the landslide victims in constructing new houses. Mr. Tamang, the captain of the ship guided us up the hill through the narrow path. What a breathless experience! Though we'd been born and brought up in Darjeeling, it was difficult for us to keep pace with our other local friends.

Soon we reached the first site. And what a sight it was! Around ten to fifteen villagers were building the house of a fellow neighbour. Some were busy cutting mud, while some were cutting stones. I couldn't see the house which had been there earlier. On enquiry, I was told that the landslide had destroyed it completely.

The second site where Mr. Tamang took us was a beautiful mud house with local flowers around it. But its beauty was undone as soon as I entered the house. There was a deep crack right in the middle of the house, breaking it into two. It was very sad. The last site was a badly damaged house which till now hangs from a hill. My heart was weeping but yet hopeful. The people that gave us hope were none other than the villagers themselves. They displayed courage and friendliness which shook us all.

One family member of each house in that village gave his or her time to construct a house for the affected people. It was a rousing example of teamwork. Even though there were hardships, the faces of the villagers didn't show any of this and they welcomed us with their glowing smiles and an open heart. However, the hills welcomed us with nothing but echoes of silence. Who do we blame for the tragedy? Everyone knows the answer, but are we really doing anything to stop this? This is our wake up call. Let us respect our nature, save our hills.

I noticed the work of DLR Perna and Anugalya and was truly impressed and moved. They work silently, not for fame. This year they are re-constructing thirty one new houses which were damaged in the hills of North Bengal. After the visit was over we were taken to the nearby house and were offered tea. Tea with so much love and respect. Especial thanks go to Mr. Hemant Bhutani and Ms. Kamlesh Takkar from New Delhi for donating blankets handed to the landslide victims during the visit.

Nirnay John Chettri (nirnay.john@gmail.com) is the General Secretary of Mankind in Action for Rural Growth (MARG) <http://www.marg.org.in>. MARG (inform.marg@gmail.com) is registered as a non-government organisation in New Delhi. Formed by committed individuals, it was established in 2006 to work in the field of education, health care services, vocational and information/communication with underprivileged and marginalised people in the hills of North Bengal.

Member Initiatives

SYFA Update, Cameroon

Save Your Future Association (SYFA)

SYFA has been making progress. During this winter, SYFA hosted two volunteers, students from the USA (Yi Zhang from Wellesley College, Massachusetts and Masumi Hayashi Smith from Brown University, Rhode Island). I had met Yi Zhang in Bolshie Koti in Russia on the western shores of Lake Baikal during my Summer Environmental programme. She had developed an interest in SYFA's vision for African rural communities and decided to come with her friend Masumi during their winter break. They raised funds in USA and contributed to building a big flower bed (a circle of 10 metres diameter with a pillar in the middle) near our small botanical gardens. We will be putting a notice on the pillar to highlight the significance of the botanical garden. Flowers have been planted and it is the talk of the town in Nkambe. The volunteers carried out work in the garden: weeding, planting, watering and nursing the plants.

Together, we have also developed SYFA's portfolio which shall be launched on our new web site that is sponsored by Masumi Smith. Our web Administrator is Dr Roger Tatoud from the UK. Besides the volunteers, SYFA also assisted two biology students (Thaddeus and Linda) from a teacher training college in Cameroon. They carried out research at Chua Chua Botanical garden on horticulture with an emphasis on floriculture in Nkambe town.

SYFA has established a network with ICRAF (World Agro forestry Centre) in Bamenda, Cameroon to be a grass root organisation for a two year project in the area. This will involve establishing agroforestry nurseries with local farming groups, pasture development, orchards and soil conservation techniques. There will also be training of future agroforestry promoters.

Farmer Tantoh (fatantoh@yahoo.com) is the project coordinator of SYFA, which is a non-profit making organisation, working with children, youths and low-income farmers in rural communities; and promoting organic farming techniques and environmental protection of biodiversity.

SYFA's web site <http://www.africasyfa.org> gives updates on current and future projects. SYFA also calls on young Africans in other countries who are interested to create SYFA Clubs in their communities to contact us. Through the internet, we can exchange ideas and save Africa's rural world.

University of Athens' Research Awards - Call for Proposals

The Metsovion Interdisciplinary Research Centre (M.I.R.C.) of the National Technical University of Athens (N.T.U.A.) announces the following awards for the best:

- undergraduate thesis: "Protection and Development of Mountainous Environment and Local European Cultures" (1,000 €), deadline 31/8/2008;
- postgraduate thesis: "Protection and Development of Mountainous Environment and Local European Cultures" (1,500 €), deadline 31/8/2008;
- doctorate thesis: "Protection and Development of Mountainous Environment and Local European Cultures" (2,000 €), deadline 31/8/2009

Also for the best research projects on the following areas:

- "Nature and Culture in Mountainous Regions of Greece and Europe (dialectic relationships, interactions, interdisciplinary holistic approaches, case studies)", (3,000 €), deadline 31/8/2008
- "Infiltration of Literary Culture in the Mountainous Regions of Epirus (education, culture, people and actions, documentation)", (3,000 €), deadline 31/8/2008
- "Traditional Environmental Friendly Construction and Productive Techniques and Technologies in the Mountainous Regions of Greece (investigation, relations with the natural and cultural environment, the local natural resources and indigenous wisdom)", (3,000 €), deadline 31/8/2008
- "Interdisciplinary Innovative Solutions on Significant Problems of Greece's Mountainous Regions based on Principles and Values of their Integrated Development (technological, production, socio-economical dimensions, documentation, evaluation, applications)", (3,000 €), deadline 31/8/2008.

