

Ecosystems Management Landscape Approaches for Mitigation and Adaptation in the Hindu Kush - Himalaya (HKH)

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International Centre for Integrated Mountain Development

Kathmandu, Nepal

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The Hindu Kush-Himalayan Region

...is extended over 8 countries and drains into major 10 river basins.

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Afghanistan



Bangladesh



Bhutan



China



India



Myanmar

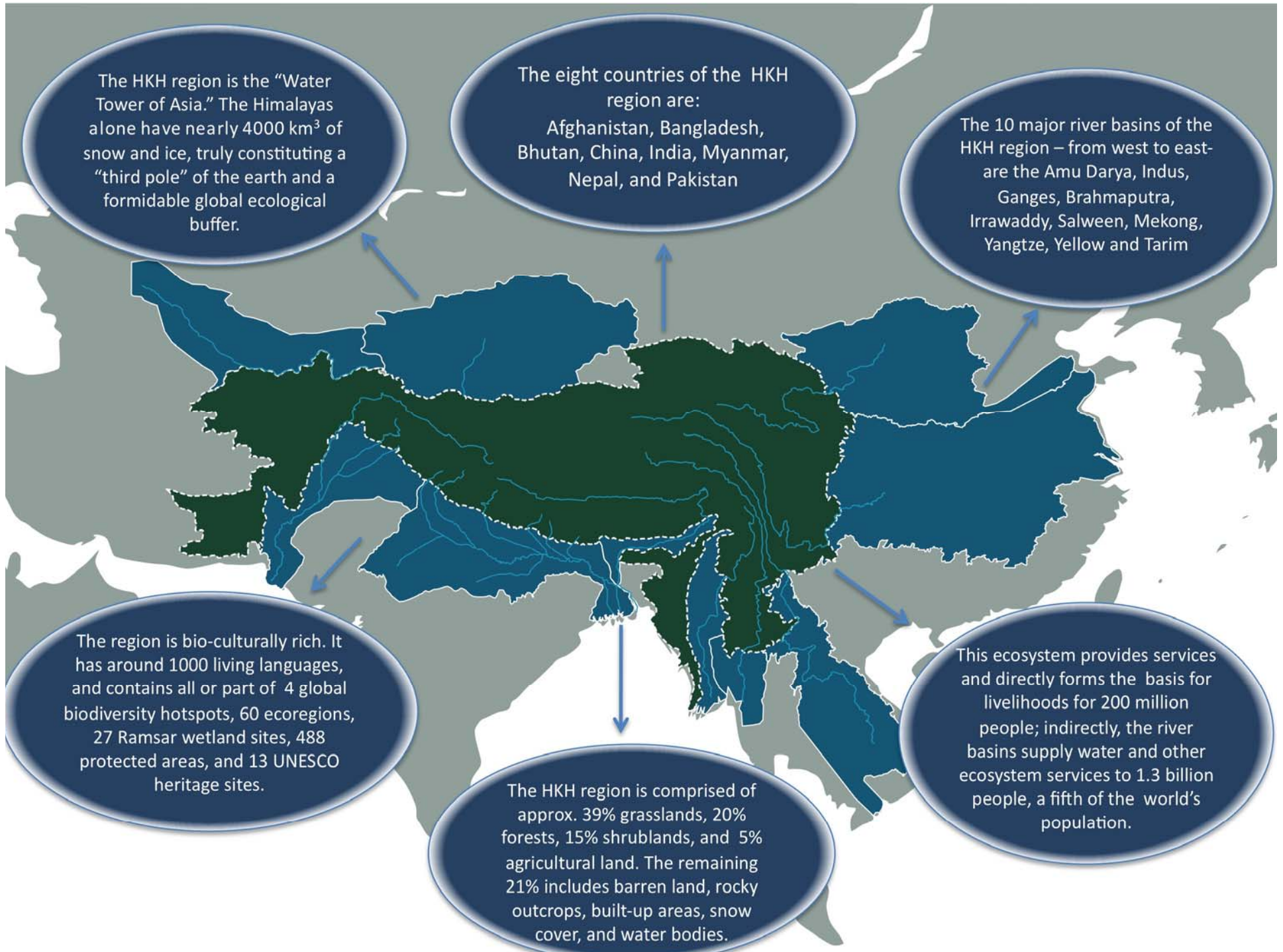


Nepal



Pakistan





Climate Change in Hindu Kush - Himalaya

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Accelerated change

- Temps rising faster in higher elevations
- Glacial melting – rate higher than global avg.
 - Glacial lake outbursts – mountain hazards
- Loss of permafrost – Tibetan Plateau

Impacts on communities and livelihoods

- Disrupted Agricultural Cycles
 - Changes in timing of runoff
 - More precipitation as rainfall
 - Earlier snowmelt, shorter winters

