

Proceedings of
The Regional Policy Workshop
on Adaptation Outlook for the
Hindu Kush Himalaya



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 Himalaya (HKH) – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – 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 and downstream issues. ICIMOD supports regional transboundary programmes through partnerships with regional partner institutions, facilitates the exchange of experiences, and serves as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop economically and environmentally-sound mountain ecosystems to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now and in the future.



About HICAP

The Himalayan Climate Change Adaptation Programme (HICAP), one of the initiatives under ICIMOD's Regional Programme on Adaptation to Change, is a six-year research programme initiated in 2012. It is implemented by ICIMOD in collaboration with CICERO and GRID-Arendal, with responsibilities for overall research competence and communication and outreach respectively. With 28 international and regional partners, HICAP carries out basic and applied research as well as policy engagement to contribute to enhanced resilience to change, particularly climate change, through improved understanding of vulnerabilities, opportunities, and potentials for adaptation. It covers five river sub-basins: upper Indus (Pakistan), Koshi (Nepal), upper Brahmaputra (Tibetan Autonomous Region, China), eastern Brahmaputra (India), and upper Salween Mekong (China). The programme is supported by the Governments of Norway and Sweden.

For more information, please visit www.icimod.org/hicap

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Contents

Acronyms and Abbreviations	iv
Acknowledgement	v
Disclaimer	v
Summary	vi
Background	1
Objectives	2
Key Outcomes of the Workshop	2
Key Hazards	2
Key Risks	2
Existing Policies/Programmes to Address Climate-induced Risks	3
Gaps within Policies/Programmes	3
Recommendations for Adaptation	3
Workshop Proceedings	4
Session 1: Opening remarks, and introduction to the workshop Key messages	4
Session 2: Presentation on key climate risks and adaptation policies in the HKH Key messages	5
Session 3: Introduction to national adaptation approaches in the HKH countries Key messages	7
Session 4: Group exercise to validate key findings for Chapter 2 Key messages	8
Session 5: Group exercise to assess the effectiveness of existing policies in the HKH countries and identifying major gaps Key messages	11
Session 6: Group exercise to come up with key recommendations for hazards in the HKH Key recommendations	12
 Annex: 1 Session Details	 14
Annex: 2 List of Participants	16
Annex: 3 Press Release Released Post Event	18
Annex: 4 Media Coverage of the Event	20

Acronyms and Abbreviations

AF	Adaptation Fund
APCCA	Action Plans in Climate Change Adaptation
AZ	Adaptation Zoning
CBD	Convention on Biological Diversity
CCA	Climate Change Act
CCAAPF	Climate Change Adaptation Action Plan in Forestry
CCAIs	Climate Change Adaptation Initiatives
CCA/MP	Climate Change Adaptation/Mitigation Projects
CCC	Climate Change Centre
CCSAP	Climate Change Strategy and Action Plan
CFRP	Climate Financing Readiness Programme
CICERO	Centre for International Climate Research
CTCN	Climate Technology Centre and Network
FCCA/MGPP	Federal Climate Change Adaptation/Mitigation Green Pakistan Programme
GCF	Green Climate Fund
GEF	Global Environment Facility Trust Fund
GHG	Green House Gas
HICAP	Himalayan Climate Change Adaptation Programme
HIMAP	Hindu Kush Himalayan Monitoring and Assessment Programme
HKH	Hindu Kush Himalaya
ICIMOD	International Centre for Integrated Mountain Development
INDCs	Intended Nationally Determined Contributions
LAKI	Lima Adaptation Knowledge Initiative
LAPA	Local Adaptation Plans for Action
LDCF	Least Developed Countries Fund
MCCA	Myanmar Climate Change Alliance
MCCSAP	Myanmar Climate Change Strategy and Action Plan
NAFCC	National Adaptation Fund for Climate Change
NAP	National Adaptation Plan
NAPA	National Adaptation Programmes of Action
NAPCC	National Action Plan on Climate Change
NCCP	National Climate Change Plan/Policy
NDC	Nationally Determined Contribution
NEC	National Environment Commission
NECC	National Environmental Conservation Committee
NGO	Non-governmental organization
NSACC	National Strategy on Adaptation to Climate Change
NWP	Nairobi Work Programme
PES	Payment for ecosystem services
REDD	Reducing Emissions from Deforestation and Forest Degradation
SCCF	Special Climate Change Fund
UNDP	United Nations Development Programme
UN Environment	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

Acknowledgement

The organizers would like extend their sincere gratitude to the chairs, presenters and panellists, facilitators and rapporteurs for their contribution during the various sessions of the two-day workshop.

Disclaimer

The conference was organized under the Himalayan Climate Change Adaptation Programme (HICAP), which is implemented jointly by ICIMOD, CICERO, and Grid-Arendal in collaboration with local partners, and is funded by the governments of Norway and Sweden.

