

# International Symposium on Transforming Mountain Forestry

Bridging transboundary challenges with  
21st Century paradigms for the welfare of  
mountain people, forests, and the environment  
in the Hindu Kush Himalayas



Government of India



# About ICIMOD

The International Centre for Integrated Mountain Development, ICIMOD, is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. Globalization and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. We support regional transboundary programmes through partnerships with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now, and for the future.



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# International Symposium on Transforming Mountain Forestry

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# Message from the Ministry of Environment, Forest and Climate Change, Government of India

*Transcription of video message delivered by Minister Prakash Javadekar at the inauguration of the symposium*

Dignitaries, Ministers from neighbouring countries, Ministers from various states, Members of Parliaments, other dignitaries on and off the dais. It is a very important initiative by ICIMOD and Forest Research Institute to organize this four-day seminar towards transforming mountain forestry for the welfare of mountain people, forests, and environment in Himalayan ecosystems.

This is important because Himalaya has peculiar mountain features. We call it baby mountain. The science tells us that it's still growing. The composition of the Hindu Kush Himalayan ecosystem is a very interesting science and there is a need to develop the sustainable forest ecosystem in the Hindu Kush Himalayan region, which has transboundary issues also, because Nepal, Bhutan, the Sunderbans of Bangladesh, and Pakistan, all are interconnected. Therefore, this symposium is a first of such kind of symposium, especially focusing on mountain forestry in the Hindu Kush Himalayan region. Forests cover of about 25% of the Hindu Kush Himalayas and provide vital ecosystem services. They provide timber and non-timber resources that helps to sustain local livelihoods, ensure the provision of food, water, and energy, and protect the environment by sequestering carbon. I hope experts will deliberate extensively in this seminar. I have asked my director general and additional director general, who are present here, to brief me after the symposium in detail about the main findings and recommendations which will come out for developing the ecosystems. The Prime Minister of India Shri Narendra Modi is committed to develop the ecosystems which can ensure the sustainable development in the Himalayas. That is why in the budget we have also declared Himalayan Initiatives. They are about research into climate change specifically, but also include forest development and many other things that impact entire ecosystems, weather patterns, and river flow. At the same time they also have an impact on climate change. The mountain forests, if grown properly will help in creating new carbon sinks. This is a major development because as the cattle and human population is increasing, with increasing pressure on forests, there is denudation happening in the states along the Himalayan borders. But there are states which have done extremely well. Bhutan, Nepal, states of India, such as Sikkim, Uttarakhand, Himachal Pradesh, Jammu & Kashmir, Meghalaya and many others have showcased different experiments that have been carried out successfully. The symposium gives an opportunity to share the best practices and make an impact on everybody to adopt such good practices. This will really help sustainable development. It is, therefore, important for the stakeholders in the entire Himalayan region to promote sustainable and inclusive forest management that brings together practice, policy and science. There are many transboundary issues, such as law, administration, management, illegal trade, corridor connectivity, human wildlife conflict, water management, floods, and value chain sustainability. These issues need to be resolved through solutions based on strong transboundary cooperation. And here are more than 200 experts who have come together. I hope that the symposium fulfils its objective to establish a common understanding of forest ecosystem dynamics and the management of mountain forest ecosystems in the Hindu Kush Himalayas to set the research and development agenda on the transboundary scale.

I understand that an important transboundary programme on the Kailash Sacred Landscape is being implemented by India, China, and Nepal through ICIMOD. The main objective of the programme is to improve livelihoods and build ecosystem resilience through regional cooperation with an enabling policy environment. It is also in the process of getting nominated as UNESCO World Heritage Site for its outstanding universal value and its cultural and natural heritage significance to the entire world. We hope that more such programmes are started with transboundary cooperation.

I wish all the success to this symposium which as a first brainstorming of this kind that will definitely bring out new dimensions and new solutions. It will pave the way for more active transboundary cooperation to maintain Himalayan ecosystems and make them more beautiful, more sustainable, and more worthwhile to live with. I wish this programme a great success. Thank you, and all the best.



# Foreword

The International Centre for Integrated Mountain Development (ICIMOD) stands for mountains and people, and therefore we clearly understand the important role forests and their interface with other ecosystems in the Hindu Kush Himalayas (HKH) play in the livelihoods of the people in the region, while also helping ecosystems sustain multiple services. The many valuable ecosystem services provided by mountain forests, including climate stabilization, carbon sinks, protection of hydro-ecological functions, and biodiversity conservation, desperately need greater attention.

Frequently, from across the HKH, we hear disturbing stories of forest fires, devastating floods, drying springs, loss of biodiversity, spread of invasive species, and increasing human-wildlife conflicts. These are clear indicators that the mountains are becoming hotspots of 'ecological instability', and such instability will only be further aggravated if we persist with business-as-usual actions. Does this mean we have a mountain forestry crisis on our hands? Or is it a crisis of forest management?

The HKH region is marked by change. There is a continuous outmigration of people, especially men, because there is an earnest desire to move beyond subsistence. People are becoming more educated, and finding fewer opportunities to apply their learning in mountains. New technologies are providing people with faster and more comprehensive access to information and speeding up globalization processes, and market forces are playing an increasing role in once isolated mountain valleys.

Given this context of change, it is therefore time for a shift in the way mountain forests are maintained and managed. It is time for a third generation of forest management that takes into account the changing nature of the Himalayas and the changing aspirations of people dependent on forests. We have already gone through two paradigms: the first marked by state control of forests, and a second, involving more community and more participatory approaches. What are the key ingredients of the third generation of forest management?

Forests cannot be looked at in isolation, and holistic and integrated approaches are required at the landscape level. For example, there are forest-water interactions critical for communities and people downstream; the way people use forests has implications for energy, water, and for agriculture downstream; and there is an important role for commercial benefits.

The third generation of forest management must take long- and short-term perspectives. We know that many benefits from forests are derived after several generations, and forest conservation ideals are already imbedded in the first and second generation paradigms of forest management. In addition, a short-term perspective would take into account more immediate benefits to people, especially those living in poverty on the fringes of development. The "Transforming Mountain Forestry Symposium" held in Dehradun, India in January 2015 was the first meeting of its kind. This report contains the results of the deliberations of this important symposium. I now look forward to further deliberations related to policy and practice and analysis emerging from the symposium that resonates with the whole region to make forestry create positive impacts for people and ecosystems alike.

**David Molden, PhD**  
Director General  
ICIMOD

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# Acronyms

ABS	access and benefit sharing
ANSAB	Asian Network for Sustainable Agriculture and Bioresources
CATIE	Tropical Agricultural Research and Higher Education Center
CIFOR	Center for International Forestry Research
FCCI	Forest Certificate Council of India
FSI	Forest Survey of India
HKH	Hindu Kush Himalayas
ICFRE	Indian Council of Forestry Research and Education
IUFRO	International Union of Forest Research Organizations
ICIMOD	International Centre for Integrated Mountain Development
GEP	gross environment product
NTFP	non-timber forest product
PES	payment for ecosystem services
RECOFTC	Regional Community Forestry Training Centre for Asia and the Pacific
REDD+	reducing emissions from deforestation and forest degradation
SAARC	South Asian Association for Regional Cooperation
UNREDD	United Nations REDD Programme
UNFCCC	United Nations Framework Convention on Climate Change



# Introduction

The Mountain Forestry Symposium was held in Dehradun, India, from 18 to 22 January 2015. It was jointly organized by the International Centre for Integrated Mountain Development (ICIMOD), the Forest Research Institute (FRI), and GB Pant Institute of Himalayan Environment and Development (GBPIHED) under the stewardship of the Ministry of Environment, Forest and Climate Change of the Government of India, and with support from German Ministry of Economic Cooperation and Development (BMZ) through Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and UK aid from the UK Government. The symposium was attended by over 300 regional and global experts from 16 countries. The aim of the symposium was to identify sustainable forest management practices and policies to address the changing conditions in the Hindu Kush Himalayas (HKH). Spread over five days, with 26 plenary and parallel sessions, keynote speeches, and panel discussions, the symposium delved into a wide range of issues related to mountain forestry, including forest governance, transboundary cooperation, watershed management, biodiversity conservation, forest fires, human-wildlife conflict, forest degradation, climate change, mountain forest management, and forest policies. Output-oriented brainstorming sessions were held on a range of issues such as green felling bans, human-wildlife conflicts, forest fires, and forest carbon sequestration. Parliamentarians and forest ministers from Indian mountain states came together with forest ministers from South Asian Association for Regional Cooperation (SAARC) countries in the 'Lawmakers' Session'.

Seven countries of the HKH – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, and Nepal – were represented, as well as key global mountain forestry centres. Participants included policy makers, scientists, practitioners, donors, civil servants, media representatives, market actors, and legal experts. Notably, high-level representatives from all of the mountain states of India, as well as from the Ministry of Environment, Forest and Climate Change and other key ministries of the Government of India, were among the participants, signalling the importance given to mountain forestry. Coverage of the sessions was live streamed on the ICIMOD's website.



# Forests in the Hindu Kush Himalayas

Forests cover about 25% of the Hindu Kush Himalayas. They interface with numerous ecosystems, providing an invaluable range of ecosystem services: they sequester carbon and are a source of livelihoods, recreation, timber, and non-timber resources for millions of people. The ecosystem goods and services from forests sustain mountain agriculture, which is an integral part of ensuring food, water, and energy security in the transboundary socioeconomic, environmental, and cultural context of the HKH region.

Since the 2007 United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties in Bali and the 2008 World Forestry Congress, the paramount role of forests in climate change adaptation and mitigation has found global resonance. However, the health and vitality of many forest ecosystems have already been affected by climatic and land use changes, with the impact of the latter possibly outweighing that of the former. Although community-based forest management has contributed to forest conservation, skewed benefit-sharing and limited access to forest resources for local people has meant that the livelihood gains and forest ecosystem benefits have not been maximized. For forest ecosystem-based adaptation to contribute to sustainable development, forest users and cross-sectoral stakeholders at the international, national, and local levels will have to agree on appropriate adaptation measures and policies and support their implementation and monitoring. This will require a change

from top-down approaches to multi-level information sharing, transparent decision making, accountability, well-defined property rights, and collaboration between stakeholders. It will also require the proactive rather than reactive management of forests.

The overall management decisions in the key forestry management regimes – state-managed and community-based – are becoming complex as the number of stakeholders in both upstream and downstream areas showing proactive interest in the production and protection of value-added ecosystem services of forests is multiplying. In the so-called ‘multi-stakeholder processes’ it is becoming important to consider the heterogeneous interests of different actors. Thus, collaborative forest management in the biodiversity hotspots of the HKH, such as in the forests of the Terai and mid-hills of Nepal, is a good example of an evolving model for social inclusion with a pro-poor focus. However, inadequate ownership rights and overuse has nullified any expected positive impacts on the conservation of precious forest ecosystems. In fact, one of the key arguments emerging against the regime of participatory forest management is that it is often promoted at the cost of the destruction of state-owned forests.



Sustainable forest management can no longer be seen in isolation from the impacts of policies and practices in other sectors relating to forests. It is inevitable that the state and donors will continue to play a critical role in building institutional capacities (e.g., for communities, the state, and the private sector); financing the up-scaling of tested innovations, information, and knowledge networking; disseminating knowledge and best practices; supporting advocacy for policy change; and developing forest management approaches that meet accelerated needs.

One of the key challenges facing the forestry sector in the HKH region is the adoption of appropriate adaptation and mitigation measures that constitute 'no regret' actions. Current forest management systems and practices need to be analysed from the perspective of the changes mentioned above. There is clear evidence that the earlier reactive and exclusionary forest protection policies, in the absence of any proactive management, have not yielded the desired results.

Recent studies on patterns of environmental change around the globe suggest that the Hindu Kush Himalayan region is much more vulnerable to climate change than other regions. To sustain forest services in the context of climate change and other contemporary issues, stakeholders in the HKH must consolidate current assessments of future challenges and opportunities and build a case for sustainable and inclusive forest management that brings together practice, policy, and science. Over the years, it has been realized that the sustainable management of forest ecosystems in the HKH can only be achieved through an integrated approach that recognizes the transboundary nature of the flow of services beyond administrative boundaries. Although, nearly 39% of the geographical area in the region falls under protected area (PA) networks, most PAs containing forest land form 'habitat islands' and lack adequate buffer zones and corridors for the management of species and genetic contiguity. The transboundary landscape approach offers a unique opportunity to ensure an integrated approach to researching, monitoring, and managing connected and interdependent forest ecosystems and their components and interfaces, such as water provisioning in watersheds and across administrative boundaries.

Moreover, given the range of issues that have upstream-downstream linkages (e.g., the illegal trade of forest products, corridor connectivity, human-wildlife conflict), it is evident that forest governance is a subject for transboundary cooperation. The transboundary approach focuses on improving the livelihoods of people while effectively managing forests through better understanding of ecosystem functions and processes, information and knowledge sharing, and equitable access and benefit-sharing mechanisms. Several policy and national development strategies in the HKH linked to climate and conservation are manifesting transboundary cooperation for conservation and development. However, despite various regional and bilateral initiatives aimed at transboundary landscape management, to date, no functional institutional framework on transboundary landscape management exists in the HKH.



# Need for a mountain forestry symposium

To maintain the provision of services from forests in the context of climate change, forest stakeholders may need to return to the drawing board to increase the effectiveness of sustainable forest management initiatives. Existing institutional mechanisms, however, have thus far been limited to sustaining forest cover at levels that meet the demand for food, fibre, and fuel. The emerging shift in favour of enhancing environmental services will impact the existing political-economy of forest management. Maintaining forest services poses challenges, especially when the trade-off between the production of goods and the provision of services is precariously balanced. However, in low-income situations, sustainable forest management faces far more constraints, compounded by the limited ability and willingness to pay for any additional costs involved in adhering to environmental criteria. Consequently, in the Hindu Kush Himalayan region, the proportion of forests that are sustainably managed remains low and forest certification for the practice of sustainable forest management is largely absent.

In the HKH, forest ecosystem integrity has both ecological and socioeconomic aspects, as forest ecosystems are expected to provide functions, value, or services to human beings, which require ecological stability. A forest is a dynamic system that is continually changing in response to natural and human disturbances. Some disturbances help to maintain forest ecosystem integrity, while others threaten it. To improve the living conditions of rural populations in the context of climate change, forest ecosystem adaptation demands appropriate political and institutional conditions, which need to focus on:

- Climate change adaptation and mitigation policies
- Stabilizing and using forest ecosystems
- Sustainable management of forests for production and protection

In an increasingly uncertain world, management based on the expectation of order, predictability, and the replication of earlier success is fraught with risk. Given that the HKH has one-quarter forest cover and plays a critical role in mountain and human systems, terrestrial biomes, and the human economy, it is imperative that we constantly improve our approach to the science and practice of forest management. Over the years, it has been established that the forests of the HKH are complex and dynamic systems. Therefore, forestry in the HKH will be more effective in providing invaluable goods and ecosystem services if we view these as complex adaptive systems, keeping in mind the following factors:

- The shift from the dominance of a single forest management objective, mostly wood production, to multiple (often contradictory) objectives opens the door to a less controlled and focused management paradigm.
- Increased future uncertainty due to global change, especially the effects of invasive species, dominant single species (such as *Pinus roxburghii*), and climate change, requires a more flexible approach to managing our forests.
- Complexity science now has matured in other disciplines and is providing useful approaches to managing applied systems, such as knowledge networks and business innovation cycles.
- Involving forest practitioners can help shape the development of complex science by ensuring that the vital role that forests play in the biosphere is better understood and that forest ecosystems and their interfaces with other ecosystems at a landscape scale are managed.



# Objectives and focus areas

The main objective of the symposium was to identify future sustainable forest management practices and policies in the HKH that address changing conditions, while also proposing opportunities that can meet climatic and contemporary challenges in the mountain forestry sector, addressing conservation and inclusive development simultaneously.

The specific objectives of the symposium were to:

- Know the changing conditions that are core to the development and implementation of sustainable forest management (status of change)
- Know the status of current science of forest ecosystem dynamics, as well as management in practice, and the status of knowledge on the mountain forest ecosystems in the HKH (research and development, forest governance)
- Establish the status of forest ecosystem adaptation practices and good practice knowledge from other mountain regions (bridging with other good practices applicable to the HKH)
- Scope options for the mainstreaming of incentive-based mechanisms for sustainable forest ecosystem-based services (e.g. REDD+, forest carbon, cultural services) (incentive-based mechanisms)
- Identify policy, strategic, planning, and management in practice priority actions for mainstreaming forest ecosystem adaptation and good forest governance at the landscape level in the HKH (including gender, inclusiveness, and market roles) (policy and planning)
- Foster global, regional, and national knowledge networks, research and development partnerships, and cooperation (knowledge networks for policy, science, and practice)

To meet these objectives, the symposium focused on the following areas:

- **Institutions and governance:** The institutional framework for governance and its delivery of good governance for shaping policy, science, and practice
- **Forest dynamics and management:** The value addition of forest dynamics science and its contribution to the management of mountain forests for sustaining services
- **Linking incentives to stewardship:** Emerging opportunities in forest valuation science for bringing new incentives for the sustained stewardship of mountain forests
- **From subsistence to standard markets and management:** Opportunities for linking value-added forest goods and services to certified markets and enterprises
- **Forest knowledge and regional cooperation for policy, practice, and science:** Options for action in transboundary forest ecosystem management through interfacing regional policies, practices, research, and knowledge networks



# Day 1: 18 January 2015

## Inaugural Session

The inaugural session brought together high-level dignitaries from the governments of Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, and Nepal, as well as policy makers, researchers, and scientists from the region and abroad. The session was co-chaired by David Molden, Director General of ICIMOD and Hem Pande, Additional Secretary, Ministry of Environment, Forest and Climate Change, Government of India. The Deputy Forest Minister of Bangladesh, Abdullah al Islam Jakob; Deputy Minister of Forest of Sikkim, Tshering Wangdi Lepcha; Minister of Forest, Uttarakhand, Dinesh Agarwal; and Member of the Indian Parliament, PD Rai, were guests of honour during the inaugural session.