Impacts on natural systems / ecological interactions

- Shifting of Species Ranges / Protected Areas
- Invasive species and pests

Increase in Extreme Events

- Floods, droughts

HKH – contributes very little to global GHG emissions

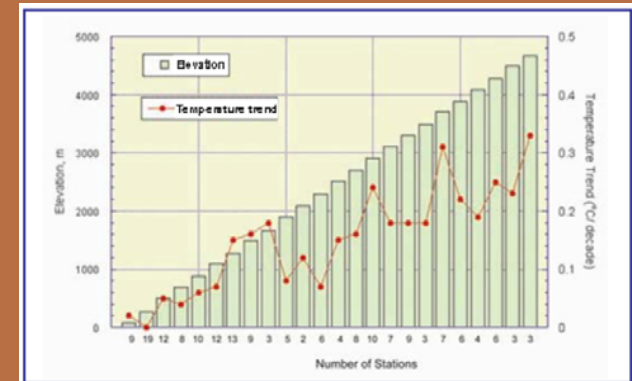
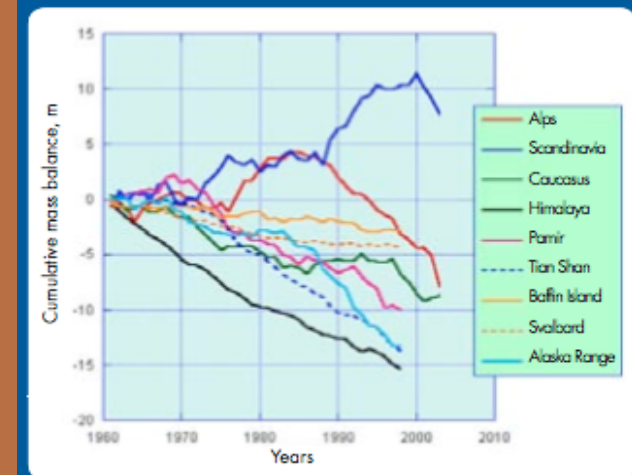


Figure 1: Dependence of warming on elevation on the Tibetan Plateau (Liu and Chen 2000)

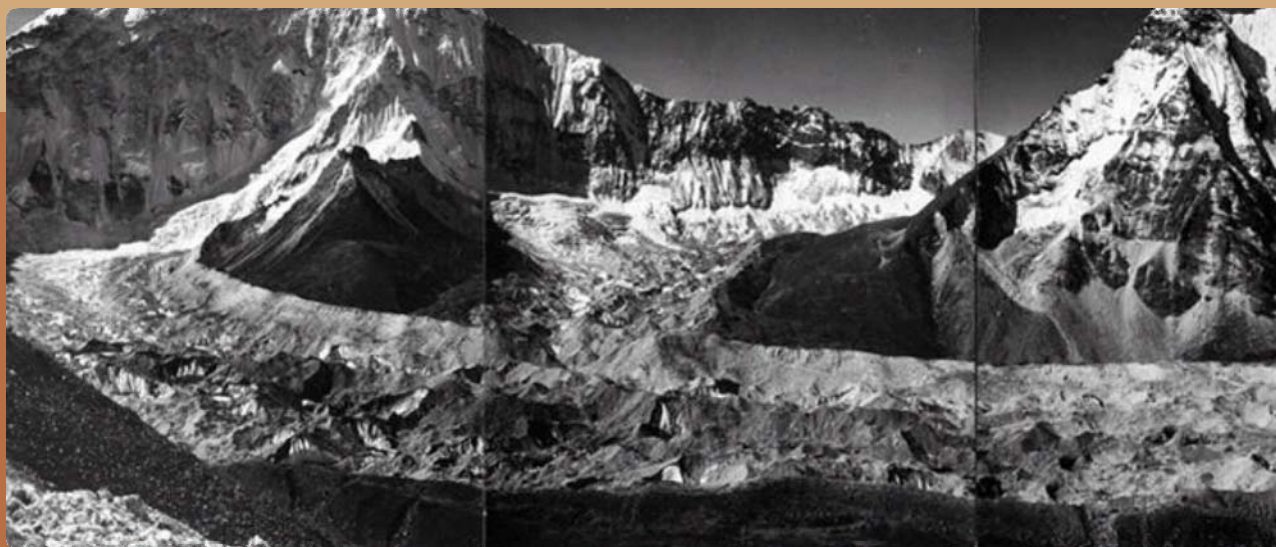
Figure 3: Rapid retreat of greater Himalayan glaciers in comparison to the global average (Source: Dyurgerov and Meier 2005)



Retreating Imja Glacier (near Mt. Everest)