The workshop was partly supported by the UN Environment through its project 'Climate change action in developing countries with fragile mountainous ecosystems from a sub-regional perspective' funded by the Government of Austria.

This document presents a summary of the workshop proceedings including individual presentations and results of the workshop sessions.

Summary

The HICAP regional workshop on 'Adaptation Outlook for the Hindu Kush Himalaya' brought together experts, policymakers, researchers and practitioners working on climate change policies in the Hindu Kush Himalayan (HKH) countries. The two-day event sought to lay the groundwork for a region-wide assessment of existing adaptation policies in different sectors as well as critical policy gaps and opportunities. The assessment incorporated feedback from policy experts invited to the workshop on climate change adaptation in mountain regions, with a particular focus on relevant policies and institutions.

Organized jointly by the International Centre for Integrated Mountain Development (ICIMOD), UN Environment, and GRID-Arendal, the workshop aimed to develop an overview of existing adaptation policy measures in the countries of the HKH, and the extent to which they address the needs of mountain landscapes and peoples, going on to identify critical gaps that must be addressed to meet current and future risks from climate change.

One of the core objectives of this work was to promote HKH-wide regional understanding of the needs and gaps. The ultimate goal was to foster joint dialogue on mountain ecosystems in the context of climate change and adaptation, and to get HKH countries working together on these issues at the regional and global levels.

Participants engaged in dialogues that brought to light key issues prevalent in the HKH countries. The sessions were devoted to: (a) identifying key climatic hazards and risks; (b) assessing the effectiveness of the existing policies in dealing with these risks; (c) identifying the existing policy gaps; and (d) recommendations on how to deal with these risks.

The participants acknowledged that the workshop was a much-needed event as it brought policymakers, scientists, and practitioners together to discuss the issue of climate change in the HKH countries. Based on the presentations by HKH country representatives and other well-known experts, and subsequent discussions, the participants further reiterated the need for a common platform to mainstream and provide continuity to the climate change discussion carried out during the workshop. The delegates also recommended regular engagements as a possible activity to provide continuity to the undertaking.



Background

The Hindu Kush Himalaya (HKH) is an important region for South Asia and China. The mountains of the HKH are the 'water towers of Asia', providing water to over 1.3 billion people, and a number of other services (i.e., food, biodiversity, and energy). However, the warming trend in the HKH is higher than the global average, which is a cause for grave concern. To help meet the challenges emerging in the HKH, a pioneering programme called the Himalayan Climate Change Adaptation Programme (HICAP), supported jointly by the governments of Norway and Sweden, was launched in 2011. The programme seeks to address critical knowledge gaps on water, climate and hydrology and thus enhance the understanding of future impacts of climate change on natural resources, ecosystem services and the communities that depend on them.

As part of this effort, HICAP seeks to develop an overview of the existing adaptation policy measures in the countries of the HKH, and the extent to which they address the needs of mountain landscapes and people, going on to identify critical gaps that must be addressed to meet current and future risks associated with climate change. One of the core objectives of this work is to promote the understanding of the needs and gaps across the HKH. The ultimate goal is to foster joint dialogue on mountain ecosystems in the context of climate change and adaptation, and to get HKH countries working together at the regional and global levels on these issues.

The regional policy workshop was held in Kathmandu, Nepal from 2-3 February 2017. The event laid the foundation for a region-wide assessment of existing adaptation policies in different sectors, and provided an opportunity to assess critical policy gaps and opportunities. The above-mentioned assessment is built on feedback from policy experts invited to this workshop and existing information and data related to climate change and adaptation in mountain regions, with a particular focus on relevant policies and institutions. This assessment forms part of the series of Adaptation Outlooks ('Mountain Adaptation Outlook Series') for Mountain Regions, developed by United Nations Environment Programme (UN Environment), GRID-Arendal and regional mountain centres of excellence in consultation with national governments.

This workshop summary contains the views and ideas that participants presented during the working sessions. These viewpoints and suggestions will inform the ongoing process of revising and refining the Adaptation Outlook for the Hindu Kush Himalaya.



Objectives

The workshop addressed the following objectives:

- Take stock of past and current activities and initiatives (including relevant institutions and frameworks), in particular at the regional/transboundary level, to promote climate change adaptation in the Hindu Kush mountain region, with a particular focus on policy aspects.
- Provide a gap/need analysis to promote further regional dialogue for climate change adaptation for the Hindu Kush mountain region through capitalising on past efforts.
- Identify recommendations/priority areas for future intervention in policy development in identified key sectors. (water, food resources, forests & biodiversity and energy) and assess their feasibility, state of development and potential contribution to solving the problem (including institutional capacity)

Key Outcomes of the Workshop

During discussions held at the two-day workshop, participants identified key hazards and key risks; highlighted the existing policies/programmes to address these risks; pinpointed the gaps within these policies/programmes; and provided recommendations for adapting to adverse effects of climate change.

