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Contents

Towards a Low-Carbon Society and its Relevance to Mountainous Regions

- Shobhakar Dhakal, shobhakar.dhakal@nies.go.jp & Anil K. Raut, anil.raut@nies.go.jp

Recent assessments, such as the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), the Stern Review commissioned by the British government to assess the economics of climate change, and others, have been one in asserting that scientific evidence for climate change is robust and that climate change poses serious global risks (IPCC 2007a; Stern 2006). This demands urgent global action, as the assessments have demonstrated that the benefits of strong and early action outweigh any associated costs. In order to create a vision and modality for a society that promotes the mitigation of greenhouse gas (GHG) emissions and reduces climate risks, the low-carbon society (LCS) was formulated. LCS has been extensively used recently in many international forums including the G-8 Summit in Heiligendamm, Germany in 2007, and the upcoming one in Toyako, Japan in July 2008.

A key Japanese-British research project on achieving a low-carbon society defines LCS as a society that: (1) takes actions that are compatible with the principles of sustainable development, ensuring that the development needs of all groups within society are met; (2) makes an equitable contribution towards the global effort to stabilise the atmospheric concentration of carbon dioxide (CO_2) and other GHGs at a level that will avoid dangerous climate change through deep cuts in global emissions; (3) demonstrates high levels of energy efficiency and uses low carbon energy sources and production technologies; and (4) adopts patterns of consumption and behaviour that are consistent with a low level of GHG emissions (Nishioka & Skea 2008). Key questions that emerge from this, and other definitions of LCS are discussed below.

- ***How much does a society have to cut global emissions to be an LCS? What temperature rise and GHG concentration level should an LCS aim for?***

  To lessen climate change threats to humanity, the concentration of GHGs in the atmosphere needs to be reduced. The concentration of GHGs is determined by how much emissions go into the atmosphere and how much is sequestered by sinks (Figure 1). The concentration of GHGs in the atmosphere is currently around 430 ppm CO_2 equivalent (CO_2e) and is increasing by 2-3ppm per year (Stern 2006). The present concentration is the highest for the last 650,000 years, and probably for the last 20 million years (Canadell et al. 2007).

Tek Jung Mahat

Mountains and Children: Hope for the Future

Shobhakar Dhakal is Executive Director and Anil K. Raut is Assistant Fellow of the Global Carbon Project, a joint project of the Earth System Science Partnership (ESSP: IHDP, IGBP, WCRP, Diversitas), National Institute for Environmental Studies, 16-2 Onogawa, Tsukuba, Japan 305 8506

Coordinator's Note

Effective March 2008, I assumed the role of Coordinator of the Asia-Pacific Mountain Network (APMN). I would like to acknowledge and thank A. Beatrice Murray for steering APMN with vigour and passion since November 2006 as Acting Coordinator. It is now my pleasure to introduce, as one of my first tasks, the summer issue of the APMN Bulletin. The Bulletin serves many important functions. It informs the public about our network activities; it is a platform for taking stock of discussions on critical and emerging themes, and it highlights membership initiatives thereby creating a regional platform for knowledge exchange on mountains and mountain people.

As of April 2008, APMN has 191 organisational members from 23 countries and 1316 individual members from 39 countries. This is 40% of the total membership of Mountain Forum. Between January and April this year, APMN supported ICIMOD and the Mountain Forum Secretariat in organising the Mountain GIS e-conference and a global digital photo contest. We initiated a successful e-mail discussion on wetlands conservation in Nepal. Some of these discussions are summarised in this issue. We would like to thank our APMN members for their inputs and contributions to the discussions.

APMN is currently strengthening its relationship with partner organisations around the world, including Mountain Forum (MF) and the Mountain Partnership Secretariat (MPS). APMN's plans have been developed in harmony with the new strategic plan of ICIMOD, which has emphasised the role of knowledge management and knowledge sharing for sustainable mountain development. We aim to use APMN as a major communication channel and see APMN playing a more important role as the communications arm for the decentralised regional hub of the Mountain Partnership. In a concerted effort with our host organisation, ICIMOD, APMN and the Mountain Forum Secretariat will continue to deliver knowledge services to our members.

Finally, in April 2008, APMN elected its representative for the next three years to the Mountain Forum Board of Governors. We would like to welcome Professor Prabhu Budhathoki, a Nepali national, to the Board, and bid farewell to outgoing Board member, M. Ismail Khan.

Read more about our plans in the Features, Discussion, and APMN News sections. We welcome comments and suggestions on how to serve our members better. This is your Forum, make use of it to pass on news and information and to initiate discussions on matters relevant to our common interests. We look forward to hearing from you.

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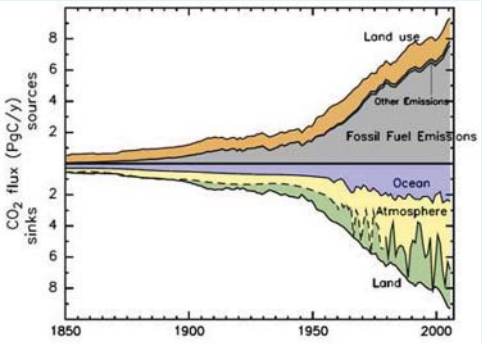

Source: Canadell et al. (2007)

Figure 1: Global carbon budget

Stern (2006) mentioned that in the 'business as usual' scenario, global emissions would probably propel GHG concentrations to over 550ppm CO_2e by 2050, and over 650-700ppm by 2100. There is much debate about stabilising the GHG concentration at 450ppm by the end of this century, which would probably mean a two degree rise in temperature. If so, the vision of an LCS could be one that tolerates this level of climatic change. In political circles, the idea of reducing GHGs by 50-60% by 2050, and perhaps to 80% by the end of the century, is being debated and discussed. At the 2007 G-8 Summit in Heiligendamm, Germany, the Japanese delegation introduced the Cool Earth 50 proposal (MOEJ 2007). This proposal aims to establish an LCS, which means reducing global CO_2 emissions by 50% from their current levels by 2050. The United Kingdom also passed a Climate Change Bill on 14 November 2007, which aims to limit the UK's net carbon account for the year 2050 to at least 60% lower than the 1990 baseline.