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In 1956

(Erwin Schneider, Khumbu, Nepal, 1956 – 1961

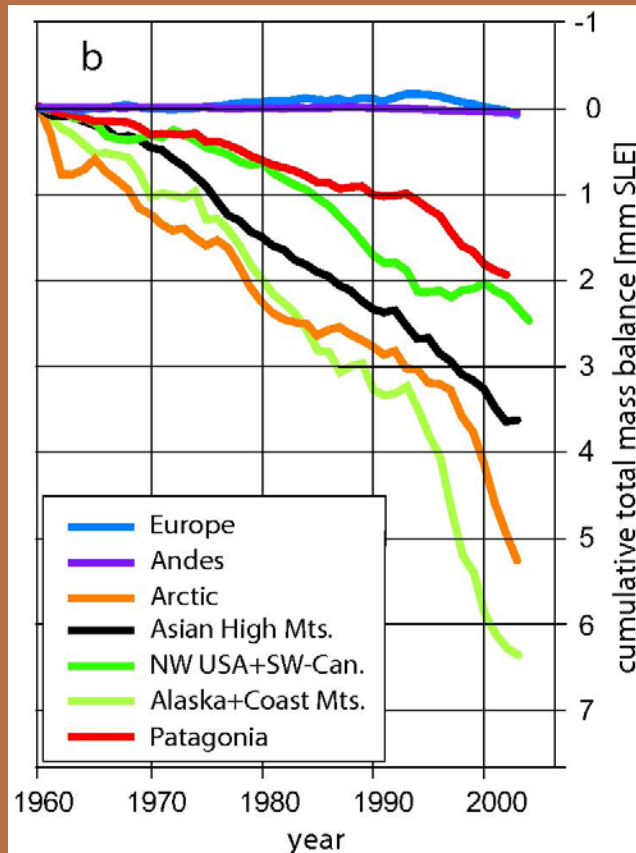
Courtesy of the Association for Comparative Alpine Research, Munich Archives of Alton Byers, The Mountain Institute)



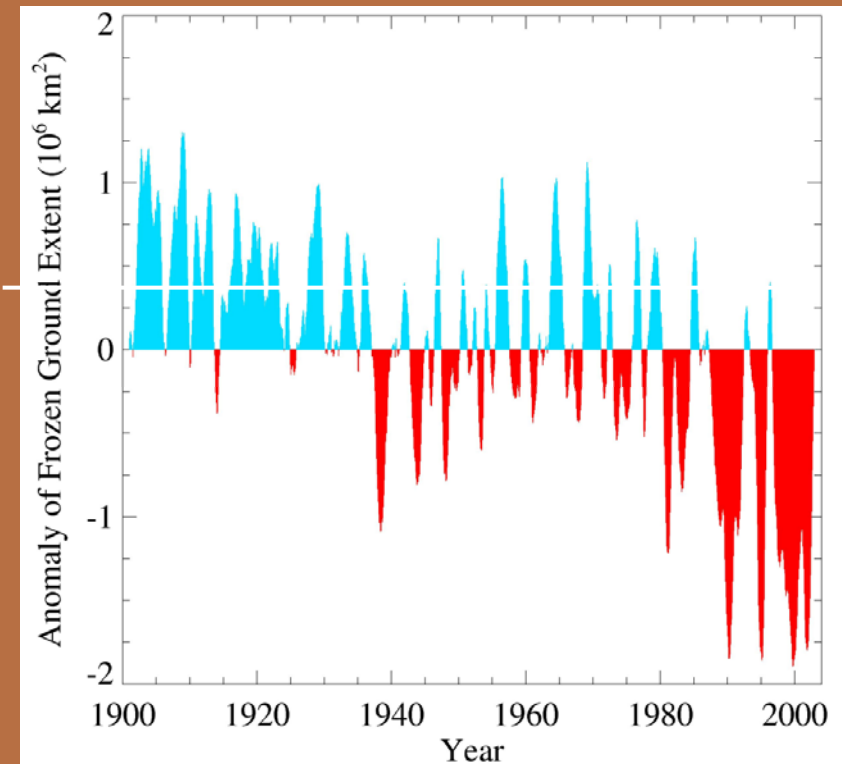
In 2007

(photo: Alton Byers, The Mountain Institute)

Glaciers and Permafrost are Receding



Increased Glacier retreat since the early 1990s



Area of seasonally frozen ground in northern hemisphere has decreased by 7% in this last century

Landuse and other on-going regional change

Climate change is one dimension of matrix of on-going global and regional change processes in the landuse sector