Key Hazards

The projected changes in monsoon timings and intense precipitation will likely increase incidences of flash floods and landslides. The projected increase in temperature is likely to lead to frequent wildfires, shifts in species habitat, an increase in heat waves and agricultural pests, higher instances of droughts, and an increase in glacial melt, which is likely to increase incidences of avalanches and Glacial Lake Outburst Floods (GLOFs). These hazards could increase the vulnerability of mountain communities and biodiversity.

Key Risks

Numerous risks are likely to arise as a result of climate-induced hazards, (e.g., contamination of water sources; destruction of infrastructure; loss of human lives, livestock and livelihoods; an increase in male outmigration; and loss of critical biodiversity).

Existing Policies/Programmes to Address Climate-induced Risks

There are various policies/programmes in the HKH countries for dealing with climate change. The National Five Year Plans provide strategic directions and policy framework; the National Adaptation Programmes of Action (NAPAs) seek to enhance national capacity; the National Adaptation Plans (NAPs) aim to address adaptation needs; the National Strategies/Action Plans on Climate Change focus on monitoring, warning and response to climatic events; and various national climate change policies aim to steer the country towards climate resilient development.

Gaps within Policies/Programmes

Although HKH countries have climate change adaptation policies, there are gaps that need to be urgently addressed to provide a holistic approach. To begin with, there is no comprehensive climate change policy for the entire HKH. The coordination between sectors, departments, agencies, and ministries needs to be strengthened. The underlying factors of critical hazards and associated risks (e.g. landslides, floods, heat waves, altitudinal shift of vegetation, and male outmigration) need to be addressed through strategic policies to ensure public participation and cross-sectoral collaborations.

Recommendations for Adaptation

The recommendations revolved around five key hazards, (i.e., landslides, floods, soil erosion, availability of water, and windstorms) which were identified by the participants. There is a need to create a regional knowledge sharing platform, identify hotspots, and resettle vulnerable communities to address the threats from landslides. Suggested adaptation measures for floods included: improving flood forecasting and early warning systems, monitoring glacial lakes, resettling flood-prone communities, working towards the creation of a transboundary river management approach, and investing in the development of climate resilient crop systems. The promotion of sustainable land management, and deforestation measures were suggested as a way forward to deal with soil erosion. Working towards a transboundary integrated water resource management approach was proposed as a possible way to deal with issues related to availability of water (either excess or shortage). It was mentioned that windbreak plantations can be a useful strategy against windstorms if relevant training and information is provided to the communities.

Workshop Proceedings

Session 1: **Opening remarks, and introduction to the workshop**

Key messages

- The HKH is a special region in terms of diversity in cultures, unique mountain agricultural products and being shared between eight countries.
- The assessment about climate change adaptation will assist in filling a key knowledge gap, and will be important for global discussions on the HKH – possibly leading to novel climate solutions for mountain people.
- Due to the projected increase in temperature, specific adaptation approaches for mountains along with regional collaboration at the policy levels, is vital for cross-border learning.
- The sharing of experiences between the HKH countries will also mutually increase their adaptive capacity.

Moderator	Dhrupad Choudhury, ICIMOD
Welcome address	David Molden, ICIMOD
Welcome address	Eklabya Sharma, ICIMOD
Objectives of the workshop	Mozaharul Alam UN Environment
Keynote address	Yubak Dhoj GC, Secretary, Ministry of Livestock Development, Nepal



Session 2: Presentation on key climate risks and adaptation policies in the HKH

Key messages

Context/methodology related to the Adaptation Outlook

- the objectives of the adaptation outlook is to understand the general view of climate change, assess the existing policies and strategies based on expert knowledge and review, learn about the policy/institutional-level gaps, and define priorities and recommendation for future actions. the outlook will be based on a vulnerability session, (i.e. identifying key risks in the mountains), policy session, learning the existing gaps on policies, and a session on recommendations for addressing these gaps.

Key climate risks

- Past climate trends show that the HKH as a whole is getting warmer (the temperature is increasing faster in the mountains than in the lower areas), changes in precipitation is leaving some areas dryer and some wetter than before, and glaciers are losing mass and retreating rapidly (the Karakoram region being an exception).
- Future scenarios project that the entire HKH region is likely to be warmer by the end of the century, there is likely to be a general increase in precipitation and some areas will be dryer than before, monsoons are likely to arrive earlier, and the warming temperature is likely to result in glacial mass loss of up to 70% by 2050.
- The HKH faces the risk of critical climate-induced hazards (i.e., floods, droughts, GLOFs, heavy snow and cold extremes, avalanches, rising temperature and heat waves, wildfires, and shift in species' distribution).
- Projections indicate that various important sectors will face vulnerabilities. For example, there is likely to be water stress and higher unpredictability of water availability, and a likely increase in floods and droughts. It is likely that food production will be adversely affected by early onset/delayed monsoons, evapotranspiration, floods and droughts. It is likely that there will be an upward shift of forests and species, likely increase in forest fires, and likely increase in degradation/fragmentation of habitats. Infrastructures in both rural and urban areas will likely be at risk due to landslides, floods, and GLOFs. Hydropower plants are likely to be damaged by landslides and resulting increase in sedimentation, and GLOFs. The tourism sector is likely to be vulnerable due to the existing hazards. It is likely that human health will be adversely affected due to heat waves, GLOFs, and water- and vector-borne diseases.