Applicants can be informed about the aims and activities of the Metsovion Interdisciplinary Research Centre (M.I.R.C.) of the National Technical University of Athens (N.T.U.A.) by visiting the website: <http://www.ntua.gr/MIRC/index-gb.html>.

Projects and applications are required in Greek or English. An extended summary as well as project objectives are requested in both languages. For further information and application eligibility please contact N. Dologlou: tel. +30210 7723945, 7723944, fax: +30210 7723945, e-mail: mirc@central.ntua.gr

June

2-29 June 2008

IIASA Young Scientists Summer Program 2008

Laxenburg, Austria.

Web: http://www.iiasa.ac.at/Admin/YSP/reg-info/more_about_the_program.html

5-5 June 2008

Kick the Habit - World Environment Day 2008

Wellington, New Zealand.

Contact: nick.nuttall@unep.org joelle.mojon@unep.org

Web: <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=519&ArticleID=5677&l=en>

9-13 June 2008

International Symposium on Radio-glaciology and its Applications

Madrid, Spain.

Contact: igsoc@igsoc.org

Web: <http://sympradar08.krios-hyperion.com/>

9-12 June 2008

MTNCLIM 2008 Mountain Climate Research Conference, USA.

Contact: cmillar@fs.fed.us

Web: <http://www.fs.fed.us/psw/mtnclim/>

11-13 June 2008

4th IASME/WSEAS International Conference on Energy, Environment, Ecosystems and Sustainable Development Algarve, Portugal.

Contact: info@wseas.org

Web: <http://www.wseas.org/conferences/2008/portugal/eeesd/index.html>

11-14 June 2008

Alpweek 2008

Semaine alpine 2008

L'Argentière-La-Bessée, France

Contact: organisation@alpweek.org

Web: <http://www.alpweek.org>

18-21 June 2008

Landscape Evolution & Geoarchaeology: 13th Belgium-France-Italy-Romania Geomorphological Meeting Porto Heli, Greece.

Contact: geoarch2008@geoarch2008.gr

Web: http://www.geoarch2008.gr/Con_EN_Homepage.htm

25-27 June 2008

The Eighth International Symposium on Spatial Accuracy Assessment

Shanghai, China.

Contact: accuracy2008@spatial-accuracy.org

jxzhang@whu.edu.cn gey@leis.ac.cn

Web: <http://2008.spatial-accuracy.org/>

25-30 June 2008

11th International Congress of Ethnobiology

Cusco, Peru.

Contact: ice2008@andes.org.pe

Web: <http://www.icecusco.net/>

29 June - 3 July 2008

The 9th International Conference on Permafrost (NICOP) Alaska, Fairbanks, USA.

Contact: contact@nicop.org

Web: <http://www.nicop.org/about.html>

30 June 2008 - 2 July 2008

International Energy Workshop (IEW)

Paris, France.

Contact: leo.schrattenholzer@irm-ag.com

Web: http://www.internationalenergyworkshop.org/Pre_announcement_2008.html

July

2-4 July 2008

International Conference on Research for Development (ICRD 2008)

Bern, Switzerland.

Contact: icrd@cde.unibe.ch

Web: <http://icrd.unibe.ch/>

August

6-14 August 2008

The 33rd International Geological Congress

Oslo, Norway.

Contact: asgeir.knudsen@33igc.org secretariat@33igc.org

Web: <http://www.congrex.no>

6-7 August 2008

GEOBIA, 2008 - pixels, objects, intelligence: geographic object based image analysis for the 21st century Alberta, Canada.

Contact: geobia@ucalgary.ca

Web: <http://www.ucalgary.ca/geobia/>

17-22 August 2008

International Symposium on Dynamics in Glaciology Limerick, Ireland.

Contact: igsoc@igsoc.org

Web: <http://www.igsoc.org/symposia/2008/ireland/>

25-29 August 2008

International Symposium: the role of geomorphology in environment management

Yogyakarta, Indonesia.

Contact: jsartohadi@yahoo.co.id

Web: <http://www.geomorph.org/sp/arch/IntSymIND2008-1.pdf>

25-29 August 2008

International Disaster and Risk Conference IDRC 2008 public-private partnership - Key for integral risk

management and climate change adaptation

Davos, Switzerland.

Contact: info@idrc.info

Web: <http://www.idrc.info/conf2008.html>

27-29 August 2008

Royal Geographical Society -IBG Annual International Conference 2008

London, UK.

Contact: ac2008@rgs.org

Web: <http://tinyurl.com/2asphh>

September

3-11 September 2008

The XIV Glaciological Symposium on Glaciology from International Geophysical Year to International Polar Year Irkutsk, Russian Fed.