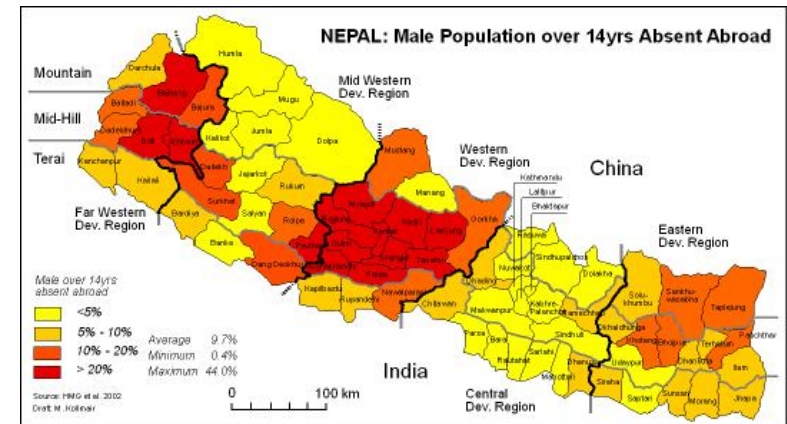


Table 3: Land use change in the HKH region between 1997 and 2007

	Agriculture (%)	Forest (%)	Pasture (%)	Pop. Trend (2000-2005)
Afghanistan	0.82	-3.07	0	2.6
Bangladesh	0.25	-0.19	0	1.7
Bhutan	-0.24	0.34	0.17	2.3
China	1.24	1.85	0	0.5
India	-0.03	0.19	-0.03	1.6
Myanmar	1.41	-1.38	-1.70	0.9
Nepal	0.29	-1.66	-0.12	2.1
Pakistan	0.87	-2.07	0	2.2

Source: FAO 2009c

Broad Conservation and Livelihood Challenges

- **Physical change**
Over extraction of resources, introduced and invasive species, forest degradation, change in landuse/cover
- **Climate change**
Rise in temperature, seasonal change in precipitation regime, extreme weather conditions
- **Demographic and socio-economic change**
Immigration, poverty, limited development options, majority on subsistence livelihood



Regional Mean Temperature Trends for the period 1977-2000 (°C per year)

Regions	Seasonal				Annual
	Winter	Pre-monsoon	Monsoon	Post-monsoon	Jan-Dec
	Dec-Feb	Mar-May	Jun-Sep	Oct-Nov	
Trans-Himalaya	0.12	0.01	0.11	0.10	0.09
Himalaya	0.09	0.05	0.06	0.08	0.06
Middle Mountains	0.06	0.05	0.06	0.09	0.08
Siwalik	0.02	0.01	0.02	0.08	0.04
Terai	0.01	0.00	0.01	0.07	0.04
All-Nepal	0.06	0.03	0.051	0.08	0.06

Need for a Mountain Relevant Carbon Finance Agenda

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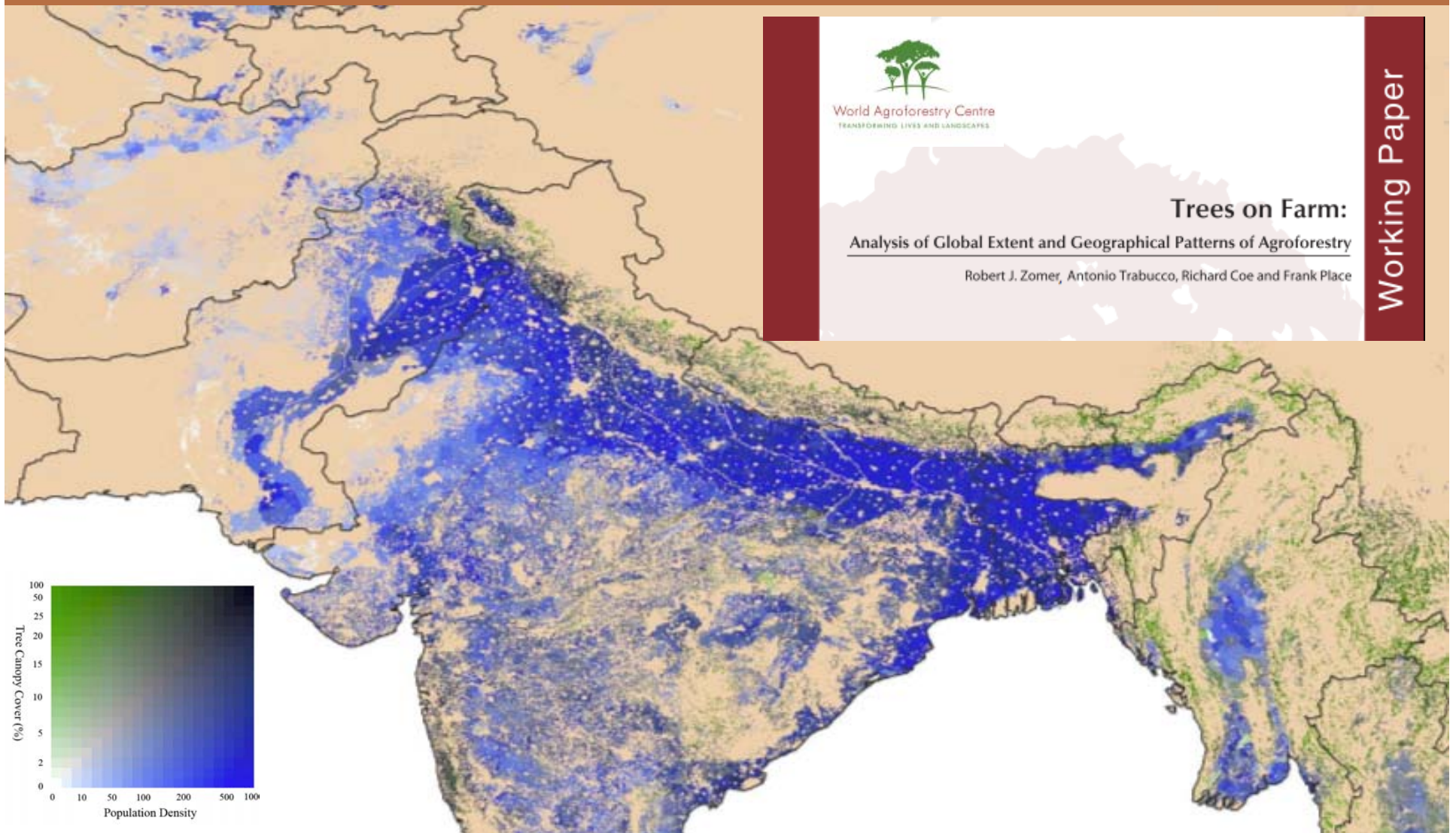
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- Most of current on-going global deforestation is lowland tropical.
 - Brazil, Indonesia, Congo Basin
 - Second D is for Degradation - particularly significant in HKH
- Most of current on-going global discussion on REDD+ has a lowland tropical bias.
- Mountains have very different (and very heterogeneous) conditions, biophysical, socio-economic, cultural, and institutional – **data sparse**.
- Methods and approaches applicable in lowland forests may not be applicable in mountains.
- Urgent need to highlight the unique conditions and challenges of mountains in the international policy arena to articulate the need for mountain and HKH relevant adaptation and mitigation (carbon) policies.