- ***What would be the role of developing countries in the roadmap to an LCS given that these countries are already low-carbon emitters? What indicator(s) and levels would be adequate to define an LCS across lower spatial resolutions?***

  The answers to such questions are not yet clear, as the low-carbon level (say, per capita emissions) for developed countries could be way higher than current levels in developing countries. However, according to Japan's Cool Earth 50 proposal, to keep per capita emissions at current levels, developed countries will be required to reduce CO_2 emissions by as much as 80% by 2050, and current levels of emissions will need to be maintained in developing countries. This means that developing countries would need to limit themselves to current levels while achieving growth and prosperity. One of the indicators that is often favoured by the research community in developing countries is the percentage reductions from the 'business as usual' scenario in place for any absolute emission capping numbers.

- ***Would more nuclear energy be an acceptable part of an LCS?***

  One of the key challenging sectors in the mitigation of carbon emissions is electric power generation. Rising oil prices and the stringent global climate regime favours nuclear power. While nuclear energy has not been politically and socially accepted by many countries due to the risk of nuclear proliferation and safety issues, it is being eyed by many developed countries as a potential pathway to a low carbon future.

- ***What is the relative weight of technology, markets, and society in making an LCS?***

  Technology and markets are absolutely necessary and critical in achieving an LCS. However, the required level of emissions and deep cuts in emissions that are necessary for an LCS cannot be met by technology alone. LCS calls for a fundamental change in the way our society functions. It warrants changes in lifestyle, consumption patterns, and social value systems. How much we should and could achieve from each of these three elements (technology, markets, and society), while providing a well-balanced integrated response, is crucial

Does the debate on LCS have any relevance for the mountainous regions of Asia-Pacific which are mostly part of the developing world and whose per capita emissions are already low (see Table 1). A closer look reveals that the links are strong and numerous. Mountain communities of the Asia-Pacific cannot ignore this debate. The LCS is linked to mountain regions in at least three different ways, depending on how the LCS debate influences science, the G-8 process, and the international regime setting post-Kyoto in terms of mitigation and adaptation.

Impacts and adaptation: The IPCC Fourth Assessment Report mentions mountain regions as significantly vulnerable to climate change (IPCC 2007a). The exact extent of their vulnerability is a little unclear at this point. This is because only a few model simulations have addressed the specific issues of mountain regions. The spatial resolution of global circulation models (GCMs) are too big and the topographical details in regional climate models (RCMs) are generally too crude to model climate in mountain regions (Beniston et al. 2003; IPCC 2007a). A global climate simulation carried out by a team of researchers from the University of Tokyo, National Institute for Environmental Studies, Japan (and other simulations) clearly shows that the Himalayan region is a key hotspot for global surface temperature rises in this century (Figure 2). However, the limits set for GHG emissions in the alternative roadmaps towards an LCS will determine the level of climatic change and its impacts on mountain regions. Such impacts, if LCS is to be achieved stringently (say a two degree acceptable temperature rise by 2100), would be smaller in mountainous regions than a five degree rise. However, a two degree global average temperature rise would mean a much higher temperature rise in mountain regions (Figure 2). The global temperature rise has been about 0.7 degrees over the last century (Stern 2006). In the Himalayan region we have witnessed a 0.09 degree increase per year (Shrestha 2004, cited in IPCC 2007b). Hence, there is a need to specifically assess the likely temperature rise in mountain regions, in addition to globally averaged numbers under various scenarios, including those of an LCS. Higher levels of climate change impact would not only adversely affect mountain eco-systems, increasing the melting rate of snow (for every degree Celsius increase in temperature, the snow line will on average rise by about 150m; IPCC 2007a) and the frequency of extreme climatic events in mountainous regions, adversely affecting the livelihoods of mountain communities; it would also affect a much wider area through water availability (mountains are the source of over 50% of global rivers), changing lowland precipitation, and greater floods and droughts (Barnett et al. 2005; Graham et al. 2007).

Mitigation: Although mountain communities of the Asia-Pacific, mainly the Hindu Kush-Himalayan (HKH) region, are largely low-carbon societies at present (Table 1), economic growth and prosperity will unleash more carbon intensiveness in both rural and urban areas through increased the energy

Table 1: Per capita CO_2 emissions and carbon intensity of economic activities

Country	Per capita CO_2 emissions (2004)	CO_2/GDP (kg CO_2/US$) (2004)
Afghanistan	0.03	0.116
Bangladesh	0.25	0.629
Bhutan	0.66	0.584
China	3.84	2.224
India	1.20	2.012
Myanmar	0.21	0.905
Nepal	0.11	0.450
Pakistan	0.81	1.281
HKH Region (Average)	0.89	1.025
Australia	16.27	0.511
Japan	9.84	0.273
USA	20.38	0.516
World Average	5.4	

Sources: 'Per capita emissions' are taken from Millennium Development Goals, Available at: http://mdgs.un.org/unsd/mdg/Data.aspx

'GDP' is at current prices, Available at: http://www.imf.org/external/pubs/ft/weo/2007/01/data/weorept.aspx