PP Bhojvaid, Director of the Forest Research Institute, welcomed the delegates, including ministers, parliamentarians, forest officials, and development partners. He said that the Himalayas should be viewed as an 'institution', with which we need to reinvent our relationship for our own welfare and survival.

Rajan Kotru, ICIMOD Regional Programme Manager for Transboundary Landscapes, elaborated on the format of the symposium. He also introduced its aim, to discuss emerging challenges in mountain forestry towards coming up with possible management options and policy solutions in the region.

A recorded video message from Prakash Javdekar, Minister of Environment, Forest and Climate Change of India, kicked off the inaugural session. Mr Javdekar pointed out that "managing Himalayan forest ecosystems on a transboundary scale is critical for mitigating the impact of climate change and, thus, sustaining ecosystem services for the welfare of mountain communities and downstream people". Mr Javdekar said that the symposium is the





first of its kind and is of vital interest in the region. He said that he looked forward to the outcomes of the deliberations and recommendations.

In his inaugural address, Mr Molten, co-chair of the session, stressed the need for a paradigm shift in managing forests. He said that “a third generation of forest management that takes into account the changing nature of the Himalayas and the changing aspirations of people dependent on forests is imperative given the changing nature of both mountain societies and ecosystems”. Mr Molten called upon the eight

member countries of the region to come together to create an interactive knowledge platform as a regional forestry community. He stressed the need for transboundary cooperation, not only to raise forest-related issues, but also to double efforts to make Reducing Emissions from Deforestation and Forest Degradation (REDD+) a reality.



In his keynote address, Christian Koerner from the University of Basel, Switzerland, pointed out that old forests are like ‘capital’, storing more carbon and producing less, whereas younger forests hold less capital, but provide more cash. He stressed that growth stimulation should never be confused with carbon sequestration. Carbon sequestration can only happen if more carbon goes into the forest than goes out due to deforestation and degradation. People can continue to live in the mountains only if their natural capital, in the form of soil and water, is intact. Half of mankind depends on mountain goods and services, particularly water. According to Mr Koerner, 12.3% of the global land area is mountains. He also said that elevated levels of carbon dioxide have no effect on tree growth, and CO<sub>2</sub> is not a fertilizer for forests.

He added that encroachment by shrubs is a critical issue, which reduces the productivity of mountain forests. He said that mountain forests provide various benefits, but, most importantly, protect slopes. Presenting his research outcomes, he added that there are huge anomalies in annual tree growth rings and in climate change impacts in different locations and ecosystems and therefore short and long-term impacts of climate change on these forests at this stage can be only speculated.

Maharaj Muthoo, President of the Roman Forum and former President of the Forest Stewardship Council, Italy, emphasized public-private partnerships and forest certificates as mechanisms for getting the most out of sustainable forest management for communities. He suggested ten pragmatic solutions to the challenges of mountain forest management. Mr Muthoo pointed out the need for collective solutions to address the integration of forests, fuel, water, and livelihoods. He added that strengthening forest institutions and forest governance is key to the successful management of mountain forests. He further emphasized the need to incentivize good forest managers through mechanisms such as payment for ecosystem services (PES). He referred to the implementation of REDD+ and forest certification as ways of effectively addressing the threat to forest resources and ecosystems, as experience from other parts of globe has shown.

Ashwini Kumar, Director General of the Indian Council of Forestry Research and Education (ICFRE), in his keynote address, highlighted the need to enhance international cooperation and coordination between HKH countries for broader understanding and agreement regarding policies and programmes. “Involvement of local communities in policy framing and implementation for forest management, without ignoring their demands and needs, is the key to mountain forestry transformation”, he stressed.



PD Rai, Member of the Indian Parliament, underlined the need for collective action to manage mountain ecosystems for the welfare of forest-dependent communities. He shared with the delegates that grazing has been banned in the state of Sikkim, which has encouraged forest regeneration. “We need to work on environmentally friendly interventions for the benefit of society”, he added.

Addressing the inaugural session, representatives of various countries in the HKH also put forward their views on mountain forestry. Yan Zhaoli, Associate Professor, Chengdu Institute of Biology, highlighted China’s policy on forest management, which focuses on increasing forest cover, which has increased tremendously as a result.

Rajan Pokhrel, former Director General, Department of Forest, Nepal, said, “Community initiated forestry programmes, such as community forestry in Nepal, have been a great success and an exemplary model for the world”. Mr Pokhrel also highlighted the impact of climate change in mountain forests, which has made these ecosystems more vulnerable.

Namgay Wangchuk, Director General of the Council for Renewable Natural Resources Research of Bhutan, informed delegates during his opening remarks that Bhutan has been declared a carbon neutral country and, according to its constitution, Bhutan keeps at least 60% of land area under forest cover. He added that “there is a dire need to share data and information among different countries and for the capacity building of human resources for sustainable mountain forest management”.

Naing Zaw Htun, Deputy Director, Ministry of Environment, Conservation and Forestry, Myanmar, thanked the organizers for the opportunity to share Myanmar’s experiences in mountain forest management. Mr Htun highlighted the ongoing community-based forest management efforts in Myanmar and expressed the need for greater collaboration among countries for capacity development, as well as the sharing of data and information for improved forest management in mountains.

Aminullah Fakhri from the Ministry of Agriculture, Irrigation and Livestock, Afghanistan, informed the delegates of the ongoing policy reforms related to forest management in Afghanistan. Mr Fakhri highlighted that the majority of the Afghan population depend on subsistence agriculture and forests for their livelihoods. Therefore, collaboration between government and non-government sectors is helpful in developing capacities and technology transfer.

Sharad Singh Negi, Additional Director General, Ministry of Environment, Forest and Climate Change, India, noted the immense pressure on forest resources for non-forest activities. He emphasized the need for greater connection and collaboration to meet the challenges in mountain forestry. He informed the participants that “India is presently reviewing its national forest policy and related acts and mountain forestry will be included separately in the national forestry plan”.

Co-chair of the session, Hem Pande, Additional Secretary at the Ministry of Environment, Forest and Climate Change, India, highlighted the importance of mountains and mountain forestry. He said that of the 20 key staple food crops in India, six come from the mountains. He explained that in India, community-based forestry institutions, called van panchayats, are managing forest resources effectively, while also ensuring equitable benefit sharing among users. Mr Pande further highlighted the need for equitable access and benefit sharing of forest resources, as discussed in the legally binding Nagoya Protocol, which has been in effect since October 2014. India has already ratified the protocol and established institutions to deliver on India’s commitment.

In closing the Inaugural Session, Mr Pande thanked all of the delegates and participants and acknowledged the Forest Research Institute, ICIMOD, and other organizations for supporting the symposium. The session was concluded with the presentation of a memento and a vote of thanks by Neelu Gera, Dean, of FRI University, on behalf of the organizers.



# Day 2: 19 January 2015

## Lawmakers' Session

One of the highlights of the five-day symposium was the Lawmakers' Session, which was chaired by David Molden, Director General of ICIMOD, and moderated by Sanjay Upadhyay, environmental lawyer and advocate of the Supreme Court of India. The Deputy Minister for Environment and Forest, Bangladesh, Abdullah al Islam Jakob; Minister for Environment and Forest, Uttarakhand, India, Dinesh Agarwal; Minister for Environment and Forest, Sikkim, Tshering Wangdi Lepcha; and Member of the Indian Parliament, PD Rai, contributed to the session.

The key questions discussed during this session were:

- What has been the focus of forest sector policies and practices in your country or state in the last five years to address the challenges and tap into emerging opportunities and paradigms?
- Do you see it as an imperative to seek trans-state (in India) and transboundary cooperation to ensure that forest ecosystems sustain their services for the benefit of people and the rapidly changing Himalayan environment?
- What are some of the concrete areas for cooperation and partnership, and which development strategies, policies, and practices would be your priority for meeting the need for collective regional efforts to reshape or transform the mountain forestry agenda over the next three decades?
- What are your expectations from this symposium and how would you apply outputs/outcomes to bring about transformational changes in the forest sector?

The session particularly focused on mountain forestry policies and political processes, and participants called for effective transboundary cooperation for sustainable ecosystem management and the wise use of forest resources for local livelihoods. Laws that focus on mountains would be "a welcome change", said PD Rai, Member of the Indian Parliament. Speaking during the high-level session Mr Rai highlighted the political processes involved in policy formulation, which may be different than the science. Mountain ecosystem incentive-based mechanisms, such as payment for ecosystem services (PES), are new and emerging concepts. This is the reason why these issues





have not yet been fully considered in government policies. However, he added that the process has already been initiated in India to ensure that policies focus on mountains. Stating that a policy dialogue among parliamentarians and lawmakers was long overdue, Mr Rai wondered why there have been no specific laws to manage mountain issues. “Institutionalized instruments, like the Environment Impact Assessment Act, generate political outcomes that get managed by politicians alone”, he said. That land is governed by states and forests are subject to concurrent powers (by the centre and states) only complicates the evolution of legal instruments. The presence of ethnic minorities along international borders, as in Myanmar, further challenges the integration of their concerns while developing transboundary protocols. Given the fact that mountain issues are influenced by global factors, it is time that overarching laws are promulgated at a global level.

“Ecology knows no nation – so collaboration with other states is vital”, said Dinesh Agarwal, Minister for Environment and Forests, Uttarakhand. He highlighted the impact of climate change on mountain forest ecosystems and rivers. Mr Agarwal added that the Government of Uttarakhand has already adopted climate change policies and plans to combat these negative impacts. He also highlighted the need for support from intergovernmental and other organizations to build the capacity to implement action plans and policies.

The Minister for Environment and Forest, Tshering Wangdi Lepcha, said that Sikkim has been declared an ‘organic state’ and is expected to be carbon neutral by 2020. Eco-clubs in Sikkim have helped generate awareness about conserving the mountain environment. The 1% tax on non-biodegradable commodities in Sikkim has also made people aware of the environment and mountain resources. These policy instruments could be adopted by other states, as well as neighbouring countries.

A participant from Afghanistan added that the gains of forest conservation in his country have benefited riparian countries, such as Pakistan in the east and Iran in the west, as the natural flow of rivers has a geographical orientation towards these countries. He remarked that “there are no laws to ensure that benefits accrue to upstream riparian populations”. He also added that trees do not have voting rights, but need to be connected with people.

### Technical Session 1: The theory of Himalayan degradation and the green felling saga: Where to move mountain forestry in the 21st Century?

Deforestation, overharvesting, selective logging, excessive lopping, and heavy grazing by domestic livestock continue to affect forest ecosystems across the HKH. In some parts of the HKH, the practice of shifting cultivation is further contributing to deforestation. Intensive afforestation programmes in mountain regions, such as in India and China, are gradually replacing natural forest cover with planted forests and high-density forest is being converted into medium density forest.

An increasing number of development projects are making inroads into the forest landscapes of the HKH and balance is being sought between conservation and production. Although forest-dependent communities are increasingly being included in forest management to support efforts to arrest deforestation, some argue that participatory forest management is being promoted at the cost of state-owned forests.

Since the 1980s, the management of mountain forests in the HKH has largely been guided by government policies, in some cases coupled with a proactive judiciary. One example of this is the green felling ban above 1,000 masl imposed by the Indian Supreme Court and there have been similar regulations in neighbouring countries. Conclusive studies are still not available to show whether this approach has helped or hindered mountain forest ecosystems. An effective strategy is needed to overcome the further degradation and fragmentation of mountains forest in the 21st Century.





Key questions to be addressed during the session were:

- What approaches are being used to balance conservation and development in different countries?
- How can the drivers of degradation, including shifting cultivation, be addressed?
- What kind of restrictions apply to commercial tree harvesting in different mountain regions and what policy issues need to be addressed?

Achieving the multi-functionality of landscapes by maintaining a mixture of both old and new forest structures, rather than looking at mountain forests in isolation, was pointed out by the panellists in this session as a key aspect to tackling the issues of degradation and deforestation.

This plenary session was opened by the session host, Rakesh Shah, Chair of the Uttarakhand Biodiversity Board (India), who introduced the session chair (Ashwini Kumar, Director General, ICFRE), co-chair (Eklabya Sharma, ICIMOD), keynote speakers (Chadwick Oliver, Yale University, USA; and Rajan Kotru, ICIMOD), and panellists (Maharaj Muthoo, India; Md Akbar Hossain, Bangladesh; Naing Zaw Htun, Myanmar; SP Singh, India; and Rajan Pokharel, Nepal).

The panellists stressed the need for a landscape approach to policy formulation and development planning. Speaking at the session, Chadwick Oliver, Yale University, emphasized the importance of both young and old forests in maintaining the ecological integrity of mountain forests. "A mixed structure is critical", he asserted. Rajan Kotru, ICIMOD, said that both local and macro-level drivers of change in forest ecosystems must be understood. Some of the key challenges he pointed out were open grazing, forest fires, environmental changes, invasive species, deforestation, and degradation. He said that we need to plan to address and mitigate these challenges through a consolidated landscape approach.

The panellists also drew attention to the importance of transboundary cooperation and collaboration. They agreed that fair and equitable benefit sharing mechanisms must be put in place to ensure community participation in forest ecosystem management. Such benefit sharing mechanisms must also be instituted in the HKH.

Naing Zaw Htun, Ministry of Environment Conservation and Forestry, Myanmar, said that people cannot be excluded from active forest management. He argued that rich mountain ecosystems are increasingly being threatened by various land use practices. "Solutions can only be found if we work with communities", he said.

Maharaj Muthoo, President of the Roman Forum, said that banning green felling is not the solution, but working with communities is the way forward.

Summing up the session, the session chairs, Eklabya Sharma, ICIMOD, and Ashwini Kumar, ICFRE, concluded with the following points:

- The HKH is a treasure trove of ethnicities, culture, and biodiversity, and we need to keep forests and local people connected for their management.
- Persistent disturbances and degradation should be checked and both young and old forests need to be managed simultaneously.
- Soil and water retention are major functions of mountain forests – “As you lose soil you lose civilization”, said (MN Jha) – so these services need to be considered as ecological services and quantified.
- There is a need to look at the problems of mountain forestry from the dweller’s point of view for a better inclusive developmental approach, as well as involving local people and benefit sharing with them.
- Banning green felling is not the solution; instead we need to work with local people to find proactive solutions.
- Success stories, such as community forestry in Nepal, should be emulated by other countries to tackle the problem of shifting cultivation.
- Forests in mountains are important carbon sinks; hence, we need to manage old forests for storage and young forests to capture carbon.
- Ecotourism and similar activities should be promoted to improve the local economy and provide employment to local people.
- Illegal logging, on both local and transboundary scales, should be tackled efficiently.
- Climate change and its impact on the movement of species must be looked into and any degradation and plantation of monocultures should be avoided.
- Internal and transboundary conflicts take a heavy toll on mountain forestry, so there is dire need to reduce conflict.
- Learning from experiences, sharing these experiences, and cooperation between countries are important for a transboundary approach. The eight countries of the HKH must sit together to achieve the sustainable management of mountain forestry by adopting a transboundary approach.

## Parallel Session 1: Co-management in mountain forests

Co-management, as an equitable, bottom-up approach to forest management, has been used for almost three decades to increase local stakeholder participation in planning, research, development, management, and policy making. This approach attempts to enable local people to find appropriate solutions for unique social, political, and ecological problems. Experiences with the application of this approach in the region are mixed. For example, although community-based forest management has contributed to forest conservation, limited access to forest resources and skewed sharing of benefits has prevented livelihood gains from being maximized.

Under changing socioeconomic and climate scenarios in the HKH, a bottom-up approach is needed to form a basis for multi-level information sharing, transparent decision making, accountability, defined property rights, collaboration between stakeholders, and, last but not least, proactive rather than reactive forest management. Management decisions in both state-managed and community-based forest management regimes are becoming increasingly complex, as the number of stakeholders, both upstream and downstream, showing an active interest in the production and protection of value-added forest ecosystem services continues to rise. Multi-stakeholder processes must include the heterogeneous interests of these different actors.