Moderator	Arabinda Mishra, ICIMOD
Context/methodology related to the Adaptation Outlook	Tina Schoolmeester, GRID-Arendal
Introduction to Chapter 2 Key Climate Risks	Björn Alfthan, GRID-Arendal
Introduction to Chapter 3: Adaptation Policies	Nand Kishor Agrawal, ICIMOD
Introduction to HIMAP	Philippus Wester, ICIMOD



Adaptation policies

- At the global level, there are numerous policy responses, (e.g. UNFCCC, Kyoto Protocol, and Paris Agreement); various funds, (e.g., GCF, GEF Trust Fund, SCCF, LDCF, and AF); and numerous mechanisms, (e.g. Adaptation Committee, NAP, NWP, CTCN, and LAKI) for climate change adaptation in the HKH.
- There are ongoing efforts for transboundary cooperation between the HKH countries, and multiple national policy responses within the countries themselves, e.g., Afghanistan and Bangladesh – CCSAP and NAPA; Bhutan – NEC and NAPA; China – NCCP and Five-Year Plan; India – NAPCC; Myanmar – NECC and NAPA; Nepal – NCCP, LAPA and NAPA; and Pakistan – NCCP.
- There are also sectoral policy responses within the respective countries. For example, water-related natural disasters are addressed in some policies; food security is mentioned in some of the Constitutions; there is an aim to achieve multifunctional/sustainable forest management following the ratification of CBD; an aim to increase efficiency of production and consumption of energy; a recognition that climate could be a limiting factor for tourism and infrastructure development; and gender-specific vulnerabilities are integrated in policy and project design.
- Introduction to HIMAP
- Started in 2013, the approach critically assesses the current state of knowledge in the HKH to lead to a set of practically oriented policy recommendations involving a broad/diverse group of researchers, practitioners and policy makers.
- The process includes framing of the assessment, drafting of chapters, extensive review, active communication and engagement with policy makers, development of a summary document, and publication and launch in early 2017.



Session 3: Introduction to national adaptation approaches in the HKH countries

Key messages

(based on presentation of country representatives)

Bangladesh

- The Constitution considers the issue of climate change; Vision 2021 provides directions to all policy documents on climate change; and the Sixth Five-Year Plan (FY2016-FY2020) takes into consideration climate change adaptation for accelerating growth and reducing poverty. The existing NAPA suggests 15 adaptation measures to address adverse effects of climate change; and the process of preparing the 3rd National Communication to UNFCCC and NAP is currently underway.

Bhutan

- NAPA to reduce GLOF-associated risks is completed; NAPA to enhance national capacity, create facilities to measure climatic data, and introduce best practices; REDD+, and Five-Year NAP is ongoing.

China

- The 12th National Economic and Social Development Five-Year Plan (2011-2015) suggests improving the adaptive ability for climate change; and the NSACC focuses on the system of monitoring, warning and response to climate-induced emergency events. Additionally, AZ is currently being conducted; and APCCA has been issued for urban adaptation along with the CCAAPF.

India

- The key policy documents on climate change are the National Communications to UNFCCC, NAPCC, and INDCs. In addition, NAFCC supports climate actions by the state governments.

Myanmar

- In 2012, NAPA was worked upon; in 2013, MCCA was formulated and the REDD+ Readiness Roadmap was prioritized; in 2015, INDCs were sent to UNFCCC, and the MCCSAP was launched; in 2016, NCCP was prepared. The NDC and NAP are currently being drafted.

Nepal

- The NAP formulation process began in 2015 to address medium and long-term adaptation needs; and NDC was submitted to UNFCCC in 2016.

Pakistan

- The NCCP aims to steer the country towards climate resilient development; the GCF Climate Change Adaptation Project aims to reduce risks/vulnerabilities associated with GLOFs; and the FCCA/MGPP aims to improve the forestry and wildlife sectors. The CCAs are being undertaken by UNDP/LEAD-Pakistan; and LEAD-Pakistan is working to develop the CFRP. Further, the CCA is promoting the setting up of a CCC to implement climate change-related policies. Additionally, there are CCA/MP in various regions.