Contact: gs2008@onlinereg.ru

Web: http://www.igsoc.org/symposia/First_circular_Irkutsk.pdf

Mountain Calendar 2008

7-12 September 2008

23rd IUFRO Conference Air Pollution and Climate Change Effects on Forest Ecosystems
Murten, Switzerland.

Contact: marcus.schaub@wsl.ch

Web: http://www.wsl.ch/iufro_ch_2008/index_EN?-C=&

8-11 September 2008

Tenth international symposium on high mountain remote sensing cartography Kathmandu, Nepal
Kathmandu, Nepal.

Contact: pmool@icimod.org

Web: <http://menris.icimod.net/news/showdetail.php?id=193>

8-13 September 2008

Third I.A.G. /A.I.G. SEDIBUD Workshop
Colorado, USA

Contact: armelle@nnv.is

Web: <http://www.geomorph.org/wg/sb/SEDIBUDBoulderFirstCirc.pdf>

15-19 September 2008

The 11th International Conference on thermochronometry
Alaska, USA.

Contact: garverj@union.edu

Web: <http://www.union.edu/ft2008/index.html>

15-26 September 2008

Regional IAG/AIG Conference on Geomorphology:
Landslides, Floods, and Global Environmental change in
Mountain Regions

Brasov, Romania

Contact: geoinst@rnc.ro

Web: <http://www.geomorph.org/sp/arch/RGC-Rom-08.pdf>

18-20 September 2008

2008 Ozarks Studies Symposim
Wet Pains, Missouri, USA.

Contact: leighadams@missouristate.edu

More information: <http://ozarksymposium.wp.missouristate.edu/>

21-25 September 2008

Third International Meeting on Environmental
Biotechnology and Engineering (3IMEBE)

Palma de Mallorca, Spain

Web: <http://www.uibcongres.org/congresos/ficha.en.html?cc=148>

21-27 September 2008

International Snow Science Workshop
Whistler, Canada

Contact: issw2008@avalanche.ca

More information: <http://www.issw2008.com>

October

5-14 October 2008

4th IUCN World conservation congress
Barcelona, Spain

Web: <http://www.iucn.org/congress/2008/congress.htm>

8-12 October 2008

VI International Conference of the Alpine Network of
Protected Areas "Living in the Alps - the new challenges"
Triglav National Park, Slovenia.

Contact: info@alparc.org

Web: http://www.tnp.si/national_park/

8-10 October 2008

VI. European mountain Convention: How to generate added value from Europe's mountains Vlèmes assises européennes de la montagne: Comment générer de la valeur ajoutée à partir des régions de montagne?
Brig, Switzerland.

Contact: conference@euromontana.org

Web: <http://www.euromontana.org>

15-18 October 2008

IV International Symposium on Transboundary Waters
Management

Thessaloniki, Greece.

Deadline for abstract: 30 April 2008

Contact:

E-mail: iganouli@civil.auth.gr

Web: http://www.inweb.gr/index.php?option=com_content&task=view&id=241&Itemid=146

November

1-9 November 2008

Banff Mountain Festivals 2008

Banff, Canada.

Contact: mountainculture@banffcentre.ca

More information: <http://www.banffmountainfestivals.ca/festivals/2008/>

3-7 November 2008

Klima 2008/Climate 2008: First virtual global conference on climate change

Contact: ftz-als@ls.haw-hamburg.de

Web: <http://www.klima2008.net>

5-8 November 2008

Climate, Ecosystems and Resources in Eastern California-
White Mountain Research Station Symposium #5
California, USA.

Contact: wmrsinfo@ucsd.edu

Web: <http://www.wmrs.edu/projects/CEREC%202008/announcement.htm>

11-15 November 2008

Management of Landslide Hazard in the Asia-Pacific Region
Sendai, Japan.

Contact: landslide_conf08@izcc.tohoku-gakuin.ac.jp

Web: <http://japan.landslide-soc.org/index-e.html>

11-14 November 2008

Lake Management in a Changing Environment
Alberta, Canada

Contact: ljackson@ucalgary.ca

Web: <http://www.nalms.org/Conferences/2008LakeLouise/>

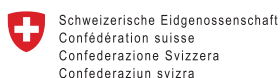
24-28 November 2008

EGU Topical Conference Series 4th Alexander von Humboldt International Conference The Andes: Challenge for Geosciences
Santiago, Chile.

Contact: peter.fabian@wzw.tum.de

Web: <http://www.meetings.copernicus.org/avh4/index.html>

Supporting Institutions



Swiss Agency for Development and Cooperation



Food and Agriculture Organization of the United Nations



Annapurna Area, Nepal. Photo: Marianne Heredge.

Host Institutions and Partners



African Highlands Initiative



Bellanet



Consorcio para el Desarrollo Sostenible de la Ecorregión Andina



European Mountain Forum



International Centre for Integrated Mountain Development



International Potato Center



Mountain Research and Development



Mountain Research Initiative



The Banff Centre



The Mountain Institute



World Agroforestry Centre



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