The key questions discussed during this session were:

- Are institutions in the region ready to transform co-management initiatives and learning at the landscape level into models of local development that are inclusive of key stakeholders?

- Do existing institutional structures integrate multi-level governance mechanisms to create a comprehensive management practice?
- Are we ready for generational reforms in co-management that would bring in feasible and sustainable community enterprises that are robust, inclusive, equitable, innovative, and responsive to rapid changes?
- How can good practices be shared and networked across the HKH so that a holistic response to contemporary issues, including climate change and poverty, is articulated?
- Have co-management or participatory forest management regimes proved to be gender friendly and equitable? If not, what needs to be done from policy and practice angles?

The session was chaired by Sharad Singh Negi, Additional Director General, Ministry of Environment, Forest and Climate Change, India. Keynote addresses were given by Tint Lwin Thuang, Executive Director, Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC) and Brij Mohan Singh Rathore, Additional Principal Chief Conservator of Forests, Madhya Pradesh. There were four panellists, Lobzang Dorjee of the Department of Forests and Park Services, Bhutan; Akhileshwor Lal Karna, Ministry of Forests and Soil Conservation, Nepal; Siddhartha Bajracharya, National Trust for Nature Conservation, Nepal; and Aminullah Fakhri, Ministry of Agriculture, Irrigation and Livestock, Afghanistan.

Despite its reported success in India and Nepal, according to the panellists, the co-management of forests is fraught with multi-layered challenges. Tint Lwin Thuang of RECOFTC in Myanmar attributed the low profitability of social forestry to limited trust in the local people as custodians. Adding the Bhutanese experience on the subject, Lobzang Dorjee of the Department of Forests and Park Services said that office bearers of community forest management committees indulge in malpractices without the knowledge of other members. Maharaj Muthoo of the Roman Forum said that the foresters take control of joint forest management committees and can become an obstacle to true co-management. It was also acknowledged by participants that information must be passed on to local communities, preferably in a local language, without the use of legal or technical jargon.

According to Mr Rathore, one way of correcting the situation is to integrate forest-based enterprises, ecotourism, and other income-generation activities of the private sector with participation in community forestry programmes to gainfully engage youth who, in search of greener pastures, are migrating out of the mountains. Taking the discussions further, Mr Rao of the Meghalaya Forest Department stated that procedures under the Forest Conservation Act should be amended so that the diversion of forest land for genuine developmental activities in states such as Meghalaya, which have large areas of forest cover, becomes easier. Aminullah Fakhri of Afghanistan remarked that community participation is easier to achieve in dense forests, but has been difficult in degraded open forests due to the lack of income accruing from them. Offering the chair's remarks, Mr Negi stated that the Government of India has now decided to adopt a regional approach to solve this problem so that forests will not become a disincentive for the state and its people.

## Parallel Session 2: Flow of ecosystem services and incentive mechanisms

Mountain forests are key ecosystems that provide various goods and services to communities living in the surrounding areas. More importantly, mountain forest ecosystems provide additional services, in particular water, to downstream communities and are, in effect, water rechargers. In the Hindu Kush Himalayan region, 25% of the total land area is dominated by forest cover, which provides a habitat for many important wildlife species, plants, and genetic resources. Thus, these forests are considered important biodiversity hotspots. A number of drivers, including global market and economic activities and climate change, directly or indirectly impact negatively on these ecosystems. As a result, the degradation and deforestation of these important ecosystems continues, decreasing the flow of ecosystem services, which are important to people.

Mountain forest management regimes in the HKH are diverse, but have been largely guided by government policies since the 1980s. For example, the Indian Supreme Court imposed a 'Green Felling Ban' above 1,000 masl and Nepal has a '4D Forest Management' policy, which allows for the removal of only dead, decayed, diseased, and damaged trees. In the 1980s, Nepal adopted the concept of community forestry, which were called panchayat





forests at the time. Community forestry has been instrumental in managing large forests in the middle hills of Nepal and is globally considered a successful initiative. In addition, there are many local customary practices in the HKH region that directly influence the forest management regime at the local level.

This session focused on different regimes for managing mountain forests, with a particular focus on the HKH, but also leveraging learning from other mountain areas of the world. The analysis of management regimes helps us to understand the flow of, and trends in, ecosystem services.

The key questions discussed during this session were:

- What are the major management practices for managing mountain forests in the HKH and globally? What key learning can be derived toward making a shift in mountain forest management?
- How do different management practices impact the flow of ecosystem services derived from mountain forests?
- What are some of the possible actions or suggestions that could help shift management paradigms in mountain forest management for the sustainable flow of ecosystem goods and services?
- How can instruments, such as payment for ecosystem services (PES), as well as others (zoning, regulation, tenure, and public investment), help in securing the flow of ecosystem services?

This session was chaired by Wu Ning, ICIMOD, who emphasized the importance of mountain forestry and ecosystem services. Madhu Verma, Indian Institute of Forest Management, said in her keynote address that ecosystems are a capital asset that help in fodder production, slope stabilization, pollination, flood prevention, and water storage, among other things. She focused on incentive-based mechanisms to support conservation, such as PES. She said that the valuation of ecosystem services might be quantitative and qualitative in nature. She discussed the economics of ecosystems and biodiversity approach to ecosystem valuation. She also shared three case studies on the valuation of ecosystem services from different types of forests. For example, in the Corbett Tiger Reserve, the total economic value of the forest was estimated at INR 261.8 billion Indian rupees. Of this, the intangible economic value was 99% and the



tangible value was 1%. The distribution of value among the stakeholders was 9% local, 52% national, and 39% global. Ms Verma also discussed the possession value of land.

Promode Kant, Institute of Green Economy, discussed the issue of overvaluation of ecosystem services from forests. He also talked about the ban on green felling, which has reduced the incentives for communities to take care of forests and discouraged people from taking part in conservation. Kiran Asher, Center for International Forestry Research (CIFOR), talked about the need for broad discussion on the economic valuation of ecosystem services. She added that shifting cultivation is responsible for land degradation in parts of the HKH.

Roger Villalobos, Territorial Forest Management, Tropical Agricultural Research and Higher Education Center (CATIE), talked mostly about his native country of Costa Rica, however, he stressed that the use of forest resources is not necessarily the opposite of the conservation of forests. In fact, the proper use of forest resource can lead to better conservation. The local community needs to be involved and better incentives need to be provided to communities to engage in conservation. James Anderson, Communication Officer for the Forest Program, World Resource Institute, talked about barriers to the preservation of ecosystem services, including insufficient cost benefit analyses, insufficient communication with the people, lack of access and rights to land and forests, and lack of accountability. He gave the example of Brazil, where forest degradation is higher on land where the locals have fewer rights to the forest than in areas where locals have more rights.

During the discussion, the audience also made points about PES and the valuation of ecosystem services and said that PES benefits may not necessarily be monetary. Binode Tiwari, one of the members of the audience, said that incentives need to be negotiated by the community and not granted by the authorities. Udhayan of the SAARC Forestry Centre said that compensating local people for the cost of sustaining the forest needs to evolve rationally.



# Day 3: 20 January 2015

## Plenary Session 1: **Taming human wildlife conflict in the HKH: Forest management or crisis management?**

Human-wildlife conflict is a growing challenge in the HKH. Despite the presence of pro-conservation policies intended to protect and save threatened species since the 1980s, the fragmentation of natural forest cover, infrastructure development, and intensified agriculture have disturbed the natural habitat of several wildlife species. This situation is further complicated by the fact that protected areas are increasingly becoming isolated pockets, whereas illegal wildlife trade is as alive as ever. However, the harm caused by wildlife poaching is delicately poised against a significant loss of human life and livestock (caused by leopards) and the massive loss and damage to crops (caused by monkeys, wild boars, and antelopes).

Several policy and practice responses have been applied, both from the ground-up by farmers, and from the top-down by policy makers. At the state level, the typical response to human-wildlife conflict remains the introduction of compensatory mechanisms to pay for the loss (of human lives and cattle) or the hunting of man-eating wildlife. Against this backdrop, efforts to garner the support of mountain farmers for conservation face frequent setbacks. There is a need to identify key policy, practice, and scientific paths to analyse and tackle human-wildlife conflict with solutions that benefit both conservation and sustainable development efforts.

The key questions discussed during the session were:

- Are the existing compensatory mechanisms and passive management (e.g., the hunting of man-eating leopards and culling of wild boars to secure agriculture produce) enough to address the growing issue of human-wildlife conflict?
- How can proactive wildlife management be balanced with the protection of wildlife species in the HKH region?
- Proactive wildlife management could result in the proliferation of biological populations, leading to conflict with people whose livelihoods are dependent on nature. Is this type of management suitable for the HKH region?



- Where and how should wildlife science focus its research, how should policies be amended, and how should practices be changed to counter human-wildlife conflict for the benefit of conservation and local socioeconomic development?

Chair of the session, Reinhard Mosandl, Director of the Institute of Silviculture, Technische Universität München, Germany, introduced the theme of the session and emphasized the importance of wildlife protection and management in mountain forestry.

In his keynote address on 'Moving from Wildlife Protection to Management: HKH Perspectives' Mr Sathyakumar focused on the historical versus contemporary perspective of human wildlife interactions. He described such conflicts from the perspective of protection through to management by human-focused interventions (education and awareness raising, avoiding negative encounters, the management of attractants, and immediate compensation) and wildlife-focused intervention (physical barriers and deterrents). He informed participants that drumming on empty tins and erecting barriers such as fences may provide effective protection against crop damage by wild animals. Other measures for protection against carnivores include awareness creation, proper sanitation, better night shelters, and increased vigilance. Distinguishing between causes and symptoms, capture and relocation/removal of problem animals, tracking marked problem animals after release, and relief and compensation schemes may also be helpful in areas where human-wildlife interactions are severe. He emphasized the need to tackle human wildlife conflicts and said that human wildlife interactions are easier to prevent than solve. He added that science-based population estimation, the monitoring and management of problem animals, and improved awareness and changes in behaviours might be helpful for the coexistence of human beings and wildlife.

Dhananjai Mohan, Chief Conservator of Forest, Uttarakhand, in his keynote address talked about the possible reasons for human-wildlife conflicts and damage to property and human life, including increased populations of problem animals, reduced populations of prey species, increased human populations, poor crop protection, poor management, and feeding of animals due to religious purposes. He elaborated on the possible long-and-short-term mitigating strategies. Long-term strategies include proper land use planning, wildlife population monitoring, and control of problem species through culling (which currently has strong legal, socio-cultural, and religious aspects hindering such intervention). Short-term strategies were preventive measures, including barriers and the removal of vegetation, the monitoring of problem animals, improved vigilance, alternate cropping, and the capturing, removal, and killing of problem animals. He talked about measures being taken in Uttarakhand in relation to human-wildlife conflict. The most important measures were the delegation of the power to declare an animal a problem animal to the divisional level and streamlining of the mechanism for the payment of compensation.



The delegate from Afghanistan opined that friendly relations between people and wildlife are the solution, as the killing of wildlife has not helped tackle the problem in his country. He also wanted to know how to collaborate with neighbouring countries on this problem. Mr Sathyakumar advised that policy documents and planning for the same are already available. Kunal Satyarthi opined that relocating and capturing animals may not solve the problem. A delegate from Bhutan said that there is an issue with the sustainability of compensation schemes, due to a lack of funds for such schemes. A member of the audience showed concern about the killing of wild animals for socio-cultural/religious reasons, and said that killing must be the last option.

Mr Mohan said that wild animals, such as elephants in the Rishikesh area of Rajaji National Park, are expanding their habitat due to a change in the composition of forest species, which are not palatable, resulting in a shortage of fodder. Therefore, the plantation of fodder species may be helpful in this case.

Justus Bork from the Institute of Silviculture, Technische Universität München, Germany, highlighted the issue of human-wildlife conflict in Germany and said that animals have been categorized into four types for the purpose of minimizing such conflict. Mr Karma, Research Officer for the Renewable Natural Resources Research and Development Center in Bhutan, shared a successful story about tackling the menace of monkeys in Bhutan. Rajan Kotru, ICIMOD, mentioned the need for preventive measures for human-wildlife conflicts, adding that because the human population in the HKH has increased, measures must be human-oriented. He said there is a need for a customized awareness programme in the HKH and emphasized that the culling of animals must be based on disaggregated data on species populations at the landscape scale.

## Plenary Session 2: Bracing for transboundary cooperation in the HKH

Ecosystems do not recognize political boundaries. The rise of potentially devastating global problems, including climate change, water shortages, biodiversity loss, and the illegal trade of forest products, as well as the fact that forest ecosystems interface with other ecosystems, means that transboundary cooperation in landscape and ecosystem management has become imperative. Transboundary landscape management implies the use of an integrated approach to managing extended landscapes in which both the conservation and sustainable use of the components of biological diversity are considered and that goes beyond conventional concepts of protected area management, which tend to view people and nature as separate entities.

Increasingly, nations in Latin America, Africa, and Asia are working together to establish new transboundary conservation areas. There are now dozens of examples of transboundary conservation initiatives in tropical forests covering more than 50 million hectares. On the other hand, there have been strategic changes in policies and national development strategies that signify the need for bilateral and multilateral cooperation.

As per global learning, the overarching principles for the planning, establishment, and management of transboundary initiatives are derived from an institutional mechanism that sets the norms and procedures based on country comfort levels in line with national policies and governance systems. The formation of a regional cooperation framework between participating countries is an effective tool for addressing climatic and non-climatic issues. This framework must be based on the principles of equity, because it leads to respect for the added value that each country brings; transparency, because it leads to trust with countries willing to innovate more and take risks; and mutual benefit, because it leads to engagement, which is more likely to sustain and build the relationship over time.

The key questions discussed during this session were:

- Rapid climatic changes and their undetermined impacts on forest ecosystem services warrant research collaboration across borders. What mechanisms would support this? How can there be cross-learning? What process needs to be adopted to operationalize such cooperation?





- Effective transboundary forest governance requires collaborative efforts to deal with poaching, the illegal trade in forest products, forest fires, and controlling invasive species. What kind of system should be put in place to achieve this? Who should initiate it?
- How can transboundary cooperation contribute to addressing issues of poaching, the illegal trade of forest products, forest fires, and invasive species in the context of sustainable forest management? How can this be facilitated and what further steps and actions are needed to ensure good forest governance?
- Harmonizing the policies of states sharing a contiguous landscape is necessary for achieving the broader goal of sustainable management. What forums can help facilitate this? If none exist, can a forum be established to address this issue?
- What methods and means can be used to integrate forest ecosystems with other ecosystems and human systems?

James Anderson of the World Resource Institute set the stage for the panel discussion on transboundary cooperation by mentioning that issues such as climate change and wild animals do not follow the political boundaries set by man. Hence, the solution to these problems lies in transboundary cooperation.



Eklabya Sharma from ICIMOD started his keynote presentation by drawing attention to the spread of the HKH range across eight countries. He pointed out that this range provides food, water, and energy to billions of people. The issues faced by the region, such as poverty, climate change, and outmigration, are common across the countries sharing the HKH. The common nature of the problems faced makes it logical for countries to cooperate to fight these problems. A common recurring problem in the HKH is that of transboundary floods, which constitute 10% of the annual floods, cause 30% of all flood casualties, and account for close to 60% of all those displaced by floods. Similarly, atmospheric pollution in the lowland areas is a major cause for concern for the HKH region. Moreover, species are migrating across the mountains in response to warming, often crossing political boundaries. All of these examples highlight the need for transboundary cooperation. Mr Sharma also mentioned various areas that can be more effectively managed with transboundary cooperation, including issues such as cross border illegal trade, disaster management, and wildlife corridors.

There exists a knowledge asymmetry in terms of research and management in the HKH region, which, according to Mr Rathore, can be balanced by building transboundary cooperation. He highlighted the need to find innovative tools and methods for improving communication

among transboundary countries. One such tool cited by Mr Rathore is the 'landscape yatra', in which multidisciplinary experts from different countries jointly undertake a journey to the landscape and identify areas of concern and potential solutions.

Mr Udhayan from the SAARC Forestry Centre highlighted Manas National Park as an excellent example of transboundary cooperation between Bhutan and India, particularly in terms of the sharing of research to avoid duplication of work. He also stressed the need to involve ground-level staff and administration, as they are key implementers of plans and policies on the ground.

One of the simple tools for information sharing suggested by Reinhard Mosandl was a common newsletter for the entire HKH region, through which the partners can share their work and success stories. The recognition of efforts by partners in the form of an 'annual prize' could boost the morale of the entire team. Mr Reinhard also stressed the need for the equal sharing of responsibilities among partners for increased efficiency.

Tint Lwin Thaug, Executive Director of RECOFTC, said that another key feature in the success of transboundary cooperation was the involvement of a broad audience. He opined that local communities living along the border,

the private sector, politicians, and research institutes should be involved in order to form a long-lasting working relationship between the countries.