'World average' is the average per capita CO_2, Available at: http://mdgs.un.org/unsd/mdg/Data.aspx for 206 countries

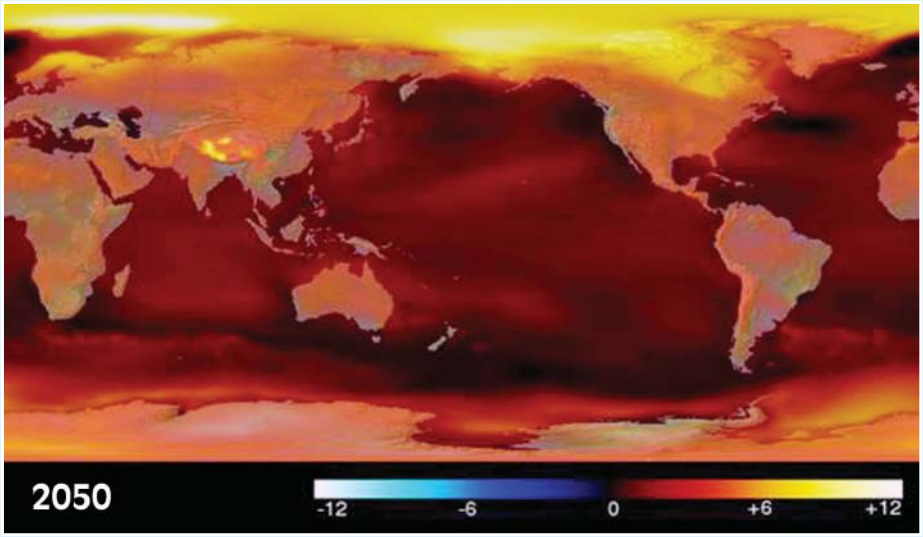

Figure 2: Simulated results of future global surface temperature changes

Notes: The temperature change is relative to ~1900 AD period climate averages at each location. Simulation is based on the IPCC SRES A1B scenario.

Source: K-1 Model Developers (2004), K-1 coupled GCM (MIROC) description, K-1 Tech. Rep. 1, Tokyo: Center for Climate System Research, University of Tokyo, H. Hasumi and S. Emori (eds) Available at http://www.ccsr.u-tokyo.ac.jp/kyosei/hasumi/MIROC/tech-repo.pdf

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Center for Climate System Research, University of Tokyo; National Institute for Environmental Studies; Frontier Research Center for Global Change; Research Project for Sustainable Coexistence of Human, Nature and the Earth, Ministry of Education, Culture, Sports, Science, and Technology (Seita Emori, NIES, Japan)

intensiveness of living, greater reliance on agricultural machinery and fertilisers, and the relatively slower rate of penetration of renewable energy. In the HKH region, although per capita CO_2 emissions are far below the global average, the carbon intensity of economies is not low (Table 1). This is perhaps due to the coal dependency of a few key HKH countries. Developing an LCS requires growing economically while keeping the carbon intensity of economic activities dramatically low. Developing countries can argue for more time to reduce emissions, but for the sustainability of the earth they need to act reasonably. This could be challenging because the globally carbon intensiveness of economic activities started to increase after the year 2000. Worldwide, the carbon intensiveness of global gross domestic product (GDP) declined from 0.35 kg of carbon per USD in 1970 to 0.24 kg of carbon per USD in 2000, but between 2000 and 2006, it increased by about 0.3% per year (Canadell et al. 2007).

Carbon market: Although debate is ongoing about the viability, extent, and method through which we will 'price' carbon as a deterrent to rising carbon emission trends, current trends show that carbon will have a price and this price will continue to increase in the future. The Clean Development Mechanism (CDM), European Union Emission Trading Scheme, Chicago Climate Exchange, and, more importantly, the rapidly rising voluntary carbon market are pushing the market as a playing field for reducing global GHG emissions. Mountainous regions and communities can tap some of the financial instruments devised by such global and market regimes under the pretext of LCS. Mountain areas can claim financial benefits for afforestation and reforestation and other projects under CDM, find a place in possible new frameworks for reduced emissions from deforestation and degradation (REDD), and implement small projects (micro-hydro and small renewable energy projects such as solar, wind, and bio-gas) favoured by the international voluntary carbon market. Countries in the HKH region have already registered a number of CDM projects in mountainous regions. For example, 525 hydro-related CDM projects are in the pipeline in the HKH, which will reduce CO_2e by 62.6 million tons per year, of which 94 projects (equivalent to 6.9 million tons of CO_2e per year) are already registered with UNFCCC.* This is a substantial figure, as the total number of global hydro CDM projects in the pipeline is 816, with an estimated potential to reduce carbon by 76.8 million CO_2e per year. These hydro CDM projects are very significant as the total number of CDM projects in the pipeline is 3,188, with estimated Certified Emission Reductions (CERs) of 464.2 million (1 ton of CO_2e reduction is one CER unit). Apart from hydro, as mountain regions have sparse settlements, they have the opportunity to engage in other decentralised renewable energy projects with the potential to reduce carbon emissions. Participation in the LCS debate and taking action to mitigate carbon is important to ensure that mountain communities reap the benefits offered by the financial instruments of global climate regimes, increase their resource efficiency including energy efficiency, and continue to enjoy other aspects of ecosystem services.

Thus mountain related research and advocacy communities are important in shaping the LCS debate in a way that is beneficial to the region in the context of the international climate regime and LCS development. Like other groups, such as coastal nations, small island nations, forest rich nations and others, mountain communities would benefit from joint efforts to convey their perspectives in the debate. The science base for predicting future climate impacts in relation to the specific mountain context needs to be increased and would benefit from scientific networking, better modelling techniques, and the application and validation of modelling and results. Better science will guide us in assessing specific vulnerabilities and finding ways to cope with them. However, in those areas where science is already robust, the formulation of adaptation actions and the integration of climate change impacts into long-term planning are essential.