Discussion Facilitator

Eklabya Sharma, ICIMOD



Session 4: Group exercise to validate key findings for Chapter 2

Key messages

The participants were divided into four groups: western HKH region (two groups) and eastern HKH region (two groups). Each group was then requested to deliberate over the hazards, vulnerability and risks associated with climate change in the HKH, and report their findings.

Discussion facilitators: Magnus Andresen, UN Environment
Dhrupad Choudhury, ICIMOD
Björn Alfthan, GRID-Arendal
Philippus Wester, ICIMOD

Findings from Groups I and II (western HKH region)

Hazards	Vulnerabilities	Key risks
Flooding Flash floods Intense precipitation	People on flood plain Poorly managed rivers Deforested land Poor drainage Agriculture, horticulture and pastoralism Tourism Hydropower Infrastructure	Destruction of lives, houses and farmland/infrastructure Siltation of water bodies Functioning of infrastructure (hydropower, affecting turbine) Increasing maintenance cost of these infrastructure, irreparable damage to infrastructure Soil erosion Contamination of water sources Damage to crop Increases food insecurity Decreases incomes of small holder farmers Loss of assets
Change in monsoon timing/intensity	Hydropower Water resources Farming Change in farming and harvesting seasons	Crop loss Food security Economic loss Soil erosion Increases runoff Decreases aquifer recharge Migration Loss of livelihoods Extended dry periods
Landslides	Transport Tourism Poor housing Farmland	Damage to infrastructure Loss of lives Crop damage
Increased temperature leading to wildfires	Wildlife: flora/fauna/forests Tourism	Loss of forest cover Social erosion: displacement of people GHGs Common/private property loss Permanent changes in soil composition/micro organism
GLOFs	Similar to landslides and flash floods	Loss of life Destruction of households, farmland/infrastructure
Avalanches	Similar to landslides Excessive runoff	Higher maintenance of costs Affected energy infrastructure Damage to river basins Damage to housing Soil erosion Contamination of water sources Loss of lives



Hazards	Vulnerabilities	Key risks
Drought	Farmers Women fetching water Forest and biodiversity Agriculture, horticulture and pastoralism Health Tourism Hydropower	Food security, economic loss Increases cost investment for farmers Migration Lowers people's living standards Cultural changes Drying of natural springs Wildfire Water shortage Reduces yield and productivity Land degradation and water shortage might cause social conflict Increases depredation of crops by wildlife
Heat waves	The elderly Agriculture Pastoralism	Higher cost of living Loss of lives Crops loss/reduction in crop and livestock productivity
Change in mean degree temperature	Flora and fauna Elevation	Biodiversity loss/habitat loss Reduces citrus production in hilly areas
Glacial melt	People's dependence on glacial lakes/rivers Ecosystem Aquatic ecosystem Farmers ecosystem	Changing ecosystems Habitat loss Water scarcity Economic loss
Reduced snowfall	Agriculture, horticulture and pastoralism Tourism Hydropower Ecosystem	Reduces yield and productivity Increases food insecurity Decreases incomes of smallholder farmers Decreases the income of tourism dependent people Reduces energy production leading to increase in GHG emission due to high use of fossil fuel for energy production Loss of ecosystem and its services
Hailstorms/windstorms	Agriculture and horticulture Infrastructure	Damage to crop Increases food insecurity Decreases incomes of smallholder farmers
Pests	Agriculture and horticulture	Damage to crop Increases food insecurity Decreases incomes of smallholder farmers

Findings from Groups III and IV (Eastern HKH region)

Hazards	Vulnerabilities	Key risks
Landslides	Damage to infrastructure/road/housing Damage to agriculture Tourism Reduced hydropower productivity due to increased sedimentation in the river systems	Loss of life and livestock Social risks Economic risks Region wide risks
GLOFs	Energy sector, hydropower dams Damage to infrastructure Communities	Damage to infrastructure Loss of life and property in the communities
Flash floods	Agriculture sector – crop damage, sedimentation Infrastructure and communication Sudden, not prepared, in mostly dry area Hydropower projects	Loss of life Damage to agriculture Damage to infrastructure Spread of disease due to dead animals, destroyed wells Displacement of people Increased land conflict Migration
Temperature rise	Glacier melting Agriculture: early ripening/maturity of crops Increased incidence of pest and diseases Fishery Shifting of species Water stress	Water insecurity Reduction in crop productivity Food insecurity Increased impact on biodiversity Shifting of species Forest fires
High rainfall variability	Disturbance in normal cropping pattern Insecurity in the availability of drinking water Vector borne diseases Drought/dry spell	Low productivity Health/nutrition Malaria/dengue Forest fire Man/wildlife conflict
Shift in species		Increased wildlife conflicts
Reduced snow cover and avalanches	Cultural erosion Effect on ecosystems	Loss of indigenous (spiritual) practices Loss of endemic species reliant on frost
Permafrost	Mountain ecosystems	Increased incidences of GLOFs



Session 5: **Group exercise to assess the effectiveness of existing policies in the HKH countries and identifying major gaps**

Key messages

The participants assessed the policies' effectiveness in addressing climate change adaptation in their countries, and highlighted the major gaps.