Md Akbar Hossain, Deputy Chief Conservator of Forest, Bangladesh, highlighted the problem faced by Bangladesh due to its geographical location downstream from India, Nepal, and other countries in the HKH region. He cited problems such as river siltation and increased human-wildlife conflict in Bangladesh as a result of factors operating outside its borders. He pointed out that these issues can only be resolved by transboundary cooperation.

Summing up the discussion, the session chair, Mr Anderson, said that in addition to building trust at the official level between countries, there is a need for informal information flow among civil society groups interacting across boundaries for holistic and effective transboundary cooperation.

### Plenary Session 3: Harmonizing mountain forest management in the HKH

Mountain forests are characterized by steep ecological gradients and constraints on silviculture and logging techniques. At high altitudes, harsh environmental conditions limit productivity and slow down regeneration processes, making mountain forests sensitive to management interventions. Interest in intensified biomass use for energy production and the supply of wood-based industries may increase the pressure on mountain forest ecosystems. At the same time, the share of mountain forests being managed as common property is increasing in the Himalayas.

The management of mountain forests in the HKH is primarily dependent on existing policies and practices, both formal and customary, which vary between countries and communities. For example, community forestry in Nepal has significantly improved the nation's forest cover, whereas the state-managed forests in Nepal have not been as successfully managed. Joint forest management in India has ensured the participation of communities in the management of forest resources, whereas forest management that denies locals access to these resources (such as those imposing restrictions in protected areas) have not been as successful.

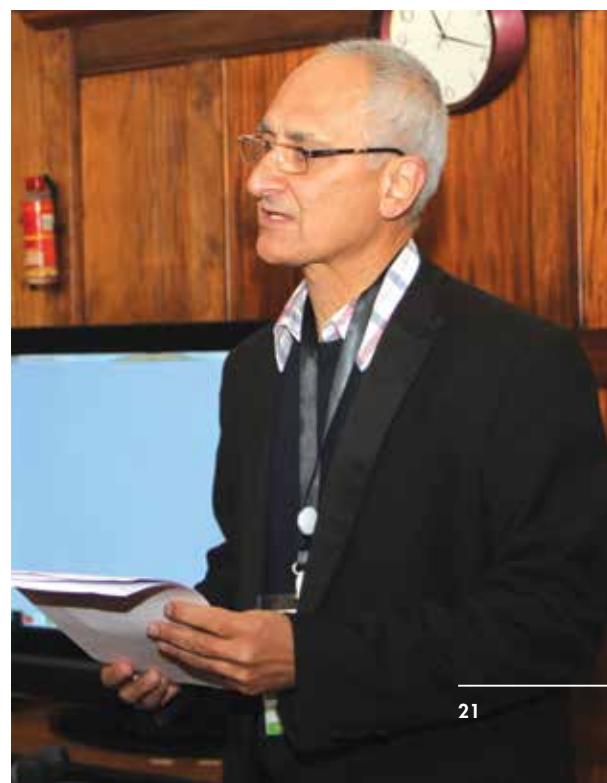
This session gives an overview of the different management regimes in mountain forest management in the HKH, while learning from different practices to consolidate possible management options for managing mountain forests in the region.

The key questions discussed during this session were:

- What are some concrete examples of the different management practices and regimes that have positively impacted mountain forest management in the Himalayas and in other regions around the globe?
- What lessons could be learned or leveraged from successful models to improve mountain forest management?
- What are possible policy options for improving mountain forest management in the Hindu Kush Himalayas?

Rajan Kotru, ICIMOD, opened the session by mentioning that coherent policy and legal frameworks for sustainable land use are essential for forging cooperation across transboundary landscapes. "Integrating community science with applied science is imperative", he remarked. There is also value in exploring and strengthening common cultural threads among communities living across borders to strengthen cooperation.

While acknowledging the need for inter-country cooperation, Kinley Tenzin, from the Ministry of Agriculture and Forests, Bhutan, stressed the need to mainstream learning from projects into bilateral and multilateral processes and agreements. Without a doubt, the science is clear and the economics of transboundary cooperation are compelling. It was suggested that ICIMOD is strategically positioned to universalize learning





from transboundary landscape projects into the policy planning processes of member countries. The pristine forests of Bhutan, which are essentially forests that have unbroken canopy cover with high species diversity, are often cited as an example for others to follow. Mr Udhayan of the SAARC Forestry Centre said that “such forests are exclusive in the region because participatory forestry has neither done justice to the ecosystems nor to the communities dependent on them”. There is a need to secure forest boundaries to revive and rejuvenate degraded forests in the region.

Gopal Rawat, from the Wildlife Institute of India, Dehradun, argued that we need to train foresters on the ecology of rangelands, scrub lands, and the intervening spaces between forests. Understanding the harmony between diverse landscapes holds the key to harmonizing forest management in the region. “Unless the colonial forestry mindset is shown the door, transforming mountain forestry will remain a dream”, said PP Bhojvaid of the Forest Research Institute, who concluded the session with the following points:

- Villagers in transboundary regions should be interlinked, and success stories should be scaled up in neighbouring regions.
- A focused journal on the Hindu Kush Himalayan region should be published depicting case studies and scientific work, as well as containing successful stories of model villages, communities, and forests.
- We need to talk about extreme situations such as poverty, cloud bursts, landslides, erratic rainfall, and cold wind, etc., and these need to be addressed properly in international forums so that management practices can be figured out.

## Parallel Session 1: Mountain forests and climate change

Climate is one of the most important determinants of, and significant factors impacting, forest patterns, distribution, and ecology, particularly in the mountains. Several studies confirm the links between climate regimes and forest types; therefore, it is logical to assume that any change in climate will directly impact forests. A recent report on global forestry by the International Union of Forest Research Organizations (IUFRO 2014) paints a gloomy picture of the future of the world’s forests in a changed climate. It suggests that in a warmer world the current carbon regulating services of forests (as carbon sinks) may be entirely lost as land ecosystems could turn into a net source of carbon dioxide later in the century.

Additionally, forests have a strong interface with agriculture and highland pastures in mountain ecosystems, where people rely directly on the goods and services that forests provide. In such cases, together with climate change, anthropogenic impacts also pose great challenges to these ecosystems. Understanding the impact of climatic and anthropogenic changes on forests is important in addressing the concerns of mountain people, particularly in relation to their livelihoods.

The key questions discussed during this session were:

- What is the status of scientific knowledge in relation to the assessment of the impacts of climate change on mountain forests, particularly in the context of complex geophysical conditions? Is there a way to manage anthropogenic factors that minimizes the negative impacts of climate change on forests?
- How do we effectively link scientific and other global knowledge with decision makers and forests’ users in mountainous regions to ensure the application of knowledge for the effective management of forests?
- What is the bigger challenge for forests in the mountains of the HKH: climatic and anthropogenic factors or poor and outdated governance systems?



Adaptive forest management for carbon mitigation was at the heart of this session. Sharing experiences from the Bavarian Alps, Reinhard Mosandl of Germany talked about the lessons learned from a long-term experiment on regeneration problems in temperate species. The experiment concluded that managed forests can mitigate more carbon than unmanaged (no intervention) forests.

Another panellist, Ben Vickers of the United Nations Food and Agriculture Organization, highlighted the change in silviculture practices in mountain forest areas. He highlighted the need for policy interventions and financing for forestry-related activities.

Kiran Asher of CIFOR said that agroforestry systems and forests play an important role in providing and supplementing the livelihoods of smallholder farmers living on slopes. She said that smallholder farmers manage these systems in ways that sustain their livelihoods and the biophysical and ecological integrity of these lands.

Through another study in China, Wu Ning of ICIMOD established that litter quality can regulate an ecosystems' response to climate. He linked the vulnerability of forest ecosystems to tree density, fragmentation, biodiversity, and elevation. Rajesh Thadani of the Centre for Ecology Development and Research (CEDAR) emphasized that while formulating any plan on the Hindu Kush Himalayas one must keep in mind the micro scale of the diversity of the region.

To complete the session, session chair, Christian Koerner from the University of Basel, Switzerland, cited the example of increases in CO<sub>2</sub> concentration with rises in plant biomass. He said that biomass gathering in a living system is not solely dependent on carbon, but on many other nutrients; therefore, there cannot be a linear relationship between CO<sub>2</sub> and growth.

## Parallel Session 2: Mountain forests and biodiversity

Managing forests for biodiversity conservation in the Hindu Kush Himalayan region, where a large section of society still subsists heavily on forest resources for daily needs, is a challenging task. As much as conservation agencies in the region would like to implement an ecosystem approach to management and ensure the sustained flow of goods and services from forests, there are wide gaps between policies and practices. There is a need to develop our understanding of the structure and functioning of forest ecosystems and their responses to disturbances caused by humans and climate change. Concerted efforts are required to address existing knowledge gaps.

In the wake of global conventions on biodiversity conservation and climate change, and recognizing that the Himalayan forests are repositories of biodiversity and habitat for a myriad of biota, the countries of the region have initiated a few steps towards enhancing the scope of forestry for inclusive development and the participatory management of forest resources. However, institutional mechanisms and interventions to ensure biodiversity conservation within managed forests and the integration of biodiversity concerns in national and local development plans for poverty reduction, especially in mountain regions, are far from reality. Some countries have undertaken initiatives to assess the economics of ecosystems and biodiversity, but much more concerted and coordinated efforts are needed to coordinate and facilitate this process in the HKH region, in which forestry institutions could play a vital role. This session examined existing good forestry practices that have helped ensure biodiversity conservation in mountain regions and explored options for innovative and suitable mechanisms, such as payment for ecosystem services to the communities that are the custodians of mountain ecosystems' rich biodiversity.



The key questions discussed during this session were:

- How can we make collaborative and concerted efforts to understand the attributes of major Himalayan forests?
- How can forests be managed to meet the needs of poor local people who have few other livelihood options?
- How has the dependence of local people on forest biomass to meet daily needs changed?
- How must mountain forestry management change to meet the demands of maintaining and promoting the flow of ecosystem services?
- What are the best forestry practices in mountains that ensure biodiversity conservation as well as cater to rural livelihoods?
- How can existing national policies be leveraged to make biodiversity conservation a viable economic enterprise?

The session was chaired by BK Tiwari, Department of Environmental Studies, North-Eastern Hill University, India, and the keynote address was provided by SP Singh, Senior Ecologist and Distinguished Fellow at the Center for Ecology Development and Research, India.

Quoting an old Limbu phrase “Ghar odaar ho, ban bhandaar ho” (A house provides shelter, but forests provide food storage), Ram Chaudhary, Executive Director of the Research Centre for Applied Science and Technology (RECAST), Tribhuvan University, Nepal, brought to light traditional wisdom, which not only places emphasis on forests as storehouses for human needs, but also reflects the manner in which communities manage and sustain mountain biodiversity. Managing forests for biodiversity conservation, while a large section of society still subsists on forest resources for daily needs, has become daunting.

As much as conservation agencies in the region would like to implement an ecosystem approach to management and ensure the sustained flow of goods and services from forests, there are wide gaps between policies and practices. One reason for this is the confusion created by the misclassification of Himalayan forests as temperate forests. “For better understanding of the structure and functioning of forest ecosystems, there is a need to devise a separate classification, leaving aside the latitudinal options,” argued Mr Singh.

Comparing biodiversity in the mountains with other regions, Rakesh Shah, Chairman of the Uttarakhand Biodiversity Board, highlighted the three pillars of the Convention on Biological Diversity – conservation, sustainable use, and equitable sharing – for sustaining biodiversity in mountain regions. The need to inventory biodiversity, for in-situ and ex-situ conservation, and to integrate traditional knowledge are crosscutting areas that merit attention.

GS Goraya, Deputy Director General of ICFRE, lamented foresters’ inadequate knowledge of forest botany. In a clear case of forester’s folly in Himachal Pradesh, he said that “*Abies spectabilis* was the original forest, but *A. pindrow* was planted”. In other terms, standard practices where we are sure about the suitability of a provenance or species on particular site needs serious attention. On the other hand, land use change, invasive species, and infrastructure development have contributed to serious biodiversity loss.

Himachal Pradesh is a clear case in point. According to Sanjeeva Pandey from Himachal Pradesh, there are as many as 500 species listed as ‘exotic’ in the state, in relation to which the government is spending valuable resources on their removal. “There is a dire need for research on the impacts of exotic species on the ecology of the native vegetation”, he said.

### Parallel Session 3: Mountain forests and NTFP-based enterprise development

Although they are not always properly valued, non-timber forest products (NTFPs) contribute significantly to the economies of the countries of the region. In India, 40% of official revenue from the forestry sector and 55% of forest-based employment come from NTFPs. Similarly, revenue from NTFPs is growing quicker than that from timber, contributing to local livelihood options, particularly for the large portion of the population living below the poverty line. Because of this, as well as the role of NTFPs in the food security of low income populations, NTFPs are gaining more attention. However, private sector investment in forestry has been a major challenge, particularly in developing countries. This may be because of government policies and practices for managing



these common resources. Equally, the sustainable harvesting and management of high value NTFPs has always been a challenge in the HKH.

This session focused largely on issues, challenges, and the way forward for improving the management of NTFP-based enterprises, including discussions on issues related to private sector investment, government policies, and sustainable management practices.

The key questions discussed during the session were:

- What is the role of NTFPs in the economic development of local communities in the HKH region?
- What are the issues and challenges involved in promoting NTFP-based enterprises and encouraging private sector investment?
- What are major policy issues supporting and hindering private sector investment in NTFP-based enterprises in the HKH region? What changes would support or encourage private sector investment?

Non-timber forest products are an integral part of livelihoods in the high mountains. Rural households derive 20-40% of their income from NTFPs, whereas a million people depend on NTFPs for their livelihoods in the tropics. The global value of goods derived from non-timber enterprises has been estimated to be worth USD 130 billion each year. Surprisingly, NTFPs have overcome global economic blues by registering a growth rate of 3 to 20% across mountain regions. This message was at the heart of discussions during this session.

Bhisma Subedi, from the Asian Network for Sustainable Agriculture and Bioresources (ANSAB), Nepal, was of the view that the commercialization of NTFPs alone will not contribute to poverty reduction if other factors like conservation and sustainable harvesting practices are not in place. "Certified forest management and balanced value chain governance can provide better results", he argued. Highlighting the ecological significance of bamboo in the Himalayas, Werner Kosemund, from the International Network for Bamboo and Rattan (INBAR), New Delhi, argued for incentivizing bamboo marketing for private players to pep up the trade, which is estimated to be worth USD 37 billion annually at the global level. "Bamboo is a pro-poor natural product and a keystone species supporting biodiversity and ecosystem resilience," said Mr Kosemund.

Despite the enormous economic potential of NTFPs in the Himalayas, there are many challenges that need to be resolved in order to extract the value of these products for improving local livelihoods. Vinay Tandon, Forester and former Principal Chief Conservator of Forests of Himachal Pradesh, highlighted the ecological, structural, operational, and institutional challenges that impede the growth of NTFP enterprises. From species conservation to



sustainable harvesting and from product standardization to enterprise development, the challenges hindering the conversion of NTFPs into viable economic enterprises have yet to be systematically resolved.

One of the participants, Vineet Kumar, stressed the need to move from enlisting problems to highlighting solutions. RS Tolia, another member of the audience, favoured a shift in emphasis from the agriculture sector to the forestry sector for poverty alleviation in mountain regions.

## Brainstorming Session 1: The need for conducive forest policies

Given that forest resources are the same across the HKH region, should the countries of the region not work together to develop conducive forest policies? It has been widely acknowledged that the lack of mountain-specific forest policies has impacted ecosystem integrity and the livelihood security of mountain communities, as the HKH is not only highly populated, but the rate of population growth is also higher than in other mountain regions.

Bhutan is the only country in the region that has policies oriented towards mountains. Its constitution mandates that at least 60% of its land area remain under forest cover, with current forest cover at over 70%. While the Forest Department of Bhutan manages the country's forests scientifically through Forest Management Units, the Natural Resource Development Corporation undertakes the harvesting and restocking of forests. By embracing community forestry management, local communities have been able to maintain internal demand as well as manage the sale of surplus of timber and non-timber forest products. However, it is important to recognize that mountain states in India need to interpret the goal of attaining 66% forest cover according to their specific geographic locations. For instance, the mountainous state of Himachal Pradesh has over 42% of its land above the tree line and only 35% of the land can realistically be forested.

The countries of the region can learn lessons from each other. The Afghanistan Ministry of Agriculture, Irrigation and Livestock has learned lessons from Nepal in promoting community forestry. The gains of such transboundary exchanges have influenced national policies and led to a reduction in encroachment and the poaching of wildlife. The diverse experiences from across the forests in the region can be exchanged between member countries to facilitate the evolution of policies conducive to the restoration and conservation of natural resources, with poverty alleviation as the prime focus.