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* (estimated by the authors based on CDM status compiled by the UNEP Risø Centre as of 1 April 2008, available at http://www.uneprisoe.org/).

Interview

Interview with Jian Liu, Chief, Climate Change Adaptation Unit, UNEP

Dr Jian Liu is a Chinese national and Chief of the Climate Change Adaptation Unit, United Nations Environment Programme (UNEP). Prior to joining UNEP in January 2008, he served as Deputy Secretary on the Intergovernmental Panel on Climate Change (IPCC). Tek Jung Mahat of APMN had the pleasure of interviewing him briefly via email.

Q. Which of the key findings of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 2007 do you think are particularly relevant to mountain environments/ecosystems?

A. The Fourth Assessment Report shows that the warming of the global climate system is unequivocal and is very likely due to increased greenhouse gas concentrations in the atmosphere resulting from human activity. Even if greenhouse gas concentrations were to stabilise, climate change and rising temperatures, as well as sea level rise, would continue for centuries due to time scales associated with climate processes and feedback (IPCC 2007). Many natural systems and regions, including the Hindu Kush-Himalayan region, are affected by regional climate change. Mountains in many parts of the world are susceptible to the impacts of a rapidly changing climate. The change in hydrological cycle may affect river runoff, accelerate water-related hazards, and affect agriculture, vegetation, forests, biodiversity, and health (Beniston 2003). On the other hand, mountain ecosystems play a significant role in biospheric carbon storage and carbon sequestration, particularly in semi-arid and arid areas. Mountain ecosystem services, such as water purification and climate regulation, extend beyond geographic boundaries and affect all continents. For more information please refer to my paper in ICIMOD's newsletter 2007 ('Climate Change and the Himalayas: More Vulnerable Mountain Livelihoods, Erratic Shifts in Climate for the Region and the World' *in Sustainable Mountain Development*, ICIMOD Newsletter No. 53, Winter 2007).

Q. How do you rate the likely impact of climate change in the mountainous areas of the Asia Pacific region?

A. Mountains have been identified as one of the most vulnerable ecosystems to climate change impact. The Himalaya (HKH) is one of the most vulnerable mountain areas in the world; in particular, melting glaciers will very likely cause more frequent flash floods and landslides. Meanwhile, in the longer term, people's livelihoods and agriculture downstream, which are dependent on water supply from glaciers, will suffer from diminishing water resources. Accordingly, the hydrological cycle will be disturbed and the ecosystem services of the drainage area will be greatly compromised.

There are also some interesting short-term gains for pastureland in some mountain areas. This is because temperature and precipitation increases will, in the short-term, increase the productivity of pastureland and live-stock. But how long this process will last and how large these areas will be are unknown and need to be studied.

Q. What do you think are the major crisis scenarios likely to be observed in the near future in this region?

A. I suggest that three things be observed and/or analysed to prepare for the worst case scenario:

a) Monitor the rate and magnitude of melting glaciers in the HKH and project what will happen to these glaciers/permafrost in the next 20-50-100 years.
b) Closely monitor changes in glacier lakes and project the likelihood of outbursts.
c) Experiment and project agricultural productivity and carrying capacity in cases of less water supply in the next 20-50-100 years.

Q. What efforts do you think the national governments of this region should consider to tackle the emerging problems?

a) Support a regional network for monitoring, modelling, and to increase the predictability of likely disasters, especially flash floods and landslides caused by GLOFs.
b) Build a buffer zone for landslide/flood protection and increase the adaptive capacity of local communities.
c) Adapt the agricultural sector to less water supply in the long-term.
d) Build necessary infrastructure.
e) Take into account the diminishing permafrost in new development projects such as railways and in urbanisation.

Q. What mountain community-based or led efforts could be important in tackling these crises?

a) Community-based disaster risk reduction
b) Drought-resistant agriculture and water harvesting, and
c) Capacity building

Q. Would you like to convey a particular message to the vulnerable communities in this region?

A. The impact of climate change on mountain areas is real and unprecedented and we have to be prepared. Yet these impacts are adaptable and disaster risks preventable. Great efforts must be made in building the adaptive

capacity of communities and increasing their preparedness, for which there must be a highland-lowland partnership. UNEP is prepared to work closely with these vulnerable communities, governments, and regional (such as ICIMOD) and international societies to help build the key adaptive capacities and resilience of these communities.

Mountain Highlights

The Need to Synchronise Global Climate Policy with CFM Policy: Experiences from the Himalayan Region

– Bhaskar Singh Karky, PhD Fellow, University of Twente, bskarky@hotmail.com

Introduction

The UN Secretary General, Ban Ki Moon, in a video address to the Bangkok Climate Change Talks (31 March–4 April 2008), reiterated to the 1000 delegates from 190 countries: "The world is waiting for a solution that is long-term and economically viable." This speech was intended as a follow up to the landmark agreement reached in Bali in December 2007 on a roadmap to strengthen international action. Before this, the UNFCCC Director, Halldor Thorgeirsson, remarked that "effective carbon market mechanisms [would be the] key component" of any post 2012 climate change regime. Relying on the market approach to address the Earth's problems, ranging from poverty to fishing, is not uncommon. Governments of the world have agreed to take the same neo-liberal approach to address climate change.