Trees on Farm – HKH - Agroforestry Landscapes

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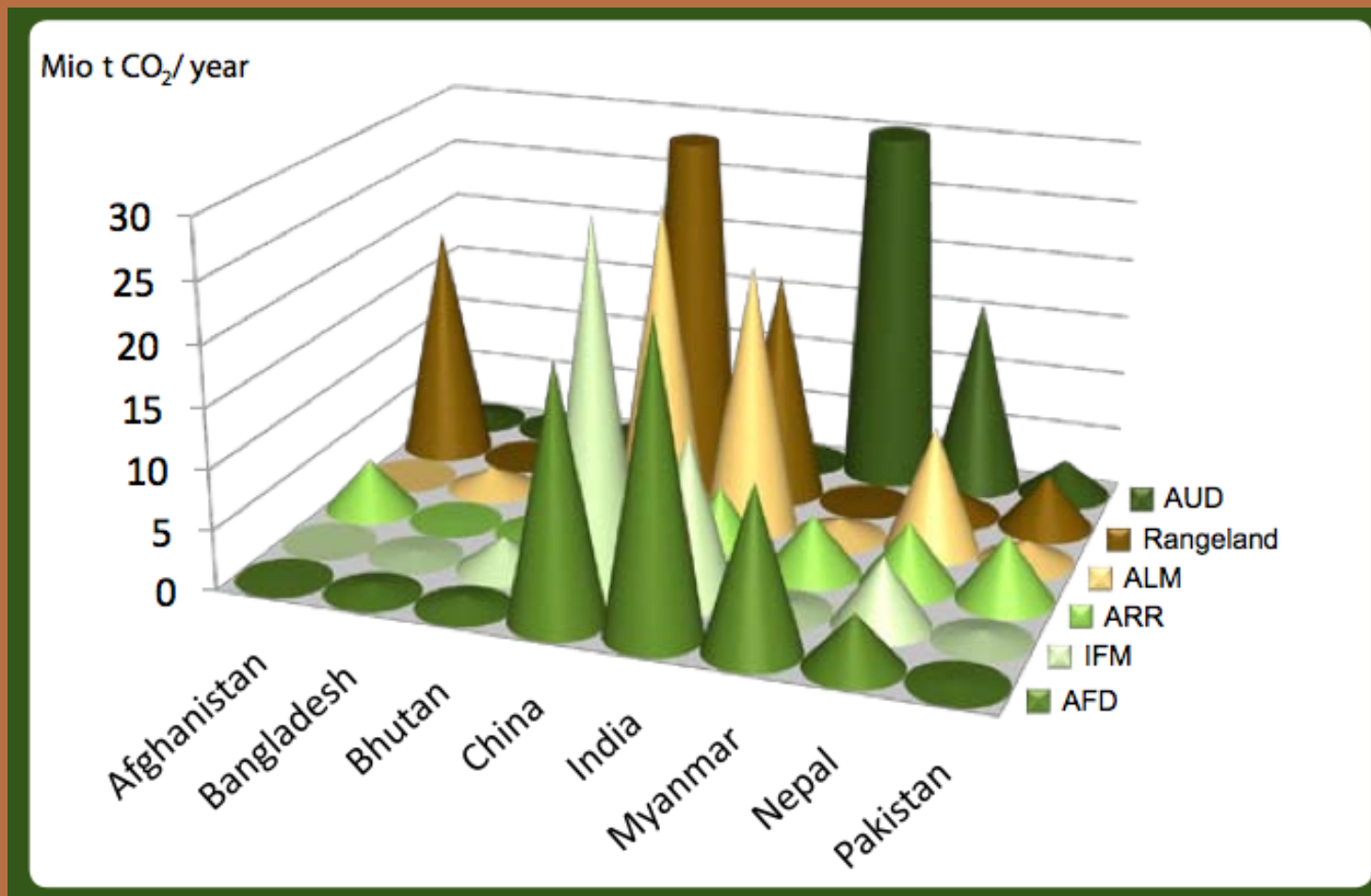
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Potential for Carbon Finance in the Land Use Sector of the Hindu Kush - Himalayan Region