# Day 4: 21 January 2015

## Plenary Session 1: Forest fires and mountain forest management solution

Every year, generally during the dry summer months, manmade forest fires threaten almost all major forest types in the Indian Himalayan region, particularly the subtropical chir pine (*Pinus roxburghii*) forests of Uttarakhand and Himachal Pradesh, and across the Himalayas from Nepal and Bhutan to Myanmar. Intentional fires are primarily set by locals in pine forests and associated grasslands to enhance the growth of forage during the monsoon, while unintentional forest fires often result from flames that escape during the traditional burning of crop remains from agricultural fields or during slash and burn agriculture in northeast India. Uncontrolled recurring fires help in the expansion of chir pine forests, but at the cost of socio-ecologically valued oak forests, and are alone responsible for neutralizing the achievements of afforestation and forest restoration programmes in the Indian Himalayan region.

Other challenges related to forest fires must also be considered; including the impacts of the black carbon produced by forest fires on glacier melt, reduced visibility, and raised CO<sub>2</sub> concentrations. Despite being an important topic, comprehensive studies are lacking on how much damage these fires cause to growing stock, how they accelerate the rate of expansion of fire-adapted chir pine forests, the environmental implications of the changed frequency and severity of fires under the influence of climate change, and the impact of forest fires on a variety of associated socio-ecological issues.



The key questions discussed during the session were:

- Despite a range of existing control and monitoring measures, why are we unable to control and manage forest fires?
- How can we reorient forest management practices, including local natural resource use practices, to help change the structural and functional attributes of fire-adapted chir pine forests in order to minimize the threat of fires and augment inclusive socioeconomic and ecological benefits?
- Given that climate change may influence present forest fire regimes and the severity of forest fires, how are we prepared to respond to the new challenges to social-ecological systems in the Hindu Kush Himalayas?

This session was chaired by Christian Koerner and keynote addresses were given by Alok Saxena, Additional Director of the Indira Gandhi National Forest Academy, and Sundar Sharma of the Global Wildland Fire Network. Mr Saxena said that Ban Ki-Moon, Secretary General of the United Nations, has shown serious concern about wildfire hazards in the high mountain forests of Nepal. In India, a study by the Forest Survey of India showed that 2.31% of forest cover is damaged by fires every year. The second keynote speaker, Sundar Sharma, said loss of biodiversity from forest fires is a major concern. Furthermore, transboundary fires and smoke pollution are other serious issues that must be addressed regionally.

Inviting discussions, session host Neelu Gera, Dean of FRI University, asked a number of key questions: Despite a range of existing control and monitoring measures, why are we unable to control and manage forest fires? Are we prepared to respond to new challenges to socio-ecological systems in the HKH should climate change influence the present forest fire regimes?

Panellists said that fire managers in the mountains face several challenges because of the region's topography and limited research. They said that customized maps and forest fire risk maps should be developed for the assessment of forest fire prone zones.

Talking about Bhutan's situation, Lobzang Dorji from the Ministry of Agriculture of Forests raised the issue of the management of blue pine (*Pinus wallichiana*) due to forest fires. Another panellist said that outmigration in hilly areas is directly related to forest fires, as village communities are often dominated by women. One panellist added that there is also growing disinterest in chir pine forests as benefits are very limited, and that forest fires are the main cause of degradation.

Mr Saxena said that transboundary wildfires and brown haze pollution across the HKH are major concerns. He said that several cities in Asia are becoming darker due to the atmospheric brown cloud. He quoted one study that said that 3.94 billion tonnes of carbon are released into the atmosphere after every forest fire, posing a major threat to biodiversity and directly contributing to climate change.

Participants said that countries should pay special attention to local communities, empower them through capacity building, raise awareness on adapting livelihoods, and step up wildfire management programmes to offset heat-trapping emissions by investing in forests. They also recommended promoting communication among forest managers, researchers, and other interested parties. High priority areas should be identified through national and local planning. There was a suggestion from the audience that data on the costs and benefits of forest fire should be recorded and shared and a long-term monitoring system on what happens to biodiversity, soil carbon, and natural regeneration after regular fires should be developed.

The main message from this plenary session was that a common framework for forestry policy that reflects the ground realities in the HKH is important if the issue of forest fires is to be addressed.

## Plenary Session 2: REDD+ in the Himalayas: Linking forest carbon to conservation and development

REDD+ (Reducing Emissions from Deforestation and Forest Degradation) is an international climate policy instrument under the aegis of the UNFCCC that is expected to tap into the large mitigation potential of conserving and better managing the world's forests through financial flows from developed to developing countries. The

REDD+ instrument links economic incentives with the conservation and management of forest resources and is founded on the principle of performance-based payment.

The implementation of the activities related to core elements of REDD+, which also includes the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks, also generates numerous co-benefits. These co-benefits make REDD+ more relevant and attractive for implementation in the HKH region.

Although the principles of REDD+ are clear, on the ground very little has actually been initiated for various reasons. ICIMOD has been working with key REDD+ stakeholders and focal points in the countries of the HKH to establish a South-South learning platform to foster the exchange of evolving knowledge on REDD+.

The key questions discussed during this session were:

- At the regional scale, through the learning platform on REDD+, what are the key topics that need to be pursued and what exchanges of knowledge are critical for the advancement of REDD+?
- For the HKH region, how should REDD+ contribute to, and build synergies with, the different land use categories, such as agriculture and forestry, for a broader landscape approach?
- Considering that tropical regions dominate the REDD+ discourse, and with an aim to enhance sustainable mountain development across the Hindu Kush Himalayas, should regional REDD+ standards be set to reflect a specific interest in areas outside the tropics?

This session was chaired by Prodipto Ghosh, former Secretary, Ministry of Environment and Climate Change, India. During the session, experts debated matters related to REDD+ and its implementation. The many implementation challenges and technical and socio-political issues associated with the global discourse on REDD+ has made it almost impossible to establish a common school of thought on the subject. Presenting CIFOR's experiences in REDD+, Kiran Keshar highlighted the need to build political support for REDD+. She also pointed out that performance-based REDD+ mechanisms face huge challenges in their implementation, as the procedures are still emerging and not clear. She added that although REDD+ is about carbon, it is also linked to access and tenure rights.

Presenting a case from Nepal, Narendra Chand, Under Secretary, REDD and Climate Change Division, Ministry of Forests and Soil Conservation, argued that drivers of deforestation and degradation are strongly linked to livelihoods. Fragmented forests increase transaction and implementation costs, which need to be analysed. He added that drivers of change in the countries of the HKH are similar, which means that we need to act collaboratively. Mr Chand said that despite the many challenges, REDD+ provides us with an opportunity to improve ecosystem resilience and the adaptation capacities of local communities to combat climate change impacts.

Ben Vickers, Regional Programme Officer for the United Nations REDD Programme (UNREDD), informed the participants that UNREDD was a financial instrument under the UN system through which developing countries can participate in REDD+ to safeguard their forest resources. He further stated that it is important to establish and strengthen national forest monitoring systems, which provide long-term data and information for the REDD+ payment mechanism. He was of the view that the coordinated design and piloting of national REDD+ strategies would help landscape initiatives in the HKH region.



Bhaskar Singh Karky of ICIMOD said that we also have to acknowledge the role of anthropogenic emissions emerging from mountain forests. In order to combat these emissions, long-term partnerships and collaborations are needed between the countries sharing the mountains of the HKH region. Forestry and carbon sequestering land use activities hold the key. There is also a role for the co-benefits of REDD+ in reducing emissions.

Presenting pilot REDD+ activities in the Indian Himalayas, TP Singh, ICFRE, said that identifying drivers of forest deforestation and degradation and possible solutions is the key to initiating any REDD+ project in the HKH region. He added that long-term financing and the sustainability of small-scale REDD+ projects are some of the critical challenges that need to be addressed to make REDD+ successful.

Shyam Paudel, International Technical Advisor, UNREDD, Vietnam, said that fully-stocked forests are not efficient for carbon sequestration. He said that sustainable forest use and management actually sustains REDD+. Citing an example from Vietnam of coffee plantations, Paudel emphasized that local communities always look for opportunities to benefit before making decisions; therefore, REDD+ must provide clear benefits to local communities.

Lobzang Dorji, Chief Forestry Officer, Department of Forests and Park Services, said that it was too early to say whether or not a common framework for REDD+ can be agreed upon. Clarity is needed, as REDD+ is mostly discussed in global discussions, but there is greater need to focus on REDD+.

Summing up the session, Mr Ghosh emphasized that the technical and socio-political issues of REDD+ are interlinked and should be considered together when designing any REDD+ project. He added that the fundamentals of the political economy of REDD+ are yet to be understood and that more research is needed in the HKH, keeping the mountain context in mind.

## Parallel Session 1: Forests and science on the flow of ecosystem services

Mountain forests provide essential goods and services – including water provisioning services – to the communities living in the mountains as well as those downstream. These forests serve as habitats for wildlife and plants, providing important genetic resources. Climatic and other changes have decreased the flow of ecosystem services from mountain forests.

Since the 1980s, diverse approaches have been used for the management of mountain forests in the HKH, including the green felling ban in India and community forestry in Nepal. This session focused on the different forest management regimes being practised in mountain areas, with a particular focus on the HKH, but also leveraging learning from other mountain areas. The analysis of management practices and regimes can be used to improve our understanding of the flow of ecosystem services.

The key questions discussed during this session were:

- What management practices are being used to manage mountain forests in the HKH region and globally? What key learning can be derived to improve mountain forest management across the region?
- How do different management practices impact the flow of ecosystem services derived from mountain forests?
- What are possible actions for shifting management paradigms in mountain forest management to ensure the sustainable flow of ecosystem goods and services?
- How can instruments such as payment for ecosystem services (PES), as well as others such as zoning, regulation, tenure, and public investment, help in securing the flow of ecosystem services?

The session was chaired by Surendra Pratap Singh and the keynote address was given by Md Akbar Hossain, Deputy Conservator of Forests, Bangladesh. Mr Hossain painted a picture of Bangladesh's hill forests and the ecosystem services provided by these forests. He said that hill forests cover 5% of the country's area and harbour approximately 1,500 species of flowering plants and vertebrates. One of the important ecosystem services provided by these hill forests is ecotourism, which sustains 50% of the





livelihood needs of local communities. Social forestry has been promoted in Bangladesh to support the provision of important ecosystem services, such as water for irrigation and the regulation of water transport.

Christian Koerner from the University of Basel, Switzerland, expressed his apprehension about the use of the word ecosystem 'services', as very rarely is money paid for the benefits received. He emphasized that while the benefits received from forests in the form of water and biodiversity are important, carbon sequestration should receive more attention. He also mentioned the significant role played by forest fires, which result in the quick release of carbon that may have been stored over centuries.

Mr Udhayan from the SAARC Forestry Centre, stressed the need to prioritize our focus on key ecosystem services, as it is impossible to manage each and every benefit provided by forests. There is also a need to view forests as more than just conventional biomass, to take into account the other important services provided even by degraded forests. He cited the example of Bhutan, where communities living downstream pay the communities upstream for adopting practices that ensure water quality.

Case studies from different parts of the United States were cited by Oliver Chadwick from Yale University to highlight the success of PES. Mr Chadwick stressed the need to find alternatives to PES and said that payments need not be in form of money.

Although considered as a cause of the increased frequency of forest fires in the Himalayas, the enormous services provided by chir pine was the main focus of Manoj Chandran, Deputy Conservator of Forests, Uttarakhand. Mr Chandran elaborated on the benefits provided to native plants by this species of pine due to its fire resistant properties, especially in terms of the protection afforded by its root system. He also shared the findings of his research, which showed that the pine needles reduce air and water pollution.

The session chair and ecologist, Mr Singh, said that we need to assess the significance of Himalayan forest ecosystems in controlling the increasing human population in the Gangetic plains, maintaining humidity in the semi-arid urban areas of Delhi, and, most importantly, in slowing down the effects of global warming.

## **Parallel Session 2: The valuation of forest ecosystem services and payment mechanisms**

The valuation of an ecosystem determines the impact of human activities on the environment by capturing the value of ecosystem services not traded in conventional markets. The estimated value of ecosystem services can be used in awareness raising, policy formulation, identifying the cost-effectiveness of public policies, and developing payment for ecosystem services mechanisms. In addition, valuation contributes to creating a balance between development and conservation priorities and suggesting mitigation measures to make development activities more responsible conservation. Because valuation elicits public preferences, it allows people to make trade-offs between available policy options, minimizes social conflicts in policy interventions, and enhances human welfare. However, ecosystem valuation in the mountain context, where the majority of people live below or close to the poverty line and non-monetized sub-economies are dominant, is not a straightforward task. It requires specific strategies to cope with the low level of income and education of mountain communities during the household survey process.

This session focused on understanding the value of ecosystem services derived from mountain forests, both from local perspectives and in economic terms, to support policy decisions.

The key questions discussed during the session were:

- What is the significance of valuing ecosystem services derived from mountain forests, and how can valuation support policy and decision making?
- What possible methodology or protocol can be adopted as a standard guideline for valuing ecosystem services in mountain forests and under mountain perspectives?
- How can valuation be embedded in development planning and the decision making processes of different countries and communities?





Kinley Tenzin, Program Director for the Research and Development Centre, Department of Forests and Park Services, Bhutan, opened the session and introduced the key questions to be reflected on during the session.

The importance of watershed services in mountain areas and their relation to forest ecosystems was highlighted by the keynote speaker, Chetan Agarwal, from Centre for Ecology Development and Research, India. He mentioned the importance of looking into local water sources. There is growing talk in the HKH about streams and springs drying up, especially during summer, which is having impacts at the local level. The drying up of streams and springs also has social implications for women, who are impacted more, because they are the main ones responsible for water collection, as evidenced by the case study presented. Further to this, Mr Agarwal mentioned that the science of forests is still fuzzy in relation to water flows and services.

Margret Koethke, Thünen Institute, Germany, highlighted that PES valuations help to identify where to start most urgently and efficiently, which leads to the identification of priority areas for conservation. Rajesh Rai from the South Asian Network for Development and Environmental Economics (SANDEE), mentioned that environment conservation programmes are often neglected by governments. He noted that in Nepal, 40% of forest land produces 3% of GDP. The interesting question is why environmental decisions lead to confusion and conflict. He remarked that development priorities always outweigh conservation priorities and a trade-off is going on between conservation and development. He reiterated that the way forward in highlighting mountain ecosystem services is to increase awareness and have more institutions working on environmental economics. He said that ecosystem valuation should be a part of environmental policies and planning.

Ngo Thi Phuong Dung, International Cooperation Official with the Ministry of Agriculture and Rural Development, Vietnam, said that climate change is leading to more floods and longer dry spells, resulting in more pests and, thereby reducing the resistance of plants. She said that there is a need to conduct a survey of pests and their impacts on ecosystems at the national level and to enhance cooperation with other countries for effective pest management.

Shyam Paudel, from UNREDD, Vietnam, shared his experiences of PES related to forest ecosystem services, including the successes and challenges faced during implementation. He also shared his experience in the ongoing REDD+ programmes and mentioned how trade-offs have to be dealt with among coffee farmers to make cultivation sustainable. The learning from this is now being taken forward as key recommendations in Vietnam's national plans.

The chair of the session then opened the floor for discussion of the key questions. During the discussion it was recommended that gross domestic product (GDP) should be replaced by gross environmental product (GEP) in reference to the valuation of ecosystem services for PES. In the Indian context, even though forests provide 1.5% of

GDP, the value of forests and ecosystem services increases when valued in terms of GEP. Hence, the need of the hour is to collectively coordinate research and knowledge sharing to increase the understanding and valuation of mountain forest ecosystems in HKH region to inform national and regional policies and plans.

Vineet Kumar, one of the participants from India, pointed out that “PES problems cannot be solved with just economic mindsets, we must also look into social realities”. Bhaskar Karky from ICIMOD added that “PES has been glorified, but who is going to pay and do they have the capacity to pay?”

### Parallel Session 3: Transboundary forest ecosystem management experiences from around the globe

Across the region, policy-making processes and customary practices that guide the management of mountain forest ecosystems vary widely. There are many contiguous, transboundary forest landscapes in the HKH; however, management practices and policies are different in each country, with different management objectives and focuses. Understanding the various management practices in each country provides an opportunity to learn and apply effective management options and policies for the better management of transboundary forest landscapes.

This session focused on the various management options and practices in transboundary forest landscapes across the globe, with a particular focus on mountain forests. Participants shared best practices from around the globe and suggested possible management models to effectively manage transboundary forest landscapes in the region. The chair of the session, PP Dhyan, introduced the theme of the session and emphasized the importance of transboundary forest ecosystem management.

The key questions discussed in the session were:

- What are the major challenges in transboundary approaches to managing mountain forest ecosystems?
- What national policy options are needed to support transboundary mountain forest management and ensure the sustained flow of ecosystem services across landscapes?
- What collaborative mechanisms should be implemented to establish cooperation in managing transboundary mountain forests? What is required to make these collaborative mechanisms effective?