A global climate treaty to follow the Kyoto Protocol will have implications for livelihoods dependent on forest resources. Local communities that manage and conserve forest resources will be affected by how climate policies are formulated, and whether or not their efforts to reduce deforestation and degradation will be recognised by payment, and, if so, how. If the new agreement on REDD[1] is to address reducing emissions from deforestation and forest degradation in developing countries, it needs to take into account and respect human rights and the land and customary rights of indigenous peoples (Mehta and Kill 2007).

Funding forest management to avoid deforestation and for forest conservation under REDD could be an effective policy mechanism for reducing emissions (Skutsch et al. 2007). However, making such a mechanism work for the benefit of both the credit buyer (from the industrialised world) and community groups (from developing countries), who might be among the possible sellers, is a challenging task. In a subsistence economy, a community-managed forest has a high social value within local communities. It is important to come up with a policy that safeguards local community rights and interests, while at the same time contributing to reducing global carbon emissions.

The UNFCCC is already heading towards a REDD approach to halting emissions from deforestation. The World Bank is leading the way by establishing the Forest Carbon Partnership Facility, which is a mega-fund for REDD. What is missing is a strong force that will speak on behalf of the millions who derive their livelihoods from forest resources when global treaties are being formulated or when funds are being dispersed.

Problem

A quarter of global emissions result from deforestation and forest degradation. This is not accounted for, nor controlled, under the Kyoto Protocol mechanism. A concerted effort is needed to reduce emissions from deforestation and degradation in developing countries (Banskota et al. 2007). However, the technicalities remain a problem as a 'one size fits all' policy needs to be formulated under a new climate change agreement for the post 2012 period. The rules on REDD are expected to be finalised at COP 15 in Copenhagen and scientific discussions on this topic are already under way.

The Bali 'roadmap' (from the UN climate conference in December 2007) requested parties to submit their views to the Subsidiary Body for Scientific and Technological Advice (SBSTA) on the science and methodology needed to operationalise an agreement that will allow industrialised nations to pay non-industrialised nations to reduce

Tek Jung Mahat

Deforestation for agricultural purposes in the Nepal Himalayas

[1] RED stands for 'reducing emissions from deforestation in developing countries'. This is also interchanged frequently with REDD, which stands for 'reduced emissions from deforestation and degradation in developing countries'.

deforestation and forest degradation. In such submissions, and subsequent international discussions, it is necessary for the voices of forest communities, such as those in the Himalayas, to be heard so that their interests are recognised and addressed in the new treaty. However, in a discussion strictly on technical and methodological aspects, local communities and indigenous groups that manage and conserve forest resources cannot speak for themselves. At best, they are represented by their governments.

It is the responsibility of governments to negotiate for policies that are in their people's best interests and to ensure that their concerns are addressed in global climate treaties. Their perception of 'best interests' may not always incorporate the needs of forest dwellers. Even if these needs are understood by national negotiating teams, there is a dearth of funding in departments responsible for environmental issues such as climate change.

Solution

The Community Forest Management (CFM) policy of the Himalayan region is now widely acknowledged to have been successful in reducing deforestation and reversing forest degradation while simultaneously serving the subsistence and rural livelihood requirements of marginal groups. Not only has CFM benefited forests, it has also provided improved livelihoods for large numbers of the rural population including indigenous communities that are forest dependent, enabling them to enjoy better lives and legitimising their access to basic forest products. Women have also benefited. Women play a critical role in the management of forest resources in mountain areas and contribute more than men in direct conservation, management, and utilisation of forest resources (Bhadra 1997; Sharma 2004).

Where mountain communities manage forests for their subsistence needs, the question arises as to how such management may be recognised by payment for carbon credits. Will local people's right to continue using forest resources be taken away by those who want to manage forests only for carbon credits? As community forests are well developed and institutionalised in the region, it is imperative to develop carbon crediting by building upon existing CFM policy rather than undoing what has already been established and tested for over two decades. Ideally, the new climate treaty should recognise the efforts of rural mountain communities and remunerate them for avoiding deforestation, with a reference to a specific baseline for each area. ICIMOD believes carbon trading can and should continue by allowing the sustainable use of forest resources; a policy that meets local needs first before fulfilling global services.

Facilitating role

This is where intermediatory or facilitating institutions come in. The role of ICIMOD as an intergovernmental institution is important in many ways in highlighting the plight of mountain regions and their inhabitants because of adverse impacts of climate change.

The Kyoto: Think Global Act Local research project undertaken by ICIMOD in India and Nepal is one example of how ICIMOD has been playing a facilitating role. ICIMOD, in partnership with the University of Twente and the International Institute for Geo-Information Science and Earth Observation, has been undertaking collaborative research with local forest user groups in three sites in India and three sites in Nepal since 2003. After five years working with communities through partners, ICIMOD has learned about their compatibility with forestry policy under climate change accords. It is this North-South research collaboration with academic institution that allows ICIMOD to maintain its position as a leader in research in the field and to inform UNFCCC policy. Research collaboration at the local and international levels has allowed ICIMOD to take up the issue of community forestry, as practised in the Himalayan region, to the global level.

Tek Jung Mahat

Commercial logging, an increasing threat to environmental sustainability in eastern Nepal

This is the only research project that has highlighted, on a regular basis, the issue of the exclusion of CFM from the international climate treaty and has presented its findings at international climate conferences. The research project has collaborated with other groups and in convincing UNFCCC that the new treaty post 2012 should recognise the efforts of mountain communities in avoiding deforestation through CFM practices.

