

Mountain People Adapting to Change

**Solutions Beyond Boundaries Bridging
Science, Policy, and Practice**

9 – 12 November, Kathmandu, Nepal

Daily Conference Brief

10 November 2014



ICIMOD

FOR MOUNTAINS AND PEOPLE



Ministry of Science, Technology, and
Environment, Nepal

Moving from eagle-eye to toad-eye climate research

The two recent reports of the International Panel for Climate Change (IPCC) were at the heart of discussions at the morning plenary of the ongoing international conference on 'Mountain People Adapting to Change: Solutions Beyond Boundaries Bridging Science, Policy and Practice' in Kathmandu, Nepal.

The Plenary session 'Adding Knowledge and Evidence: Strengthening Regional Knowledge Beyond IPCC Assessment Reports' started with the Chair, Kristin Halvorsen, posing two major questions: What new gains have been developed after IPCC AR4? And how effectively is it linked with the region?

The keynote speaker, Dr Dipak Gyawali, gave some thought-provoking remarks examining the process of the IPCC. He said that local level knowledge does not filter up to the IPCC reports. "The IPCC is shackled by too much eagle-eye science and too little toad's-eye science," he noted, adding there was a need to rethink how international cooperation is being carried out. He also raised the question of institutional pluralism while carrying out global assessments.

There was a broad consensus amongst the panelists that knowledge from the HKH region, and representation by the region's scientists in the IPCC process, remains low, although some gains have been made in the period between the two assessment reports. Major data gaps still exist, including on precipitation distribution, the disconnect between regional analyses and local observations, and the future frequency and magnitude of extreme events.

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New milestone in data access and sharing

The International Centre for Integrated Mountain Development (ICIMOD) launched the Regional Database System (RDS) that is expected to enhance research related to the Hindu Kush Himalayas.

Developed by the Regional Database Initiative under ICIMOD's Mountain Environment Regional Information System, the RDS portal (available at <http://rds.icimod.org>) is a central data repository for different thematic areas in the HKH region. It is an open access web-based portal.

Speaking at the launch, the Norwegian Ambassador to Nepal, His Excellency Kjell Tormod Pettersen, said the database system is an important achievement for ICIMOD. "I am sure this will be a huge development which will contribute to the wellbeing of mountains and communities in the HKH region," he said.

The data in the RDS are primarily contributed by ICIMOD's initiatives under various regional programmes.



Emission-deposition links need deeper probe

Assessing the state of knowledge about the impact of black carbon on glaciers in the Hindu Kush Himalayas was deliberated in the interactive panel on ‘Emerging concerns: Black Carbon and the Cryosphere’.

Dr Tobias Bolch of University of Zurich noted the need for more detailed in situ and remote sensing-based studies to understand the deposit of black carbon on glaciers. He said that the existing mitigation technologies should be transferred to the people at the grassroots.

The interactive panel pointed out the need to identify the magnitude of impact on snow/ice melt. Participants also suggested that the impact of black carbon on seasonal snow cover deserves more attention from the scientific community.



“Linkages of sources and impacts of black carbon across the whole geographical region of the Hindu Kush Himalayas are of great importance,” said ICIMOD’s Programme Coordinator for Atmosphere Initiative, Dr Arnico Panday.

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Long-term strategies for disaster risk reduction

Scientific understanding of disasters and associated uncertainties, the gaps between science and society, and integrating local knowledge and wisdom were the three major challenges in devising effective preparedness and risk reduction, according to the panel on ‘Predicting Uncertainties: The Challenges of Disaster Preparedness’.

These challenges could be addressed by adopting needs-based technological solutions. For example, impact-oriented weather forecasts could be made possible through regional collaboration and trans-boundary data sharing.

Communities must be at the heart of efforts to develop early warning systems. This would address the gap between science and society, and thereby translate knowledge into action. Building long-term resilience strategies based on past hazards and risks was seen as one of the effective approach to disaster reduction systems.

Participants emphasized that development should protect people from disasters and not be the cause of disasters. Therefore, planned and robust infrastructure, weather systems, secure food-water-health systems, raising public awareness, and strengthening local institutions and governance system were identified as some of the more critical areas that needed urgent attention.

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From eagle-eye to toad-eye

At the same time, there was consensus that the IPCC process is not designed to cover all information and knowledge. Research is also available that may not have made into the reports. There was also a recognition that there was no one-size-fits-all formula, especially within such a complex region.

ICIMOD’s Regional Programme Manager of Cryosphere and Atmosphere, Dr Arun B. Shrestha, noted that the IPCC’s strength is in the analysis of global issues. “Its weaknesses lie in regional and sub-regional issues and local analyses,” he said. “We can learn a lot from global assessments, but in order to act, we need regional assessments.”

Dr Anand Patwardhan of University of Maryland noted that the narrative about adaptation has evolved over time in the IPCC, but more work needed to be done to link adaptation research and practice. “Scientists think implementation is not their business, and implementing agencies think of science as a separate realm,” he said. “We urgently need ways to connect scientific knowledge and practice on the ground.”



Call for a fine balance

Ecosystem-based and community-based adaptation complement each other in adapting to climate-related and other changes. This was the consensus the panel on 'A Fine Balance: Connecting Community and Ecosystem-based Adaptation' arrived at after an hour-long deliberation on the topic.