Keynote speaker Roger Villalobos, CATIE, informed the session that neo-tropical forest cover has been lost the fastest in last two decades. There is a clash of interests between local people, private enterprise, and nation states in relation to the direct benefits and ecosystem services provided by forests, as ecosystem services are user specific and different from the local to global level. Accordingly, climate smart territories are needed to contribute to effective governance, provide access to the benefits of natural resources, and ensure conditions for dignified livelihoods, knowledge, and fund management. Similar to the International Model Forest Network, the Iboamerican Model Forest Network was created for South America. The first model forest in this network, the ‘Reventozan Model Forest’, was developed near CATIE Costa Rica. This forest comprises one watershed, situated between two oceans, that contains several landscapes and supports over 50% of the hydroelectricity needs of the country. This model forest used social knowledge with local participation in the conceptualization and development of political interventions. Incentive-based PES was a success and biological corridors between countries were ensured by people’s participation and common agreement.

The participants also discussed conflicts at the local level over PES and the community’s role in this, as well as biological corridors between countries for forest ecosystem management and the difficulties with transboundary agreements for the management of ecosystems. Participants felt that the following steps should be undertaken while dealing with transboundary forest ecosystem management:

- Document best practices in forest ecosystem management with all its relevant aspects, mostly pertaining to the HKH region, and develop a common platform for communication networks to share success stories, which will inspire and help other similarly placed communities with policy formulation
- Explore incentive-based payment mechanisms for local communities for the provision of forest ecosystem services, which are being implemented in the Costa Rica model forest experiment



- Develop an understanding of good forest governance using the transboundary approach (drawing on examples of the transboundary management of wildlife through biological corridors in SAARC countries and also learning emerging from Costa Rica and Columbia can be adapted for HKH countries) and develop multilateral agreements through SAARC or the Association of Southeast Asian Nations (ASEAN) (with local endorsement) on this issue; ICIMOD may be an appropriate agency to take the regional initiative on such issues
- Assess the present and future needs of forest ecosystems to develop appropriate policies and practices, followed by good forest management, within the country as well as in transboundary initiatives such as attempted by ICIMOD and its country partners
- Periodically organize an international symposium on mountain forestry

#### Parallel Session 4: **Conductive mountain forest policies in the HKH**

With growing concern about climate change impacts and actions across the Himalayas, much attention has been directed towards securing and sustaining food, water, livelihoods, and energy for the millions of people who depend on mountain ecosystem goods and services – both upstream and downstream, rich and poor, and from the public and private sectors. Emerging climate action plans in the region stress the paramount role of forests in adapting to, and mitigating, the impacts of climate change.

It is important to integrate modern conservation, production, and technologies with forest management through the concept of adaptive management. For instance, by generating knowledge on conservation technology and energy-related good practices, major contributions to local climate change adaptation can be made, as well as reducing drudgery for women.

However, as the symposium has shown, addressing of the numerous challenges (such as human-wildlife conflict, the illegal trade in forest products, forest fires) will demand going back to the policies and development strategies that are in place. It has also been established that sustainable forest management challenges have multiple factors and, therefore, we need to think across sectors. However, as globalization advances and climate change becomes more and more perceptible, developments beyond a country's national border often tend to impact its forests more than developments within the country. The collateral effects of regional logging bans, changes in tax structures, incentives for industry, and policies relating to agriculture, economic growth, energy, and trade, as well as climate concerns, demand a collective response. We must deliver on the task of making mountain forests count in the future as the defining land use shaping the resilience of

human populations and ecosystems across the HKH region. It is an opportune time to reflect on the role of forest ecosystems in delivering goods and services to millions in an efficient, effective, equitable, and sustainable way. However, for this we will need to re-examine our national mountain forestry policy and practice frameworks and collectively work out areas for improvement and transnational policy interfaces if we want to shape forestry in 21st Century across the HKH.

The key questions discussed in this session were:

- Are we ready, given the numerous challenges, to practice sustainable forest management in the HKH and to shift gears in our existing policy frameworks and development focus to meet the challenges and harness opportunities to bring about positive outcomes for mountain people, forests, and the environment?
- What set of enabling conditions and capacities across the HKH need to be improved so that mountain forestry policies and sectoral development strategies are practised and the welfare of upstream and downstream communities is ensured through sustained forest ecosystem services?
- Are there specific sets of policy and development investments in research that need to be effected to promote adaptive forest management as a strategy to address resilience building?
- Is it time for mountain-related proactive forest management policies that ensure that mountain forests continue delivering ecosystem services while current challenges are met?

This session was hosted by Ranbeer Rawal from the GB Pant Institute of Himalayan Environment and Development and chaired by Naing Zaw Htun of the Ministry of Environment Conservation and Forestry, Myanmar. Mr Htun mentioned that it was an important technical session and put forward the questions to be discussed during the session. He also stressed the importance of mountain forestry and its stability.

Keynote speaker, Ms Savita, Deputy Director General, ICFRE, discussed the importance of the HKH region. This region is the highest and most populated mountain region in the world, supporting 1.7 billion people. The rate of increase in the human population in the HKH is more than in other parts of the globe, while at the same time severe forest degradation is taking place. Excessive biomass is being removed to meet the needs of human beings and livestock. There is an entrenched conflict between conservation and livelihood-related interests. Ms Savita also focused on comprehensive planning to sustain this area. Snow, glacial melt, hydrological threats, geological threats, poverty, livelihoods, energy, climate change, environmental degradation, and water stress are the main issues in the HKH region. Furthermore, she pointed out that there is no comprehensive planning at the watershed/river level or any system for monitoring the negative impacts of projects. Comprehensive planning should be undertaken before implementing projects. Increased snow and glacial melt and increased frequency of extreme weather events make projects vulnerable to hydrological and geological threats.

Ms Savita argued that the increase in demand for land, energy, and natural resources in the HKH is leading to environmental degradation, which, in turn, is leading to conflict between conservation, development, and livelihoods. She said that there is gap between intent and implementation and policies are not implemented in their true spirit. Poverty is prevailing in the HKH. Resources could be tapped to provide livelihoods, but only if sustainability is ensured. Natural resources are generally the same across the HKH region, so all countries should have a common policy for sustainability. The environment, food, and other sectors should be integrated to create a conducive social, political, and institutional set up for transboundary coordination and long-term monitoring mechanisms should be put in place.

Aminullah Fakhri, Head of Forest Management, Ministry of Agriculture, Irrigation and Livestock, Afghanistan, said that natural resources should be managed properly in the HKH region. He said that community forestry has been promoted in Afghanistan, with technical input from Nepal, and, under this scheme, 7,000 hectares of forest have been restored by planting different tree species. There has been a positive change in natural resources due to a reduction in encroachment and the hunting of wildlife.

Kinley Tenzin from Bhutan stressed the need for a holistic approach to the conservation of natural resources. He said that conservation is successful in Bhutan because people believe in nature. Yan Zhaoli from China spoke about various restoration programmes and work being carried out in protection, commercial, and economic forestry.



Under the Urban Greening Programme, 2.5 million hectares of land have been planted in China. Bhisma Subedi from ANSAB, Nepal, stressed the need for transboundary cooperation and technical assistance for the conservation of natural resources. RS Tolia emphasized that policies should focus on poverty reduction programmes, watersheds, and sustainable development.

## Parallel Session 5: Mountain forests: Governance and working with communities

Most of the countries in the Hindu Kush Himalayan region are signatories to international conventions on forests and the environment. Several policies and national development strategies related to climate change and conservation in the region call for transboundary cooperation. However, most state institutions in the HKH region feature old administrative structures and find it difficult to keep pace with emerging global concerns like climate change, decentralization, rising private sector involvement, and certification, as well as contemporary scenarios in the forest sector. The concept of management across the vertical and horizontal layers of decision making needs to change in order to bring about targeted reforms. State actors and other stakeholders should continue to play a critical role in building institutional capacities, promoting networking, and supporting policy and regulatory frameworks and management practices to keep pace with the shifting needs of forest management.

The integration of transboundary approaches into forest governance is needed to address issues with upstream-downstream links (e.g., the illegal trade of forest products, corridor connectivity, and human-wildlife conflicts). A functional institutional framework on transboundary landscape management is lacking in the HKH region, and collaborations on forest management and research need to be promoted among the countries of the region. An institutional framework is required to strengthen policy, science, and practice in HKH countries to support the delivery of good forest governance.

The key questions discussed during the session were:

- What institutional mechanisms exist in different countries of the HKH to support the sustainable management of forests, considering both production and protection?
- What policies and plans are in place in the countries of the HKH to fulfil obligations under international conventions while promoting local livelihoods?
- What institutional frameworks are needed to facilitate transboundary cooperation in the HKH?

The session was hosted by Laxmi Bhatta, Ecosystem Management Specialist, ICIMOD, and Rajan Pokhrel, Director General, Department of Forests, Nepal. The keynote addresses were given by Rucha Ghate, Senior Natural Resources Management and Governance Specialist, ICIMOD, and Niesar Ahmad Kohestani, Associate Professor, University of Kabul, Afghanistan.

In her keynote address, Ms Ghate remarked that, in all eight countries of the HKH, the majority of forest areas are owned by forest departments. She said that there is very little formal cross border exchange of forest products between HKH countries, but there is evidence of informal networks between the people living in these countries. She argued that a portfolio of cooperation areas – wildlife management, biodiversity conservation, the protection

of water resources, regulation of cross border trade, hydropower, and the sharing of good practices – should be developed from which countries could choose the areas in which they want to cooperate. Incentives for cooperation need to be identified and policies across the HKH region need to be harmonized. She also said that women an integral part of all efforts in conservation and development.

The other keynote speaker, Mr Kohestani, talked mostly about Afghanistan's forest development plans. He noted that 12% of the total land area is arable,





and 70–80% of the people are engaged in agriculture. He said that, since 1977, more than half of the forests have been destroyed, but the government is trying to recover the forests by involving local communities in forest conservation.

The panellists during the session noted that some forestry networks, such as the Asia Pacific Network for Forest Conservation and Rehabilitation (APFNet), already exist, from which lessons can be learned and built upon. There is also an international policy instrument for access and benefit sharing (ABS), which should be used by HKH countries. Shared policies and common protocol on data collection and data sharing would go a long way in developing transboundary governance mechanisms. The panellists were of the view that local communities need to be involved in the conservation of forests. Tint Lwin Thuang of RECOFTC said “Although national policies may not be compatible with a transboundary framework, community level exchanges already exist in the form of informal trade and exchange of ideas”. He also pointed out that “it is important to understand that the forestry sector cannot work alone; it needs to be integrated with other sectors”. Brij Mohan Singh Rathore, Additional Principal Chief Conservator of Forests, Madhya Pradesh, India, remarked that communities need to be legally empowered, with technical support from the government, for the better protection of forests. He also stressed the need to harmonize national policies dealing with transboundary landscapes, first within countries, especially in India, and then throughout the region. Roger Villalobos of CATIE was of the view that territorial forest governance is very important. He said that we need to work through a value chain approach, with local ownership and good communication between governments and communities, to ensure benefits accrue to local people.

## Parallel Session 6: Mountain forests: Research and knowledge

Mountains and mountain forests are important sources of water, energy, and biological diversity and are, therefore, vital for the survival of ecosystem complexes and livelihood options. These ecosystems are, however, rapidly changing and highly susceptible to landslides, mass erosion, and the rapid loss of genetic and species diversity. The United Nations Commission on Sustainable Development recognizes that mountains are different to other areas in many ways and need special attention. However, large data gaps and dataset incomparability in the region warrant a greater focus on the sharing of research, knowledge, and data to support the improved management of these important ecosystems. The visible impacts of climate change, environmental variability, and variations in social and political goals to meet the increasing demand for the goods and services provided by forest ecosystems highlight the uncertainties in mountain forests and underpin the processes by which forestry knowledge develops. In order to improve our understanding of the complexity of mountain forest ecosystems, we need better knowledge of both past and present scenarios, a better understanding of social and ecological dynamics, long-term research for understanding trends, and greater sharing of knowledge and data.

This session focused on research needs and knowledge sharing to support better planning and policy options for managing mountain forests to ensure the sustainable supply of goods and services in the Hindu Kush Himalayas.

The key questions discussed in this session were:

- When considering both ecological and social complexities, what is the present state of mountain forest research?
- How can collective and coordinated research and knowledge sharing improve mountain forest management in the HKH region?
- What possible modes of cooperation among countries in the HKH can be used to improve the present state of research and knowledge sharing in managing mountain forests?

This session was chaired by Ram Chaudhary of the Research Centre for Applied Science and Technology (RECAST), Nepal, and the keynote address was given by Padam Prakash Bhojvaid, Director of the Forest Research Institute. Mr Bhojvaid pointed out that Himalayan forest ecosystems are some of the most diverse in the world and are used by people in a variety of ways. However, there is an important knowledge gap about these forests due to the lack of research in this region. The relationship between the different land use systems (e.g., agricultural, secondary forests, and urban areas) in this landscape and their effect on the functioning of each other need to be investigated. Another

important issue flagged by Mr Bhojvaid was the lack of funds available for the important research that needs to be undertaken in this landscape. Issues such as biological invasion, the effects of human migration, and climate change can all be addressed by integrative research. Mr Bhojvaid made a crucial comment about the need to shift from politically correct to academically correct research to find answers to the burning issues facing Himalayan forest ecosystems. Data forms an important part of the modelling process, but the rugged terrain in this landscape is a major limiting factor. The involvement of educated community members in this region can be tapped to overcome this limitation.



Many of the participants who attended the session spoke about the need for easy access to information as an important tool for building the research portfolio among member countries. Two panellists, Anja Rasmussen of ICIMOD and communication specialist Heike Junger Sharma, raised relevant issues about the use of research, knowledge, and communication in the context of finding solutions to forestry problems. “Don’t stop at knowledge generation – actively disseminate it”, was the message conveyed by Ms Rasmussen and Ms Sharma. Ms Rasmussen asked whether getting more knowledge is useful or whether we should explore the different interpretations that can be drawn from the enormous amount of existing information. Mr Chadwick echoed the sentiments of the two panellists and emphasized that existing information should be used to develop probabilistic models for better predictions. The panellists agreed that information dissemination should be an objective of the research and all available technology can be used for this objective. Research should be designed to promote mutual capacity building at all different stages and networking can also help in dissemination.

Reinhard Mosandl added that the transfer of knowledge to practitioners is important. Mr Chaudhary emphasized the role of institutions in knowledge generation, which can only be achieved through appropriate budget allocation by governments.

## Brainstorming Session 2: Harmonization of Himalayan vegetation classification

Owing to similarities in the socioeconomic and ecological conditions, countries in the HKH region are increasingly realizing the need for stronger scientific collaboration, the sharing of information, and effective communication to address the emerging environment and development challenges. Despite this realization, there has not been any significant attempts at bringing ecologists, forestry professionals, and conservation agencies together in a common platform to harmonize terminology, especially when it comes to various classes of vegetation.

In the absence of a standard and common classification of Himalayan vegetation, ecologists and foresters use ad hoc names, resulting in confusion and miscommunication. For example, several official documents in the region follow latitudinal divisions, such as temperate forest and tropical forest, without considering day-length, which is not similar to other tropical or temperate zones. This is one of the several scientific lacunae in the existing nomenclature of mountain vegetation.

A forest in the lower latitudes of the HKH region does not qualify to be referred to as temperate forest simply because its altitude has a mean annual temperature similar to those in temperate latitudes. There is evidence to indicate marked differences between these types of forest in the HKH and in other temperate zones. Thus, there is an urgent need for standard criteria for the classification and harmonization of vegetation classes across the region. As forest management requires an ecosystem approach, Himalayan forests need to be characterized for their ecosystem-level attributes in a hierarchic manner from biome to physiognomic and according to local floristic types. It was suggested that a regional workshop involving the key partners currently engaged in the Kailash Sacred Landscape Conservation and Development Initiative be organized under the aegis of ICIMOD to refine and harmonize the classification of vegetation types in the HKH.

# Day 5: 22 January 2015

## Plenary 1: **Making business with forests and the role of the private sector in forestry and forest-based value chain promotion in the HKH**

The private sector plays a large and multi-faceted role in the management of the world's forests, with global investment in commercial forestry at over USD 150 billion per year. This is far more than the USD 12 billion spent on the forest sector each year by governments and aid agencies combined. At the local level, small and medium-scale forest-based businesses provide employment for approximately 160 million people worldwide and probably exert a similar influence as their multinational counterparts.

The private sector plays a crucial role in sustainable forest management, and it may not be possible to achieve set goals without the full involvement of the private sector, both through its own corporate policies and its engagement in public-private partnerships. However, despite the important role that the private sector plays in supporting local employment and its contribution to local economic development, its involvement in mountain forests, including forest management, is not readily acknowledged or discussed, particularly in the Himalayas. Private sector involvement in mountain forest management regimes must be streamlined to support inclusive economic development in the forest sector, as well as to ensure the sustainable use and supply of forest resources and raw materials for commercial use.

This session focused on possible roles the private sector could play in managing mountain forests for sustainable development, while generating local employment and economic activities in the region that are gender friendly.

The key questions discussed in this session were:

- What is the current role of the private sector in managing mountain forests?
- What types of policies are needed to encourage private sector investment in mountain forest management in the HKH region?





- What private-public partnership model could be used for the management of forest resources, particularly mountain forest resources, to help ensure the sustainable supply of raw materials?