Conclusion

How this should be done and what policies need to be put in place so that both local communities and credit buyers benefit is a matter for policy level debate. ICIMOD has contributed to global scientific knowledge in this debate by assisting the Government of Nepal to prepare submissions for SBSTA in 2007 and 2008, which safeguard the interests of indigenous groups and local communities that manage and conserve forests. With ICIMOD now in the process of becoming an observer in the UNFCCC, it is more determined to make mountain voices heard at the international level. After all, mountain inhabitants are the

most vulnerable groups to the adverse effects of climate change, even though they are the least emitters of GHGs. There is a need for a strong lobby to convince the international REDD scientific community of the need to synchronise REDD policy with CFM policy based on experiences from the Himalayan region, if the new climate agreement in 2012, based on neo-liberal ideology, is to be fair and effective. Until then, ICIMOD needs to take up the challenge by using its expertise and networks to continuously engage in the debate.

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APMN News

Mountain GIS E-conference

(January)

APMN provided technical support to the Mountain Forum Secretariat and the Mountain Environment Natural Resources' Information System (MENRIS) division of ICIMOD in organising a Mountain GIS E-conference from 14–25 January 2008. Some 700 participants from 82 countries joined the event, making it a widely participated e-conference, instrumental in introducing the concept of geographic information (GI) and earth observation (EI) within the mountain context. More information is available online at http://www.mtnforum.org/rs/ec/index.cfm?econfid=15.

E-discussion on 'Healthy Wetlands, Healthy People'

(January-February)

APMN, with support from ICIMOD's wetlands project, facilitated an e-discussion from 16–26 January 2008 on 'Healthy Wetlands, Healthy People' as part of its [mf-asiapacific] discussion list in support of this year's main event, the celebration of World Wetlands Day 2007 in Nepal. World Wetlands Day was jointly organised by ICIMOD and its national partners, including the Department of National Parks and Wildlife Conservation (DNPWC), World Wide Fund for Nature (WWF), The World Conservation Union (IUCN), National Trust for Nature Conservation (NTNC), and many local Kathmandu-based organisations.

The e-discussion received over two dozen contributions from 20 wetlands conservation and management experts and researchers from Nepal and abroad, who shared their diverse research findings, conservation activities, experiences, and recommendations for future plans.

APMN synthesised the e-discussions and shared this among partners (mainly the contributors themselves) during the main event. The final synthesis of the e-discussion will appear in the upcoming issues of the APMN Bulletin, the ICIMOD Newsletter, and the DNPWC Newsletter.

Project Updates

(March-June)

APMN is conducting a mapping exercise on 'Who is Who in Sustainable Mountain Development' in the Asia Pacific Region as part of an agreement among the 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.

'For Mountains and People' Global Digital Photo Contest

(March-June)

APMN, ICIMOD, and MFS are jointly organising a global digital photo contest to mark the 25th Anniversary of ICIMOD with the slogan 'For Mountains and People'. The contest calls for entries in any of the following four categories: (1) Mountains-Geo/physical Elements (e.g., mountain ranges, massifs, mountain landscapes, high altitude rangelands, bodies of water, waterfalls, rivers), (2) Mountains-Hazards/Disasters (e.g., landslides, floods, earthquakes, volcanic eruptions, potentially dangerous glacial lakes, mud-slides, dangerous roads, trails and river crossings), (3) People-Livelihoods (e.g., farming, shifting cultivation, grazing, hunting, fishing, transhumance, trade, porterage, tourism), and (4) People-Culture (e.g., festivals, shamanism, rites of passage, dance).

Dwarika Aryal

The top two entries, to be determined by a panel of judges, will receive the ICIMOD Hindu Kush-Himalayan Prize and the Mountain Forum Global Prize. In addition, four special mention prizes 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. More information is available at www.icimod.org/photocontest/.

Mountain Forum's Asia-Pacific (APMN) Board Election

(March-April)

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. Congratulations to Prabhu Budhathoki from Nepal, who won the contest by garnering a total of 146 points out of 314, to become the MF-APMN board member for next three years. Madan Koirala from Nepal and Munir Ahmed from Pakistan, the closest contenders, scored 94 and 74 points, respectively. Budhathoki will attend the upcoming board meeting of the Mountain Forum in Chambery, France from 25–31 May 2008.

Building Resilience of Mountain Communities to Climate Change

(April-May)

APMN is facilitating an e-discussion on the theme of World Environment Day 2008, as part of a series of events being organised to mark the 25th anniversary of ICIMOD, APMN's host. The outcome of the e-discussion will be published and shared during World Environment Day in Wellington, New Zealand (Asia-Pacific) on 5 June 2008.

APMN Participation in Regional and Local Events

Tek Jung Mahat of APMN participated in an interactive forum on protected areas and world heritage sites in Nepal called 'Making the Most of World Heritage Convention in Nepal', which was held in Kathmandu on 21 February 2008. The event was organised by the World Commission on Protected Areas South Asia and IUCN Nepal. Uday Raj Sharma, Vice Chair, WCPA South Asia, Peter Shadie, Head of 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 Project Coordinator. Daan Boom is also Coordinator of Information and Knowledge Management (IKM) at ICIMOD. Prior to joining APMN and ICIMOD, he was Head of the Knowledge Management Centre of Asian Development Bank (ADB). Daan has a degree in Library and Information Science. The APMN family would like to thank Beatrice Murray, Senior Editor and Head, IT+C Division of ICIMOD for coordinating support to APMN from October 2006 to March 2008. Murray was instrumental in improving and reorienting APMN's services and network during this period.

Utsav Maden joined APMN in April 2008 as a consultant to support the network in conducting a mapping exercise. Prior to joining APMN, Maden did an internship at ICIMOD, Kathmandu and at the United Nations Environment Programme, Regional Resource Centre in Bangkok.

Bijay Bagale joined APMN in March 2008 as an intern. Bagale has a Master's degree in Environmental Science from Tribhuvan University, Nepal. He has worked with several NGOs for over three years in the environment and development sector.