Bangladesh

- There is a need to take a proactive role to obtain international climate financing. Incorporating climate change into the planning system and budgeting for each sector is a challenge. The coordination between various agencies, ministries and departments and capacity building needs strengthening. There is an urgent need for a holistic climate change policy that encompasses issues such as temperature rise and salinity intrusion, underlying reasons behind landslides and floods, migration and cross-country water-sharing issues.

Bhutan

- There is a need to build synergy among the different sectors to overcome the limitations in resource allocation and prioritization of climate actions. Decision-makers should engage regularly with environmental issues, especially transboundary issues.

China

- Coordination between different government agencies is needed to strengthen cross-sectoral collaboration. A mountain-specific plan is urgently required.

India

- There is an urgent need for targeted policies on migration, crop failure due to rise in temperature, human-wildlife conflicts, and flash floods.

Myanmar

- Specific policies for floods in the mountains, reduced snowfall, spatial and land use planning, and energy are urgently required.

Nepal

- Specific policies are needed to address GLOFs, avalanches, flash floods in the plains, changing patterns of monsoon, heat waves, droughts, decreased frequency and amount of snowfall, and altitudinal shift of vegetation.

Pakistan

- Institutional capacity needs to be strengthened, and there is a critical need for regional collaboration on water and flood-related issues, and the creation of mountain-specific forest policy.

Discussion facilitators

Arabinda Mishra, ICIMOD
Arun Shrestha, ICIMOD
Magnus Andresen,
UN Environment



Session 6: Group exercise to come up with key recommendations for hazards in the HKH

Five key hazards, (i.e., landslides, floods, soil erosion, availability of water, and windstorms) were identified for the HKH based on the two-day deliberations between participants. The participants were then asked to provide key recommendations to address these hazards.

Key recommendations

Hazards	Solutions/actions needed
Landslides	<ul style="list-style-type: none"> Getting information and identification of hotspots Spatial and proper land use management planning Environment policy Need enforcement of laws Geo-technical investigation: mapping of infrastructural development, sustainable forest management, water management Re-settlement of populations in vulnerable areas (i.e. steep slopes) Development management (construction permits) Infrastructure, EIA Forest management Regional knowledge sharing platform where solutions and approaches can be communicated and disseminated On-site visits to document and share best practices e.g., mitigation measures or rehabilitation Identification of vulnerable areas/zones Management plans for vulnerable zones Stabilization of potential landslide areas Technical solutions through technical development Law enforcement: create incentives and control Risk assessments: GIS capacity, engineers, and topo/geo analysis The capacity of town planners, engineers and town administration needs strengthening
Floods	<ul style="list-style-type: none"> Plan, design and construct flood shelters Development of climate resilient systems Construction of small dams Increase community awareness of flood dangers targeted at communities in the flood-prone areas Improvement of flood forecasting and regional early warning system Glacial lake monitoring Resettlement of people near rivers when it is required Flood risk assessment and mapping Flood-prone area identification Inundation mapping: digital elevation model for accurate mapping Protection of environments Transboundary river management Proper drainage Construction of storm water drains and storage structure Development of climate resilient cropping systems
Soil erosion	<ul style="list-style-type: none"> Sustainable land management Conservation of agriculture Promoting plantation Deforestation measures on slopes Preservation of shifting cultivation Promotion of agroforestry PES model implementation Planting grass species Formulation of climate change adaptation based on catchment

Hazards	Solutions/actions needed
Availability of water	<p>Hydropower impact assessment: benefit sharing and EIA embedded</p> <p>Adoption of Integrated Water Resource Management Principles</p> <p>Improved water harvesting and management at community and household level</p> <p>Water security plans</p> <p>Springs: identify vulnerable springs and micro plans for spring sheds (treatment, livelihoods and water security plan)</p> <p>Drought: rainwater harvesting, measures to tackle runoff in hills, risk transfer mechanism like weather insurance, and promotion of micro irrigation system</p> <p>Technical training on water conservation techniques/smart irrigation</p> <p>Research on adapted crop varieties</p> <p>Climate informed management of habitats</p> <p>Transboundary integrated water management</p> <p>Institutionalize PES schemes: upstream/downstream linkage</p>
Windstorms	<p>Windbreak plantation/creation of green belts</p> <p>Creation of better infrastructure (shelter homes in vulnerable areas, general housing, schools, etc.)</p> <p>Early warning systems</p> <p>Public awareness</p> <p>Regional educational training/courses on climate change issues (Himalayan University Consortium)</p> <p>Breeding of resistant crop varieties (to drought, windstorms, pests)</p>