The keynote speaker and panel members at the session highlighted the need to connect people with the business sector, allowing them to be part of business. In his keynote address, Badri Narayan from Dabur, India, presented Dabur's experience working directly with forest user groups, which has made Dabur very profitable. Citing the need to understand supply and the buyer's perspective, Mr Narayan indicated that there is a long supply chain in medicinal and aromatic plant-based enterprises, which increases the cost of the final products. He also noted that a high level of regulatory compliance is required, which also increases the costs.

TR Manoharan of the Forest Stewardship Council said that forest certification is a voluntarily mechanism for ensuring the sustainable supply of forest products and contributes to the control of illegal logging and deforestation. Bhisma Subedi of ANSAB raised the issue of governance and regulatory compliance, which, if not improved, could negatively impact on the business sector. He said that the role of the private sector in forest management is still limited; however, the role of the private sector in the value chains of forest-based products is crucial. Biomass-based energy is a growing market in the HKH and this energy source is important for mountains. There are many opportunities provided by ecosystem services for the private sector, such as tourism and water for industry. There is a high potential supply of forest products, which means that there is huge scope for the private sector to increase its involvement in forestry.

Citing the example of community forestry, Mr Subedi noted that, although ecological and social capital have been highly developed by community forestry, economic opportunities are yet to be tapped. Here, the private sector can be instrumental in leveraging resources from community forestry. Despite the opportunities and potential to grow, governance is a key issue in increasing the role of the private sector in forestry. The private sector experiences many problems when dealing with compliance, and it is necessary to revisit the various provisions related to forest products in this regard.

RBS Rawat, retired Principal Chief Conservator of Forests, Uttarakhand, shared the impact of working directly with local communities. Citing the Indian bay leaf value chain as an example, he said that the bay leaf provides benefits





to actors in the chain five times from the sale of this product to consumption. He said that linking people to markets and ensuring access to markets is the key to success. Sunil Pandey from ITC-India emphasized the need to work collectively with communities and government entities to ensure private sector benefits.

In his concluding remarks, Dasho Namgay Wangchuk, chair of the session, summarized the collective need to ensure community access to markets and make them part of business, with a sustainable business model based on forest products. Mr Wangchuk also suggested minimizing the role of the middleperson and shortening the supply chain to provide maximum benefits to local communities.

## Valedictory Session

The five-day international symposium on Transforming Mountain Forestry ended at the Forest Research Institute in Dehradun, India. Governor Krishan Kant Paul, chair of the session, was welcomed by Deputy Director General of Research, ICFRE, India. Rajan Kotru, ICIMOD, presented the key messages and directions for the future discussed over the five-day conference under following the headings:

- Forest dynamics and management
- Linking incentives to stewardship
- From subsistence to standard regional/transboundary markets and management
- Institutions and governance
- Forest knowledge and regional cooperation for policy, practice, and science

Panellists from participating countries, including Aminullah Fakhri (Afghanistan), Namgay Wangchuk (Bhutan), Md Akbar Hossain (Bangladesh), Yan Zhaoli (China), Naing Zaw Htun (Myanmar), and Rajan Pokharel (Nepal), expressed their views and their appreciation for the efforts of ICIMOD and the Forest Research Institute to organize the symposium. They also thanked the donor countries and the host state Uttarakhand. In his remarks, Governor Kant said that he was impressed with the deliberations and suggestions and said that the recommendations drawn up by the symposium should influence policy. He further added that the HKH should include the Patgiri Range of the Himalayas, which is on the border of India and Myanmar. He suggested that conservation practices, such as sacred groves, should be acknowledged and care taken of forest and soil degradation in areas with high humidity.

The leader of the Bhutanese delegation, Namgay Wangchuk, said that the symposium highlighted the challenges and constraints involved in exploring future cooperation in the realm of mountain forestry. He said that the symposium is a new beginning for countries to work together on sustainable mountain forestry in the HKH. A delegate from Afghanistan said that the symposium would go a long way in fostering cooperation, partnerships, and communication between the countries of the Hindu Kush Himalayas. Other delegates said that the symposium provided an ideal platform for networking on mountain forestry. A Chinese delegate stressed the need to identify and make new plans for future collaboration. The words of Yan Zhaoli of the Chengdu Institute of Biology sum up the mood of the participants: "The symposium ends here, but a new journey begins".

Finally, PP Bhojvaid presented a vote of thanks and expressed his appreciation for the efforts of the organizing team, the presenters, chairs, participants and all involved in symposium.



## Recommendations

The following are the main recommendations that emerged from the symposium according to the themes of the symposium.

### Governance and institutions

- Work towards landscape level governance institutions (such as the Alpine Convention and Mekong River Basin Commission) to manage the ecosystems of the HKH
- Formulate policy provisions in the eight HKH countries to foster transboundary cooperation and find meeting points for sub-regional level trials
- Integrate women's and gender concerns into conservation and development efforts, from conceptualization to implementation

### Forest dynamics and management

- Maintain and enhance the HKH mountain forest carbon pool
- Prioritize mixed forests because of their greater resilience in case of disturbances, including fires, pests, and erosion
- Allow the planned thinning of forests for the sustainable use of mountain forests
- Harvest timber in a way that diverse regeneration niches develop in a landscape approach
- Monitor forested areas using remote sensing
- Establish permanent plots and small wildlife 'exclosures'
- Develop a wildlife management concept that is compatible with sustainable mountain forestry and human welfare
- Use land use policies and plans to facilitate investment in development



### Incentives for stewardship

- Scope out incentives for the stewardship of mountain forests as an emerging theme
- Secure tenure over land and resources and ensure inclusive access and benefit sharing for local people, with a clear focus on women
- Invest in ecosystem valuation science and the monitoring of ecosystem services
- Analyse, learn, and share existing incentive-based mechanisms in the HKH
- Move from subsistence to standard transboundary markets and management
- Bring in technical interventions and good practices for the benefit of local communities
- Develop should be a network of markets with minimal regulatory hurdles in the HKH, which can be accessed through transboundary cooperation among policy makers and practitioners
- Scale up value chains to 'minimum of quantity' level
- Evolve standards at the HKH level for sustainable management, production, and processing linked with a clear focus on poverty and inclusiveness
- Maximize value realization and stick to niche products to facilitate the viability of community-based enterprises

### Forest knowledge and regional cooperation for science policy, and practice

#### Science

- Focus on the identification and prioritization of research themes
- Deepen private sector engagement
- Link research to enterprises and patents

#### Policy

- Establish a network of academic institutions (South-South cooperation with linkages to the North)
- Further strengthen the Himalayan University Consortium and encourage inter-university cooperation

#### Practice

- Facilitate the exchange of practices from lab to land and land to lab
- Encourage the innovative exchange of knowledge and information at various levels
- Ensure feedback in communication mechanisms between scientists, practitioners, and end-users of knowledge

# Annexes

## Programme Schedule\*

### Transforming Mountain Forestry

#### Bridging transboundary challenges with 21st Century paradigms for the Welfare of Mountain People, Forests and Environment in the Hindu Kush Himalayas

18–22 January 2015, Forest Research Institute, Dehradun, India

<b>Jan 17 2015 (Saturday)</b>	Arrival of Participants
3:00 PM – 4:00 PM	Press briefing (Board Room)
3:00 PM – 7:00 PM	Registration (in respected hotels and FRI Scientist hostel)
<b>Day 1: Jan 18 2015 (Sunday)</b>	Inauguration and High- Level Leadership Panel Registration 10:00 AM – 7:00 PM
8:30 AM – 3:30 PM	<b>Field Trip:</b> Watershed Management and Biodiversity Conservation near Mussorie Hills, Oak Forest Watershed and Van Panchayats (Detail field visit plan is attached in Symposium kitbag) <i>Organisers:</i> Dr Rajbir Singh, Dr Permanand Kumar, Dr Ombir Singh
5:00 PM – 7:00 PM	[INAGURATION SESSION: CONVOCATION HALL]  <b>Transforming Mountain Forestry in 21<sup>st</sup> Century for the Welfare of Mountain People, Forests and Environment in the Hindu Kush Himalayas</b> <ul style="list-style-type: none"> <li>- Chief Guest arrival</li> <li>- LIGHTINING OF LAMP and Mantras: 5 Min</li> <li>- Introductory Words and Welcome Notes: ICIMOD-FRI</li> </ul> <b>Chair:</b> Dr Molden, DG-ICIMOD and Mr Hem Pandey, Additional Secretary, Ministry of Environment, Forests, and Climate Change, Government of India  <b>Keynotes:</b> Global status/issues to HKH <ol style="list-style-type: none"> <li>1) Dr Christian Koerner (Alpine forest changes and expectations for forests in the Himalayas related to sustained ecosystem services 15 min.)</li> <li>2) Dr Maharaj Muthoo (Global to Regional perspectives for forests in HKH 15 min)</li> <li>3) Dr Ashwani Kumar, Director General –ICFRE, Mountain Forests: the Regional Perspectives (15 minutes)</li> </ol> Inaugural Remarks by the Chief Guest (20 Min.) <b>Panellist:</b> Dr Sharad Singh Negi –ADG, MOEF&CC  <b>Remarks from Country Representatives</b> <ul style="list-style-type: none"> <li>• Afghanistan</li> <li>• Bangladesh</li> <li>• Bhutan</li> <li>• China</li> <li>• Myanmar</li> <li>• Nepal</li> <li>• Pakistan</li> </ul> KEY Messages and closing Remarks from Chair/Co Chair <b>Vote of Thanks: ICIMOD</b> <b>Rapporteurs:</b> Mr Laxmi Dutt Bhatta (ICIMOD)/Dr Vineet Kumar FRI

From 7:00 PM to 8:30 PM – Dinner and Participant's Interaction

\* The original programme schedule underwent slight changes during the actual delivery of sessions



## Day 2: January 19, 2015 Monday

### Technical sessions

8:30 AM onwards	Registration (Continued)
9:20 AM – 12:30 PM	<p><b>Technical Session 1: “The Theory of Himalayan Degradation and The Green Felling Saga”- Where to move mountain forestry in the 21<sup>st</sup> Century?</b> (Convocation Hall)</p> <p><b>Chairs:</b> Dr Ashwani Kumar, Director General, ICFRE, India Dr Eklabya Sharma, DPO- ICIMOD</p> <p><b>KEYNOTE 1:</b> Forest Dynamics-Global Perspective: Dr Chadwick Oliver (15 minutes)</p> <p><b>KEYNOTE 2:</b> Development challenges and Perspectives for Forestry in Himalayas: Dr Rajan Kotru, ICIMOD (15 Minutes)</p> <p><b>Panelists:</b> Dr S.P. Singh - India, Dr Rajan Pokhrel- DG, Department of forests, Nepal , Mr Akbar Hussain, Dept of Forests – Bangladesh, Dr M. Muthoo, Roman Forum- Italy, Dr Naing Zaw Htun, Ministry of Environment Conservation and Forests - Myanmar</p> <p>Key Messages and concluding Remarks by the Chair:</p> <p><b>Rapporteurs:</b> Mr Laxmi Dutt Bhatta-ICIMOD and Dr Ajay Thakur-FRI</p>
12:30 PM – 1:30 PM	Lunch and Networking
1:30 PM – 4:30 PM	<p><b>High level segment and Lawmakers Session: His Excellencies Forest Ministers’ and Parliamentarians from SAARC countries and Indian Mountain States</b> (Convocation Hall)</p> <p><b>Chair:</b> Dr David Molden, DG-ICIMOD</p> <p><b>Moderator:</b> Dr Rajan Kotru, Dr P.P. Bhojvaid and Mr B.M.S Rathore; Mr Sanjay Upadhyay</p> <p><b>Key Questions:</b></p> <p>What has been the focus of forest sector –policies and practices- in your country or state in the last 5 years to address above challenges, and tap the potential of emerging opportunities and paradigms?</p> <p>Do you see it as an imperative to seek trans-state/transboundary cooperation to ensure forest ecosystems sustain their services for the benefit of people and fast changing Himalayan environment?</p> <p>What could be the concrete areas of cooperation and partnerships, and which development strategies, policies and practices would be your priority to meet the need of collective regional effort to reshape or “Transform Mountain Forestry Agenda for next 3 decades”?</p> <p>What are your expectations from this symposium and how you would apply outputs/outcomes to bring transformational changes in the forest sector?</p> <p>Key Message and Closing Remarks by the Chair</p> <p>Key Messages and concluding Remarks by the Chair:</p> <p><b>Rapporteurs:</b> Mr Laxmi Dutt Bhatta-ICIMOD and Mr Nawraj Pradhan-ICIMOD</p>

4:45 PM – 6:15 PM	<div data-bbox="403 188 1444 226" data-label="Text"> <p>Parallel Sessions: Status of Forest ecosystem services in the HKH region</p> </div> <div data-bbox="403 232 893 958" data-label="Text"> <p><b>Parallel session 1: Understanding co-management in mountain forests</b> (IGNFA New Hostel Auditorium)</p> <p><b>Chair:</b> Dr Sharad Singh Negi, MOEF&amp;CC-India</p> <p><b>KEYNOTE:</b> Dr Tint Lwin Thuang, RECOFTC; Mr B.M.S Rathore; Additional PCCF, Madhya Pradesh</p> <p><b>PANELISTS</b></p> <ul style="list-style-type: none"> <li>• Mr Lobzang Dorjee-Dept of Forests and Park Services- Bhutan</li> <li>• Dr Akhileshwor Lal Karna, MoFSC- Nepal</li> <li>• Dr Siddhartha Bajracharya – NTNC – Nepal</li> <li>• Mr S. Aminullah Fakhri, MAIL- Afghanistan</li> </ul> <p><b>Session host: Rajan Kotru - ICIMOD</b> <b>Rapporteurs</b> Dr Aarti Kala-WII, and Dr GCS Negi-GBPIHED</p> </div> <div data-bbox="914 232 1444 958" data-label="Text"> <p><b>Parallel session 2: Flow of ecosystem services and Incentive mechanism</b> (NFLIC Seminar hall)</p> <p><b>Chair:</b> Dr Wu Ning- ICIMOD Co-Chair- Dr V.B. Mathur</p> <p><b>KEYNOTE:</b> Dr Madhu Verma, Indian Institute of Forest Management, India</p> <p><b>PANELISTS</b></p> <ul style="list-style-type: none"> <li>• Dr Pramode Kant, Institute of Green Economy - India</li> <li>• Dr Kiran Asher, CIFOR – Indonesia</li> <li>• Mr Roger Villalobos- CATIE</li> <li>• Mr James Anderson, WRI – USA</li> </ul> <p><b>Session host: Chetan Agarwal, CEDAR</b> <b>Rapporteurs</b> Ms Rashmi-ICFRE and Mr Shreedip Sigdel</p> </div>
7:00 PM – 8:30 PM	Cultural Programme and Reception Dinner

## Day 3: 20 January, 2015, Tuesday

9:00 AM – 10:30 AM	<p><b>Plenary Session 1: Taming Human Wildlife conflicts in HKH- Forest Management or Crisis Management</b> (Convocation Hall)</p> <p><b>Session Chair:</b> Dr Reinhard Mosandl - TUM, Germany</p> <p><b>Keynote:</b> Moving from Wildlife Protection to Management across Hindu Kush Himalaya – Dr S. Sathyakumar (15 min)</p> <p><b>Keynote:</b> Moving from Wildlife Protection to Management – Uttarakhand perspectives: Dr Dhananjay Mohan (15 Min)</p> <p><b>PANELISTS</b></p> <ul style="list-style-type: none"> <li>• Mr Justus Bork, TUM - Germany</li> <li>• Dr Dhananjai Mohan - India</li> <li>• Mr Karma – DoFPS, - Bhutan</li> <li>• Dr Rajan Kotru- ICIMOD</li> </ul> <p><b>Session host:</b> Prof Dr R. P. Chaudhary- Tribhuwan University, Nepal</p> <p><b>Rapporteurs:</b> Dr. Rakesh Kumar FRI and Ms. Monica Kaushik WII</p>		
10:30 AM – 10:45 AM	Tea Break		
10:45 AM – 12:30 PM	Parallel Sessions: Linking science and practice in mountain forests management		
	<p><b>Topic 1: Mountain Forest and Climate Change</b> (Board Room)</p> <p><b>CHAIR:</b> Dr Christian Koerner - Switzerland</p> <p><b>KEYNOTE:</b> Dr Reinhard Mosandl- TUM, Germany</p> <p><b>PANELISTS</b></p> <ul style="list-style-type: none"> <li>• Mr James Anderson -WRI</li> <li>• Dr Kiran Asher -CIFOR</li> <li>• Dr Wu Fuzhong Sichuan Agri University</li> <li>• Dr Mohit Gera – FRI, India</li> <li>• Dr Rajesh Thadani –CE-DAR</li> <li>• Mr Ben Vickers, FAO</li> </ul> <p><b>Session host:</b> Mr Laxmi D. Bhatta</p> <p><b>Rapporteurs:</b> Dr H.P. Singh - FRI, and Mr Nawraj Pradhan ICIMOD</p>	<p><b>Topic 2: Mountain Forest and Biodiversity</b> (NFLIC Seminar hall)</p> <p><b>CHAIR:</b> Dr B.K. Tiwari – NEHU, India</p> <p><b>KEYNOTE:</b> Dr S.P Singh - India</p> <p><b>PANELISTS</b></p> <ul style="list-style-type: none"> <li>• Dr R.P. Chaudhary – RECAST, Nepal</li> <li>• Dr G.S. Goraya - India</li> <li>• Dr Sanjeeva Pandey, HP - India</li> <li>• Dr Rakesh Shah SBB, India</li> <li>• Dr Oliver Chadwich, Yale - USA</li> </ul> <p><b>Session host:</b> Dr Gopal Rawat, WII</p> <p><b>Rapporteurs:</b> Mr Ishwari D Rai - FRI and Dr GSC Negi GBPIHED</p>	<p><b>Topic 3: Mountain Forest, and NTFP based Enterprise Development</b> (IGNFA new hostel auditorium)</p> <p><b>CHAIR:</b> Dr Rita Roy Chowdhary – FICCI, India</p> <p><b>KEYNOTE:</b> Dr Bhisma Subedi – ANSAB - Nepal</p> <p><b>PANELISTS</b></p> <ul style="list-style-type: none"> <li>• Mr Govinda Ghimire - Nepal</li> <li>• Dr Raturi – DABUR, Nepal</li> <li>• Dr Vinay Tandon</li> <li>• Dr Vivek Saxena- India</li> <li>• Mr Werner Kosemund – INBAR, India</li> <li>• Mr Sunil Pandey, ITC India</li> </ul> <p><b>Session host:</b> Dr Pushkin Phartiyal CHEA</p> <p><b>Rapporteurs:</b> Ms Monica Kaushik WII and Mr Shreedip Sigdel ICIMOD</p>
12:30 PM – 1:30 PM	Lunch and Networking		