Tek Jung Mahat

Working Group on 'Fragile Ecosystems' at the 4th International Conference on Environmental Education, Ahmedabad, India

E-discussions

Conserving Nepal's Wetlands: Status, Problems, and Prospects

– Tek Jung Mahat, tmahat@icimod.org and Rajendra Shilpakar, rshilpakar@icimod.org

Discussants: Bandana Pradhan, Buddi S. Poudel, Deep Narayan Shah, Gyan Kumar Shrestha, Hari Krishna Upreti, Krishna Karki, Laxman Belbase, Madan Koirala, Madhusudan Bhattarai, Nawa Raj Khatiwada, Parveen Chhetri, Rabin Bastola, Rajendra K.C., Ram Devi Tachamo, Ramiro A. Valdivia Herrera, Santosh Nepal, Top Khatri, Utsav Maden, Vinay Tandon

A discussion on 'Healthy Wetlands, Healthy People' was held from 15–26 January 2008 as part of Mountain Forum's Asia-Pacific list [mf-asiapacific]. Discussions were initiated by Laxmi Manandhar (DNPWC), Mats Eriksson (ICIMOD), and Tek Jung Mahat (APMN) as part of national programmes organised to celebrate World Wetlands Day 2008 in Nepal. The discussions are summarised below.

Water is a limited resource crucial to our future. Wetlands play a vital role in maintaining water flow and renewing the health of the environment and contributes to the Earth's life support system. Wetlands, once ignored because of lack of knowledge about their roles and functions, are now in the spotlight. Wetlands are rich in biodiversity and have the potential to meet the nutritional requirements of nearby communities and contribute to their sustainable livelihoods. As a resource they have a strong social, cultural, historical, and scientific significance and offer many intangible benefits.

Satananda Upadhyaya

Rara Lake, Nepal

According to the IPCC Working Group II, *Fourth Assessment Report 2007*, the resilience of many ecosystems including wetlands is likely to exceed a reversible level during this century due to climate change, associated disturbances, and other drivers of global change. Climate change is emerging as the leading problem in wetland conservation. As well as conservation, impact and mitigation should be given equal priority. We need to have a healthy discourse about better planning for these resources and their use.

Status

Nepal became a signatory to the Ramsar Convention on 17 December 1987. Since then, the Government of Nepal has moved to protect and manage many wetlands and designated wetland areas as Ramsar sites. At present, Nepal has eight designated 'Wetlands of International Importance'. Other sites are also being studied and recommended for special conservation measures and for listing as Ramsar sites. The Soil and Watershed Conservation Act 1982, National Wetlands Policy 2003, Nepal Policy and Action Plan 1993 and 1998, Environmental Protection Act and Rules 1997, and the Nepal Biodiversity Strategy Plan 2002 have addressed various aspects of wetlands conservation. While awareness of wetland issues seems to be high, this has not been reflected in the implementation of projects.

There are commendable community level efforts by local people from Taudaha Lake, Kathmandu, and Ghodaghodi Lake, Kailali. It is important to build in community involvement in order to realise the vision of a national wetlands policy in Nepal. In some areas, communities are developing, managing, and utilising wetlands and their resources, and enjoying benefits. This is the case in the buffer zone of the Koshi Tappu Wildlife Reserve, Chitwan National Park, and the Suklaphanta Wildlife Reserve, and possibly in many other areas. There is strong empirical evidence that the wetlands within buffer zone community forests are being ably managed by local people across the country for their collective interests.

There is a lack of inter-sectoral and inter-organisational coordination in relation to wetlands. Many organisations are active only during celebrations such as World Wetlands Day. We must raise awareness among government planners, policy makers, and implementers to ensure that adequate human and capital resource are allocated to wetland conservation and use. Institutional and community partnerships need to be established or reoriented at the macro, meso, and micro levels to address the problems effectively. Likewise, people who are dependent on wetlands for their survival must be brought into the mainstream of conservation and wise use. Wetlands outside protected areas (PAs) are on the verge of disappearing and are suffering from disturbances due to lack of clear plans and strategies. Examples include Jakhewa Tal in Dang and wetlands in Sarlahi, Rautahat,

Rupandehi, and Kapilvastu. In Sarlahi alone, no one is looking after several lakes of wetlands importance. A clear policy is needed to address wetlands outside PAs. New initiatives like the GoN/GEF/UNDP/IUCN project on the 'Conservation and sustainable use of wetlands in Nepal', which is being implemented both in and out of protected areas are expected to identify and address appropriate ways of conserving wetlands.

Problems

The invasion of alien species, unsustainable harvesting of wetlands and nearby ecosystem products such as forest and grasslands, overgrazing, and water and industrial pollution are also putting undue strain on wetlands. The excessive use of agro-chemicals which drain into nearby streams, and the discharge of industrial effluents without any standard treatment, are placing further pressure on urban wetlands. Pollution is the most important concern for rivers. Bio-monitoring should be considered for ecological assessment.

Legal measures and policies promoting effective implementation need to be translated into practise. Institutional strengthening and subject-related capacity building are the other challenges. Examples include court orders to prevent Rani Pokhari, Chimdi Lake in Eastern Nepal, and the banks of the Bagmati River from becoming dumping sites; none of these orders are being complied with.

Prospects and future courses of action

A central powerful authority is needed with a legal mandate, capable of directing, steering, and monitoring sectoral ministries to harmonise the various Acts and regulations and to coordinate their plan and actions.

Based on a central policy, wetland issues should be integrated into planning frameworks at the meso-levels in the district development committees' periodic plans to give due importance to wetlands.