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HKHK Carbon Finance Potential – Key Results

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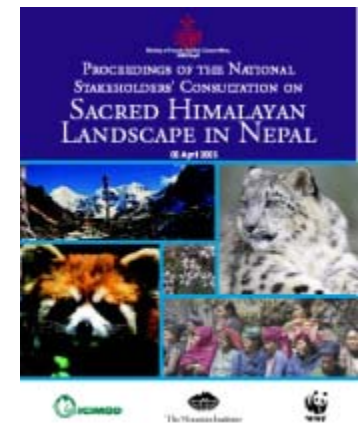
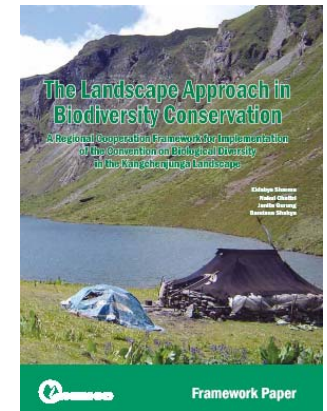
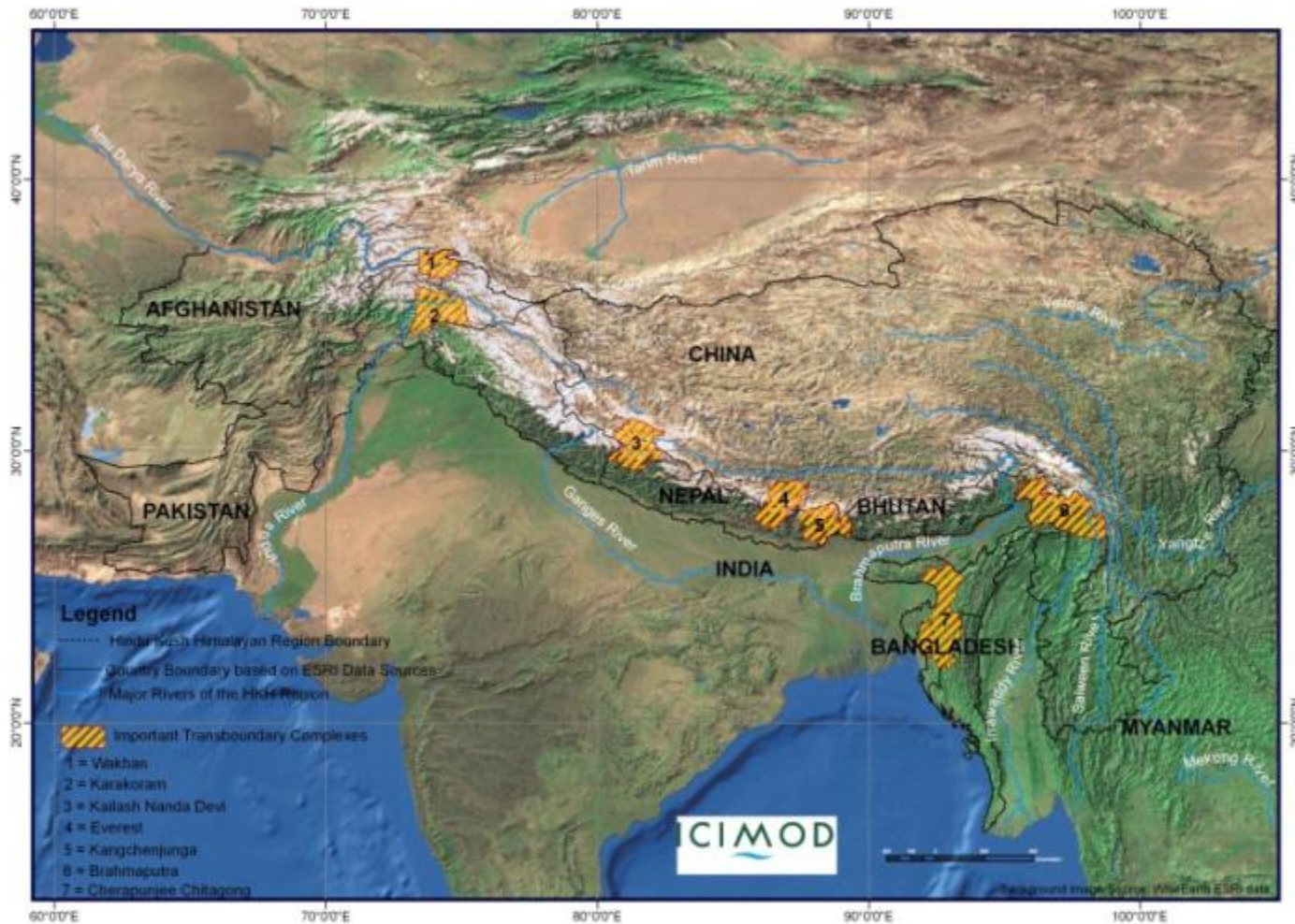
- **Need to reduce scientific uncertainty.**
 - Scientific, technological, other knowledge gaps will constrain implementation of carbon finance
- **Biophysical mitigation potential is substantial, but highly dispersed:**
 - The mitigation potential for each of these land uses remains low is seen in isolation
- **Adaptation / mitigation are complementary and should be synergistic**
 - Intimately linked in the HKH region and can not be looked at as mutually exclusive
- **Holistic landscape approaches are most appropriate for the region**
 - Landscape approaches (such as AFOLU) are more appropriate than focusing on a single land-use.
- **“Good carbon governance” needs to be addressed early**
 - A multitude of stakeholders, interests and regulatory mechanisms. The rights of indigenous and local communities must be upheld and there must be an equitable benefit sharing mechanism in place.
- **Urgent need for regional institutional capacity building for REDD+ or AFOLU**
 - Regional institutional capacity building necessary to develop implementation capacity,
 - Essential regional priority if the benefits of global carbon finance are to be realized within the region.