Annexes

Annex 1: Session Details

Day 1	Thursday, 2 February 2017
9:30 – 10:30	Opening remarks and introduction to the workshop Moderator: DhruPAD Choudhury, ICIMOD David Molden, ICIMOD Eklabya Sharma, ICIMOD Mozaharul Alam, UN Environment Yubak Dhoj GC, Secretary, Ministry of Livestock Development, Nepal
10:30 – 11:00	Group photograph for participants, followed by tea/coffee break
11:00 – 12:30	Presentation of findings of Background Document on Key Climate Risks and Adaptation Policies (Chapters 2 and 3) (Short presentations followed by questions and answers) Moderator: Arabinda Mishra, ICIMOD Introduction to Chapter 2: Key Climate Risks – Björn Alftan, GRID-Arendal Introduction to Chapter 3: Adaptation Policies – Nand Kishor Agrawal, ICIMOD Introduction to HIMAP – Philippus Wester, ICIMOD
12:30 – 13:30	Lunch
13:30 – 15:00	Climate change adaptation in the HKH – policy approaches: (Short presentations by Country Representatives: 7 minutes each) Introduction to National Adaptation Approaches in the HKH countries Bangladesh – Ahammad Shah Bhutan – Chenchu Norbu China – Yang Shuo India – Uttam Sinha Myanmar – Pasquale Capizzi Nepal – Naresh Sharma Pakistan – Qamar Chaudhry Discussion facilitator: Eklabya Sharma, ICIMOD
15:00 – 15:30	Tea/coffee break
15:30 – 16:00	Introduction to the Working Session Discussion facilitator: Matthias Jurek, UN Environment
16:00 – 17:30	Working Session 1: Breakout group exercise to validate key findings for Chapter 2 Discussion facilitators: Magnus Andresen, UN Environment DhruPAD Choudhury, ICIMOD Björn Alftan, GRID-Arendal Philippus Wester, ICIMOD Key question: To what extent do the identified key risks match the reality on the ground are based on experience?
18:00 – 20:00	Reception dinner

Day 2	Friday, 3 February 2017
9:00 – 10:00	Introduction to the Working Sessions National set up regarding adaptation policies and the HKH Discussion facilitators: Mozaharul Alam, UN Environment Nand Kishor Agrawal, ICIMOD
10:00 – 10:30	Tea/coffee break
10:30 – 12:00	Working Session 2 How effective are the existing policies to face these key risks, (i.e. are they working, and do they address the key risks)? Facilitators: Laxmi Bhatta, ICIMOD Björn Alfthan, GRID-Arendal Suman Bisht, ICIMOD Iris Leikanger, ICIMOD
12:00 – 13:00	Lunch
13:00 – 15:00	Working Session 3 Identification of major gaps – Matthias Jurek, UN Environment Discussion facilitators: Arabinda Mishra, ICIMOD Arun Shrestha, ICIMOD Magnus Andresen, UN Environment Way Forward: Ideas to address the gaps
15:00 – 15:30	Tea/coffee break
15:30 – 16:30	Final remarks: Eklabya Sharma, ICIMOD Matthias Jurek, UN Environment Remarks from participants

Annex 2: List of Participants

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Annex 3: Press Release Released Post Event

The press release is also available on our website at <http://www.icimod.org/?q=25748>

Adaptation Outlook for the Hindu Kush Himalaya in the Making

Policy workshop sets ground for a regional assessment of adaptation responses for the Hindu Kush Himalaya

Kathmandu, Nepal 3 February 2017 – As the Hindu Kush Himalaya (HKH) is one of the fastest warming and

most vulnerable regions on Earth to climate change, implementing adaptation measures that target these mountains and downstream areas is crucial. But to what extent are existing national and sectoral adaptation policies relevant to the HKH, and where can they be strengthened? This has been the focus of a two-day workshop, entitled ‘Regional Policy Workshop on Adaptation Outlook for the Hindu Kush Himalaya,’ which concluded today at the International Centre for Integrated Mountain Development (ICIMOD) in Kathmandu, Nepal.

To address this issue, the workshop – jointly organised by ICIMOD, the UN Environment Programme (UN Environment) and GRID-Arendal – brought together policy and research experts who focus on climate change and mountain ecosystems in the HKH and beyond.



The workshop focused on building a foundation for assessing region-wide risk and vulnerability to climate hazards, and the existing adaptation policies and measures. By identifying policy gaps as well as opportunities, the findings of the workshop will provide decision makers with much-needed knowledge to meet current and future challenges from climate change and other drivers.