Based on sectoral jurisdiction, participatory management plans within and outside PAs should be developed without jeopardising the basic ethics of conservation and sustainable use. The main actors and beneficiaries should be identified and given responsibility for management and use based on socio-economic, cultural, and aesthetic values.

Science-based research should follow to allow us to map and capture the biological and physical characteristics of wetlands in order to guide us in future management interventions. The Ramsar sites, as well as nationally important wetland sites outside of protected areas should be declared environmental protection areas or protected watersheds.

Economic incentives provide strong motivation for protection. Locally driven innovative practices for conservation and sustainable use can provide livelihood opportunities for wetlands dependent communities. This, in turn, can build strong guardianship of wetland resources.

Our life support system is based on water; hence, the conservation of water and wetlands should be everyone's business. With the advent of climate change, it becomes even more important to carefully manage wetlands as the first impacts of climate change will fall on our wetlands.

Conservation plans should carefully consider all types of wetlands, ranging from those in glacial environments to lowlands. The complex relationship between upstream communities (land and water managers) and downstream beneficiaries (drinking water, hydro-power, and irrigation users) as well as environmental inter-linkages needs to be taken into account. Environmental assessment and compliance tools need to be strictly implemented. Current assessments only focus on fish species and are silent about the environment changing from lotic (current, moving) to lentic (static, unmoving) because of the construction of dams and reservoirs and their impact on riverine ecology and species dynamics. A clear policy is needed to address natural processes (including succession) in wetlands, especially within protected areas. Policies should be ecology suitable and demand-driven rather than just administrative and rhetorical. There should be clear provisions for the sustainable harvesting/use of wetlands, even for those inside PAs. Ecosystem level studies need to be inventoried at the ecological level. Ramsar sites as well as important national wetlands that lie outside protected areas should be declared environmental protection areas or protected watersheds. Policies should also capture the benefit of constructed wetlands, and management should receive more attention than the conservation.

Usually we start our discussion by saying that socioeconomic development-related factors are the key problems in wetlands, but we end up advocating for further ecological assessment and understanding of the flora and fauna of the ecosystem which hinders discussions on the main agenda and fails to properly address the issues. Human and social dimensions should be addressed. It is still not clear whether wetlands should be managed within the context of river basin management, or a river basin should be managed within the context of managing a wetland. The definition of wetlands itself is not very clear. Conceptual vagueness and a lack of clarity are causing conflict and con-fusion for many inter-agencies in the implementation of project activities.

We need to promote conservation education. Unless we get the right people correctly trained in the right areas, discussions may just keep going in circles.

Events

Past Events

International workshop on Cryosphere and Hazards for the Hindu Kush-Himalayas and the Tibetan Plateau

From 31 March–2 April 2008, ICIMOD, with support from and together with UNO, MAIRS, GLIMS, IDI, MRI, NSF, the Lounsbery Foundation, INSTP, the Smithsonian Institution and Sida, organised an international workshop on Cryosphere and Hazards for the Hindu Kush, Himalaya and the Tibetan Plateau for a select group of over 70 scientists from around the world.

The workshop was designed for Himalayan and Tibetan specialists from the USA to engage Chinese, Nepalese, Indian, Pakistani, and other Asian counterparts in a discussion of problems and possibilities associated with the Himalaya and Tibet in a setting conducive to the augmentation of science in the region. By establishing cross-border face-to-face and electronic scientific dialog and through papers significant advances in the quality of science in the region are expected, as well as the building of future continuing cooperative links. This is expected to facilitate new associations between scientists, which will improve the scientific understanding of this key region. More information is available at http://mri.scnatweb.ch/content/view/209/30/.

Upcoming Events

5–6 June 2008
Kick the Habit – World Environment Day 2008
Wellington, New Zealand.
Contact: Nick Nuttall <nick.nuttall@unep.org> and Joelle Mojon <joelle.mojon@unep.org>
More information: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=519&ArticleID=5677&l=en

21 April–5 June 2008
Various events to mark World Environment Day 2008
(Press Meet and signature campaign, Orientation Training on Effective and Sustainable Vehicle Maintenance Procedure: De-Carbonization, Bicycle Rally and Spot Cleaning, Interaction Programme, Emission Testing of Vehicles, Eco-Yaatra, Environment Film Festival, No Plastic Campaign, Consultation meeting on Climate Change, Week for Sustainable Transport and Sustainable Transport Rally and Concert 'Music for Earth' in Kathmandu)
Kathmandu, Nepal
Contact: Dhiraj Pradhananga < smallearth@wlink.com.np>
More information: http://www.smallearth.org.np

28 April–5 June 2008
E-discussion on 'Building Resilience of Mountain Communities to Climate Changes'
Contact: APMN <apmn@mtnforum.org>
More information: apmn.icimod.org/buildingresilience.php

16–22 March 2009
5th World Water Forum: Bridging Divides for Water
Istanbul, Turkey
Contact: World Water Forum <info@worldwaterforum5.org>
More information: http://www.worldwaterforum5.org/index.php?id=1870&L=0

Browse the entire calendar of events at www.mountainpartnerships.org/events.

Sloping land agriculture

If you have any information on sustainable mountain development initiatives in Asia and the Pacific that you would like to share with other mountain communities, please send it to:

Daan Boom, Coordinator
or
Tek Jung Mahat, Node Manager
Asia Pacific Mountain Network (APMN)
International Centre for Integrated Mountain Development (ICIMOD)
GPO Box 3226, Kathmandu, Nepal
email: <apmn@mtnforum.org>

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Production team
Tek Jung Mahat, Daan Boom, Susan Sellars-Shrestha, Joyce M. Mendez, A. Beatrice Murray, Dharma Ratna Maharjan, Asha Kaji Thaku