Transboundary Landscapes

Making the Critical Linkages

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Ecosystem Management / Transboundary Landscape Approach

- **Convention on Biological Diversity (CBD)**
 - COP 7 Mountain Biodiversity Program of Work
 - Ecosystems Management /Transboundary Approach
 - Regional Cooperation / Integrated Management Highlighted
 - All countries in HKH signatory to CBD
- **Landscape Approach**
 - Recognizes transboundary nature of conservation and threats
 - Includes both natural and managed components of biodiversity
 - Agro-biodiversity, wildlife and wildlife habit
 - Explicitly recognizes the important role of cultural diversity in maintaining biodiversity
- **Landscape Approach Applied in HKH – ICIMOD’s Role**
 - **Regional Cooperation Framework**
 - Kanchenjunga – India, Nepal, Bhutan
 - Everest – China, Nepal
 - Mt Kailash Sacred Landscape – China, India, Nepal

Rationale for 'transboundary approach'

- **Habitat contiguity**

The region is home to many globally significant species and use wide range of habitats beyond the existing PAs and even beyond the political boundaries

- **PA coverage and transboundary PAs**

The 7 TBLs covers only 5% of the total HKH area with 41 Transboundary PAs

- **Transboundary issues**

There are many transboundary issues such as illegal trade, poaching, forest fires, spread of diseases

- **Conservation effectiveness**

Most of the PAs are scattered as 'conservation islands', small and lack connectivity in between, necessary for viable population as well as in the context of climate change adaptation



Transboundary Landscape

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Regional Cooperation Framework (RCF)

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The RCF is conceived as a tool to:

- Help address the root causes of biodiversity loss, environmental degradation, and adverse impact on the cultural integrity of the region;
- Encourage fast-track planning and implementation of programs;
- Enhance the complementarities and coordination among diverse actors involved in biodiversity and cultural conservation

Regional Cooperation Framework (RCF)

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- Bring together policy-makers on a common platform for transboundary biodiversity and cultural cooperation;
- Share national updates with respect to the CBD implementation among the three countries in the landscape;
- Identify policy issues related to transboundary cooperation with reference to the Mountain Biodiversity provisions and goals of CBD at the regional level;
- Develop a policy framework for cooperation and implementation of Mountain Biodiversity POW (COP VII/27) along with other goals as agreed by CBD;
- Foster partnerships at the regional level.

RCF Based on Basic Principles

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Participatory Management – ensuring participation of indigenous and local communities, as well as disadvantaged and socially marginalized groups

Equitability – ensuring fair and equitable access and benefit sharing,

Sustainability – aiming for economic, social, and environmental sustainability

Partnerships – building partnerships among local communities, government / non-government institutions, the private / corporate sector, and financial institutions.