Over the last two days, participants reviewed and provided feedback on a background document entitled, ‘Key Climate Risks and Adaptation Policies and Actions for the Hindu Kush Himalaya’. Government representatives shared their views on national adaptation approaches for mountain ecosystems coping with climate change. These discussions will lead to the development of a report titled, “Outlook on Climate Change Adaptation in the Hindu Kush Himalayan Mountains,” which will be part of a UN Environment’s Mountain Adaptation Outlook series.

“We have a very important job in the days ahead,” said David Molden, Director General of ICIMOD, told the gathering. “It is a very special thing that we have come from so many different countries to bring our minds together on the issue of adaptation. We hope this can be the foundation for more regional cooperation on this issue, because regional cooperation is paramount to securing the future of mountains and mountain people.”

“ICIMOD together with its partners brings tremendous knowledge on adaptation across the region,” said Yubak Dhaj GC, Secretary, Ministry of Livestock Development, Government of Nepal. “The assessment of adaptation practices in the region is very much important for overall adaptation planning in the countries, and also for cross border learning”.

The ICIMOD-led assessment for the eight HKH countries focuses on the mountain range shared by over 1.3 billion people from Afghanistan to Myanmar. This assessment is the sixth in the series of Regional Mountain Adaptation Outlooks under development by UN Environment, GRID-Arendal and other regional mountain centres of excellence. The Adaptation Outlook series uses a common methodology across global mountain regions to facilitate comparison and knowledge exchange among these groups.

“Mountain areas across the Hindu Kush Himalaya face many of the same threats from climate change,” said Mozaharul Alam, the Regional Climate Change Coordinator for UN Environment. “Sharing of experiences and cooperation between the eight countries will therefore mutually increase their adaptive capacity. The HKH Partnership launched during UN Environment Assembly is a key platform to bring policy makers across the region together for improved coordination and exchange of experience.”

The Outlook on Climate Change Adaptation in the Hindu Kush Himalaya is proposed to launch at the 23rd session of the Conference of the Parties (COP 23) at the UN Convention on Climate Change (UNFCCC) in Bonn, Germany.

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Annex 4: Media Coverage of the Event

Sr. no.	Title	Media house	Date	URL
1	India's Climate Plan and Adaptation Policy	IDSA News	02.02.2017	http://www.idsa.in/idsanews/uttam-sinha-india-climate-plan-adaptation-policy-ICIMOD-kathmandu
2	Workshop on Hindu Kush Himalaya	The Annapurna Post	02.02.2017	http://annapurnapost.com/annanote/news/4007/Workshop-on-Hindu-Kush-Himalaya
3	Experts assess ecosystems, climate change adaptation in Hindu Kush Himalaya	Xinhua	02.02.2017	http://news.xinhuanet.com/english/2017-02/02/c_136026546.htm
4	Experts assess ecosystems, climate change adaptation in Hindu Kush Himalaya	Sina.English	02.02.2017	http://english.sina.com/news/2017-02-02/detail-ifyaexzn8732160.shtml
5	Hindu Kush Himalaya chetrama sajha anukulan niti tayaar garine (हिन्दू कुश हिमालय क्षेत्रमा साभ्मा अनुकूलन नीति तयार गरिने)	Gorkhapatraonline.com	03.02.2017	http://www.gorkhapatraonline.com/news/35874
6	Hindu Kush Himalaya chetrama sajha anukulan niti tayaar garine (हिन्दू कुश हिमालय क्षेत्रमा साभ्मा अनुकूलन नीति तयार गरिने)	Medianp.com	03.02.2017	http://medianp.com/2017/02/114739.html
7	Hindu Kush Himalaya chetrama sajha anukulan niti tayaar garine (हिन्दू कुश हिमालय क्षेत्रमा साभ्मा अनुकूलन नीति तयार गरिने)	Nepal Shafaqna	03.02.2017	http://nepal.shafaqna.com/NE/NP/319221
8	Hindu Kush Himalaya chetrama sajha anukulan niti tayaar garine (हिन्दू कुश हिमालय क्षेत्रमा साभ्मा अनुकूलन नीति तयार गरिने)	Ratopati.com	03.02.2017	http://www.ratopati.com/news/114311/
9	Workshop on Hindu Kush Himalaya	Myrepublica	03.02.2017	http://www.myrepublica.com/news/14280/
10	Temperatures to rise 1-2 degrees by 2050: Experts	Myrepublica	03.02.2017	http://www.myrepublica.com/news/14240/
11	Experts assess ecosystems, climate change adaptation in Hindu Kush Himalaya	Outlook Afghanistan	04.02.2017	http://www.outlookafghanistan.net/national_detail.php?post_id=17365&
12	Adaptation Outlook for the Hindu Kush Himalaya	Mountain Partnership	07.02.2017	http://www.fao.org/mountain-partnership/news/news-detail/en/c/469709/



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