1:30 PM – 3:00 PM	<p><b>Technical session II Panel:</b> Convocation hall]</p> <p><b>Plenary Discussion:</b> Bracing up for transboundary cooperation in the HKH (based on the result of parallel session + plenary 1)</p> <ul style="list-style-type: none"> <li>• CHAIR: Dr James Anderson, WRI, USA</li> <li>• CHAIR: Dr Pramode Kant, Institute of Green Economy</li> </ul> <p><b>KEYNOTE Presentation:</b> Dr. Eklabya Sharma, DPO- ICIMOD</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• Mr B.M.S Rathore, Addl PCCF- MP- India</li> <li>• Mr A. Udhayan, SAARC Forestry Centre</li> <li>• Dr Reinhard Mosandl, HOD, Silviculture Institute, TUM - Germany</li> <li>• Dr Tint Lwin Thaung - RECOFTC</li> <li>• Dr Md. Akbar Hossain, DCF - Bangladesh</li> </ul> <p><b>Chair:</b> Documentation of Key Messages</p> <p><b>Session host:</b> Dr Rajan Kotru</p> <p><b>Rapporteurs:</b> Mr Nawraj Pradhan - ICIMOD and Ms Monika Kaushik - WII</p>	
3:00 PM – 3:30 PM	Tea Break	
3:30 PM – 5:00 PM	<p><b>Plenary Session:</b> Harmonizing Mountain Forest Management in the Hindu Kush Himalaya Region (Convocation Hall)</p> <p><b>Chair:</b> Dr P.P. Bhojvaid – FRI, India</p> <p><b>Keynote:</b> Dr Rajan Kotru and team, ICIMOD</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• Mr A. Udhayan – SAARC Forestry</li> <li>• Dr Gopal Rawat -WII, India</li> <li>• Dr Kinley Tenzin – Bhutan</li> <li>• Dr Akhileshwar Lal Karna, MoFSC – Nepal</li> <li>• Mr James Anderson, WRI, USA</li> </ul> <p><b>Session host:</b> Dr Neelu Gera –FRI, India</p> <p><b>Rapporteurs:</b> Mr Manish Bhardwaj-FRI and Mr Ishwari D Rai-WII</p>	
5:00 PM – 6:00 PM	Special brainstorming sessions (optional participation)	
	<b>Session 1:</b> Mountain forest policies – Led by Dr R. S. Tolia	<b>Session 2:</b> Himalayan forest classification – Led by Dr S. P. Singh
6:00 PM – 8:00 PM	Cultural program and Dinner	



## Day 4: January 21, 2015, Wednesday

9:00 AM – 10:30 AM	<p>[PLENARY]: <b>Forest Fire and Mountain Forests Management solutions</b></p> <p><b>Chair:</b> Dr Christian Koerner - Switzerland</p> <p><b>Keynote 1:</b> Dr Alok Saxena, Additional Director, IGNFA Bridging management of forest with fire -15 Min</p> <p><b>Keynote 2:</b> Mr Sundar Sharma, Global Forest Fire Alliance Bridging management of forest with fire control -15 Min:</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• Dr Joachim Schmerbeck, TERI University - India</li> <li>• Dr RBS Rawat, WII, India</li> <li>• Dr Anmol Kumar, DG FSI</li> <li>• Dr MSR Murthy, ICIMOD</li> <li>• Dr Rakesh Shah, SBB, Uttarakhand</li> <li>• Dr Rajeev Semwal, MOEF&amp;CC, Mountain Division, India</li> </ul> <p><b>Session host:</b> Dr Neelu Gera, FRI</p> <p><b>Rapporteurs:</b> Dr Rashmi-FRI and Arti Kala-WII</p>		
10:30 AM – 10:45 AM	Tea Break		
10:45 PM – 12:30 PM	<p><b>Parallel Sessions:</b> Connecting HKH: Learning from the region on mountain forests management and ecosystem services</p>		
	<p><b>Parallel session 1:</b> Forest and Science on flow of ecosystem Services (IGNFA New Hostel Auditorium)</p> <p><b>Chair:</b> Dr S.P. Singh - India</p> <p><b>Key note:</b> Mr Akbar Hossain, DCF, Bangladesh Forest Department</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• Dr Manoj Chandran- UKFD, India</li> <li>• Mr A. Udhayan – SAARC Forestry</li> <li>• Dr Reinhard Mosandl – TUM, Germany</li> <li>• Dr Christian Koerner – Switzerland</li> <li>• Dr Chadwick Oliver – Yale University, USA</li> </ul> <p><b>Session host:</b> Dr Gopal Rawat- WII</p> <p><b>Rapporteurs:</b> Mr Naw Bahar-ICFRE and Ms Monika Kaushik-WII</p>	<p><b>Topic 2:</b> Valuation of forests ecosystem services and Payment mechanisms (Board Room)</p> <p><b>Chair:</b> Dr Kinley Tenzing, Bhutan</p> <p><b>Keynote:</b> Forest and Water Security – Mr Chetan Agrawal</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• Dr Margret Köthke, Thuenen, IFFE - Germany</li> <li>• Dr Rajesh Rai -SANDEE</li> <li>• Ms Ngo Thi Phuong Dung – Vietnam</li> <li>• Dr Shyam Paudel UNREDD</li> </ul> <p><b>Session host:</b> Mr Laxmi Dutt Bhatta</p> <p><b>Rapporteurs:</b> Mr Nawraj Pradhan and Mr Vineet Kumar-FRI</p>	<p><b>Topic 3:</b> Transboundary Forest Ecosystem Management experiences from the Globe (NFLIC Seminar hall)</p> <p><b>Chair:</b> Dr P.P. Dhyani, Director – GBPIHED, India</p> <p><b>Keynote:</b> Dr. Roger Villalobos, CATIE</p> <p><b>Panelists</b></p> <ul style="list-style-type: none"> <li>• Dr Tint Lwin Thuang -RECOFTC</li> <li>• Mr Roger Villalobos- CATIE</li> <li>• Mr T.P Singh- IUCN, Thailand</li> <li>• Dr Kiran Asher, CIFOR</li> </ul> <p><b>Session host:</b> Dr Rajan Kotru</p> <p><b>Rapporteurs:</b> Mr Ajay Thakur, India and Dr H.P. Singh - FRI</p>
12:30 PM – 1:30 PM	Lunch and Networking		

1:30 PM – 3:00 PM	Parallel Sessions: Mountain Forestry: Policy, Governance and Institutions		
	<p><b>Parallel session 1:</b> Conducive Mountain forest policies in HKH (IGNFA New Hostel Auditorium)</p> <p><b>Chair:</b> Dr Naing Zaw Htun – Ministry of Environment Conservation and Forests - Myanmar</p> <p><b>Keynote:</b> Dr Savitha, DDG, ICFRE, India</p> <p><b>Panelist:</b></p> <ul style="list-style-type: none"> <li>• Mr Bhisma Subedi -Nepal</li> <li>• Mr Akbar Hossain - Bangladesh</li> <li>• Dr Yan Zaoli- CIB-China</li> <li>• Dr Kinley Tenzin - Bhutan</li> <li>• Mr S. Aminullah Fakhri, HoD, Forest Department- Afghanistan</li> </ul> <p><b>Session host:</b> Dr R.B.S. Rawat-GBIHED</p> <p><b>Rapporteurs:</b> Dr Nawa Bahar FRI and Tara Chand -FRI</p>	<p><b>Parallel session 2:</b> Mountain Forests: Governance and working with communities (NFLIC Seminar hall)</p> <p><b>Chair:</b> Dr Rajan Pokhrel- DoF , Nepal</p> <p><b>Keynote:</b> Dr Rucha Ghatge – ICIMOD</p> <p><b>Keynote:</b> Dr Niesar Ahmad Kohestani, Kabul University</p> <p><b>Panelist</b></p> <ul style="list-style-type: none"> <li>• Mr Tint Lwin Thaung-RECOFTC</li> <li>• Mr Lobzang Dorzi –Bhutan</li> <li>• Mr Bhola Bhattarai, AECOFUN – Nepal</li> <li>• Mr B.M.S Rathore, CCF , MP – India</li> <li>• Mr Keith Virgo, UK</li> </ul> <p><b>Session host:</b> Mr Laxmi D.Bhatta</p> <p><b>Rapporteurs:</b> Dr Bhaskar Karki ICIMOD</p>	<p><b>Parallel session 3:</b> Mountain forests: research and knowledge (Board Room)</p> <p><b>Chair:</b> Dr Ram Chaudhary, RECAST, Nepal</p> <p><b>Keynote:</b> Dr P.P. Bhojvaid, Director, FRI - India</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• Ms Anja Rasmussen -ICIMOD</li> <li>• Ms Heike Junger Sharma - Germany</li> <li>• Dr Christian Koerner</li> <li>• Dr Oliver Chadwick</li> <li>• Dr Rajesh Thadani-India</li> </ul> <p><b>Session host:</b> Dr Wakil Ahamad, Dean of Agriculture faculty, Kabul faculty</p> <p><b>Rapporteurs:</b> Ms Monika Kaushik-WII, Mr Anup Chandra-FRI</p>
3:00 PM – 3:15 PM	Tea Break		
3:15 PM – 5:00 PM	<p>[Plenary]: <b>REDD+ in Himalayas: Linking Forest Carbon to Conservation and Development</b> (Convocation Hall)</p> <p><b>Chair:</b> Dr Pradipto Ghosh - India</p> <p><b>Keynote:</b> Dr Kiran Asher -CIFOR,</p> <p>Global Status and Expected Pathway of REDD (15 Min)</p> <p><b>KEYNOTE:</b> Dr Narendra Chand , Nepal</p> <p>REDD+ in Himalayas - (15 min)</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• Dr Bhaskar Singh Karky - ICIMOD</li> <li>• Dr T.P Singh – ICFRE, India</li> <li>• Dr Shyam Paudel - UNREDD, Vietnam</li> <li>• Mr Ben Vickers, FAO – Thailand</li> <li>• Mr Lopchang Dorzi, DoFPS – Bhutan</li> </ul> <p><b>Session host:</b> Dr Rajan Kotru - ICIMOD</p> <p><b>Rapporteurs:</b> Mr Laxmi Bhatta – ICIMOD / Dr Vineet Kumar FRI</p>		
6:00 PM – 7:00 PM	Cultural program		

## Day 5: January 22, 2015, Thursday

9:00 AM – 10:30 AM	<p>[PLENARY]: <b>Making Business with forest and Role of private sector in Forestry/Forest Based value chain promotion in the HKH region</b> (Convocation Hall)</p> <p><b>Chair:</b> Mr Namgay Wangchuk- DG, CoRRB-Bhutan</p> <p><b>Keynote:</b> Dr S. Badri Narayan (Forest Based Value Chain promotion in HKH )</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• Mr T.R Manoharan – FSC, India</li> <li>• Dr R.B.S. Rawat - India</li> <li>• Mr Suneel Pandey, ITC - India</li> <li>• Dr Bhisma Subedi, ANSAB-Nepal</li> </ul> <p><b>Session host:</b> Dr Pushkin Phartiyal, CHEA - India</p> <p><b>Rapporteurs:</b> Mr Laxmi D Bhatta and Dr Anoop Chandra FRI</p>				
10:30 AM – 10:45 AM	Tea Break				
10:45 AM – 12:30 PM	<p><b>Summing Up the Recommendation of 5 Focus area of the Symposium: KEY MESSAGE and DIRECTION for Future</b></p> <p><b>Chair:</b> Dr G. S. Gorraya,</p>				
	<p><b>Institutions and Governance</b> (Convocation hall)</p> <p>Dr Rucha Ghatge &amp; Dr Rajan Kotru - ICIMOD</p> <p><b>Rapporteurs:</b> Dr Bhaskar Karky, Mr Ajay Thakur</p>	<p><b>Forest Dynamics and Management</b> (Convocation hall)</p> <p>Dr Christian &amp; Dr Reinhard Mosandl</p> <p><b>Rapporteurs:</b> Dr Nawa Bahar, Dr Vineet Kumar</p>	<p><b>Linking Incentives to stewardship</b> (Board Room)</p> <p>Dr Shyam Paudel and Mr Chetan Agrawal</p> <p><b>Rapporteurs:</b> Mr Laxmi Bhatta</p>	<p><b>From Subsistence to Standard Transboundary Markets and Management</b> (FRI Director meeting room)</p> <p>Dr Pushkin Phartiyal – CHEA, India &amp; Mr Sunil Pandey</p> <p><b>Rapporteurs:</b> Mr HP Singh, Ms Rashmi</p>	<p><b>Forest Knowledge and Regional Cooperation for Policy-Practice and Science</b> Convocation hall</p> <p>Mr B.M.S Rathore - India &amp; Ms Anja Rasmussen – ICIMOD</p> <p><b>Rapporteurs:</b> Ms Nira Gurung, Mr Rakesh Kumar</p>
12:45 PM – 1:45 PM	Lunch and Networking				
1:45 PM – 3:00 PM	<p><b>VALEDICTORY SESSION</b></p> <p><b>Chief Guest:</b> Honorable Governor of Uttarakhand, India</p> <p><b>Valedictory Session:</b> Building the Roadmap from Recommendations to Policy Action and Upscalable Practices</p> <p><b>Chair:</b> Dr Ashwani Kumar, Director General – ICFRE</p> <p><b>Panelists:</b></p> <p>Afghanistan: Bhutan: Bangladesh: China: India: Myanmar: Nepal:</p> <p><b>Closing Remarks:</b> Chief Guest</p> <p><b>Vote of Thanks:</b> Dr P.P. Bhojvaid, DG, FRI - India</p> <p><b>Closing Remarks:</b> Chairperson</p> <p><b>Session host:</b> Dr Rajan Kotru – ICIMOD</p> <p><b>Rapporteurs:</b> Mr Laxmi Dutt Bhatta – ICIMOD, Dr Ajay Thakur FRI</p>				
3:00 PM – 4:00 PM	Symposium Press Conference (Board Room)				

## List of participants

### Ministers and High level Delegates

1	Shri H.E. Abdullah al Islam, Jakob M.P, Hon'ble Deputy Minister, Ministry of Environment of Forest, Bangladesh Email: <a href="mailto:noorealam15479@gmail.com">noorealam15479@gmail.com</a>
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6	Shri Prem Das Rai Member of Parliament (India) 402, Narmada, 3-5, Dr. B.D. Marg, New Delhi - 110 001 Tel. 9013180208 (M) Email: <a href="mailto:premdas.raai@sansad.nic.in">premdas.raai@sansad.nic.in</a>
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13	Mr Sonam Zangpo Department of Forests and Park Services Thimphu, Bhutan
14	Shri Dinesh Agrawal Hon'ble Minister for sports and Forest, Govt of Uttarakhand, India
15	Shri Krishan Kant Paul Hon'ble Governor of Uttarakhand Rajbhawan Uttarakhand, Dehradun, India

### Afghanistan

16	Mr S Aminullah Fakhri Head of Forest Management MAIL, Afghanistan Email: <a href="mailto:Sayedamin_58@yahoo.com">Sayedamin_58@yahoo.com</a>
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### Bhutan

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### Bangladesh

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### China

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## Myanmar

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## Nepal

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