The keynote speaker, Dr Xu Jianchu of Kunming Institute of Botany, China, said any approach to climate change adaptation must take into account the inter-relations and interactions between people and environment.

Participants discussed the importance of mountain ecosystems and they said the importance of ecosystem restoration for community resilience cannot be understated.

Dr Babar Khan of WWF-Pakistan made a call for the need to strike a healthy balance between conserving

Clear and relevant messages crucial

Focusing on locally relevant issues, providing answers in a simple language, and making matters relevant to policymakers and local communities could go a long way in communicating complex science and uncertainties regarding climate change scenarios to decision makers in an effective way.

“Achieving an understanding by policymakers of the inherent uncertainties and their potential impact on policy making are crucial”

Christopher Scott, University of Arizona

This was the consensus reached at the Dialogue Cafe 'Questions of Scale: Applying Global and Regional Climate Scenarios to HKH Basins'. The panel said this could be done by integrating local data and information into local modelling and building capacities at the grassroots.

Professor Liu Suxia of Institute of Geographic Sciences and Natural Resources Research, China, highlighted the need for downscaling of models in order to assess the impact at the local level, whilst emphasizing the need to validate the model outputs and responses where necessary.



need of ecosystem services and the development needs of communities. “An economically stronger community supports healthy ecosystem, while highly fragile ecosystems lead to vulnerable communities,” he said.

ICIMOD’s Ecosystem Services Theme Leader Dr Wu Ning reiterated the importance of engaging local people for the success of the ecosystem-based adaptation process. He said ecosystem-based adaptation requires collective action from all stakeholders.

Bridging scientific and Indigenous knowledge for adaptation

The session on “Vulnerability and Resilience: Integrating Science with Marginalized Groups’ Response to Change” explored the linkages between climate science and vulnerability of communities.

The Panel Chair, Dr Sara Ahmad of IDRC, emphasized the value of inter-disciplinary research to decipher the risks of climate change, and the need for communicating research to bridge the gap between climatologists and social scientists. Participatory processes are also needed for the coproduction of indigenous and scientific knowledge when it comes to vulnerability and resilience.

Information technology and practical offline tools are needed for communities to learn more about vulnerability and resilience. Discussion among participants focused on integrating climate change into the Disaster Risk Reduction national plans; adopting institutional approaches for knowledge mobilization; involving local communities and their knowledge in vulnerability assessments; and identifying appropriate interfaces to share scientific research in simplified language with those most and risk.

Inclusive ground-based approach recommended

A number of recommendations were put forward at the second plenary session 'Consolidating Knowledge: Adaptation Science for Holistic Perspectives in Upstream and Downstream Contexts'.

The Session Chair, Roland F. Steurer of GIZ-Nepal, said achieving a holistic perspective for bringing science, policy, and practice together requires coordination between multiple stakeholders. Relevant issues need bridging by integrating upstream-downstream linkages that go beyond geographic boundaries and administrative, political, and social aspects of adaptation science.

"All adaptation strategies should add value to local economies and bring inclusive benefits, which in turn leads to local empowerment, enhancing ownership and sustainability," noted Roland F. Steurer.

"There has been some criticism about the research on vulnerability and resilience being output-oriented and less process- or decision-oriented" Dr Ganesh Thapa, Visiting Scientist, ICIMOD

The session agreed that mitigation is the best form of adaptation. It was also noted that ecosystem and community-based adaptation do not exclude each other. However, there has to be a right balance between short-term priorities of people and the long-term ecosystem needs.

The need to promote bottom-up vulnerability and resilience assessment approaches, and enhance food security by increasing the range of choices and risk minimization strategies available to farmers in the mountains were also stressed. Further, information technology has made it possible to use innovations in communities.



Larger choice equals greater flexibility for farmers

The session on 'Sustaining the Mountains: Ensuring food Security Through Flexible Production Systems' revealed that mountain food security differs from food security in plains because mountain livelihoods are largely dependent on natural resources, livestock, and niche farm products. Moreover, mountains are more vulnerable to climate change impacts.

There is a need to identify opportunities in mountains to reshape local production systems so that they may flexibly react and adapt to changes without deteriorating local diversity and ecosystems. It is important to maintain a balance between flexibility and productivity to achieve sustainable food security, and to identify ways to strengthen policy and institutional support in order to diversify livelihoods through non-agricultural activities.

The session concluded with a key message: "Increase the scope of flexible adaptation by extending the range of farmer's production choices."

Tweets of the day

Kunda Dixit @kundadixit

First the bad news. Himalayan glaciers retreating. Good news: Not fastest retreat in planet so fresh water lack won't be as bad. #adaptHKH

om asha rai @omasharai

#IPCC report shows data deficit in mountains, but we are already bridging that gap, says @icimod DG Dr David Molden #adaptHKH

The Joy Luck Club @zappylily

Its high time social scientists & climate scientists come out of their comfort zone and work with each other." says Anamika Barua #adaptHKH

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Thank you to the rapporteurs

ICIMOD gratefully acknowledges the support of its core donors: the Governments of Afghanistan, Australia, Austria, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Norway, Pakistan, Switzerland, and the United Kingdom.

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