Ecosystem Approach – taking an integrated approach into consideration for socio-economic, socio-ecological, cultural and environmental security.

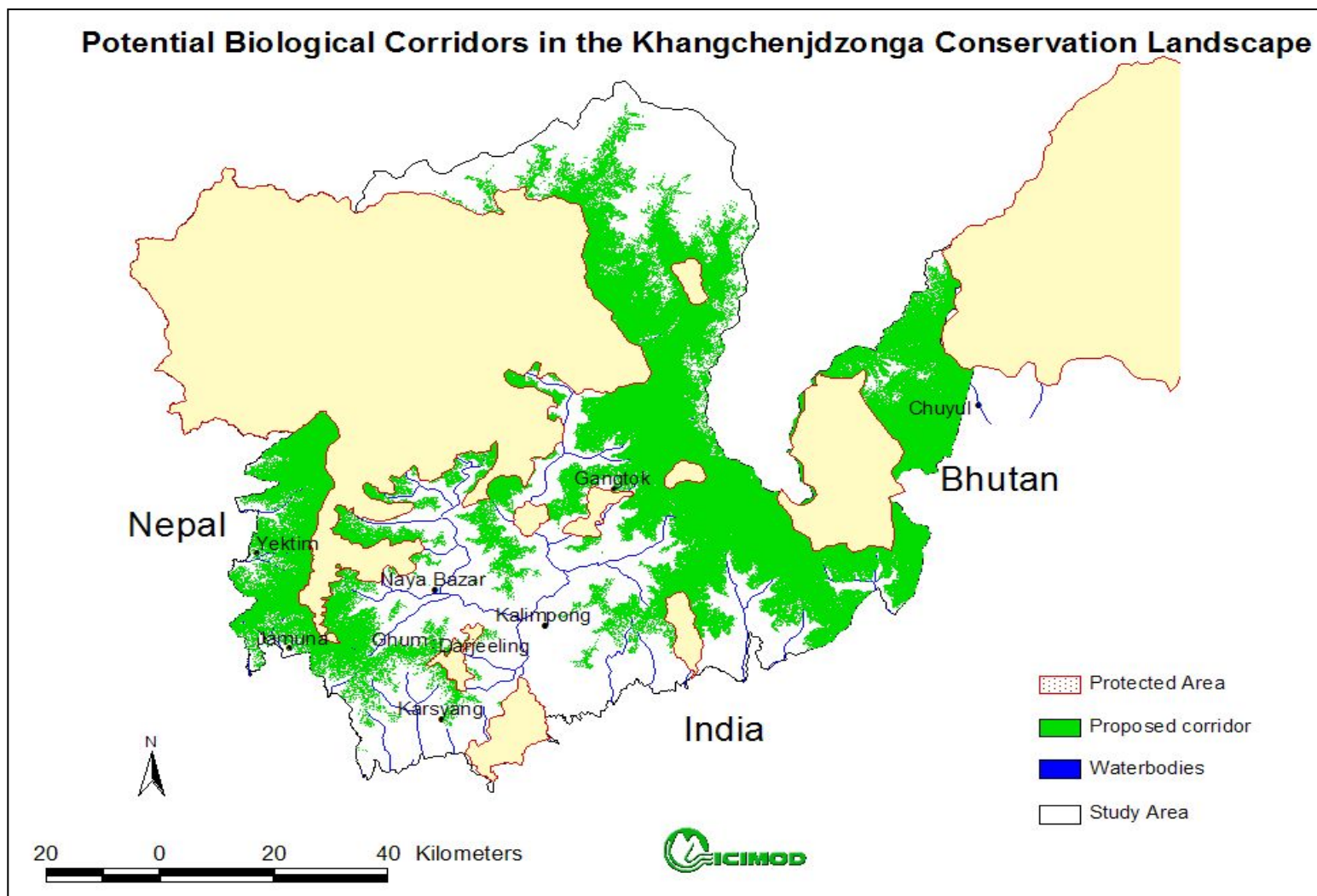
Lessons-Learned Approach – applying lessons learned from other transboundary mountain programs, including the Alpine Convention, the Carpathian Convention, and the Mount Everest and Kangchenjunga transboundary frameworks.

Transboundary Cooperation – promoting and strengthening transboundary cooperation.

Kangchenjunga Landscape (KL) Initiative for Transboundary Biodiversity Management

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HKH Specific Conclusions

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- Carbon Finance must make the linkage to livelihoods and biodiversity conservation
- Landscape approaches offer an opportunity to make that critical linkage
- Landscape approaches must be transboundary to avoid leakage and achieve real REDD
- Regional Cooperation Frameworks provide the institutional mechanisms for UNFCCC linkage
- In the HKH, those institutional mechanisms are already available and should be utilized to pilot these approaches

Thank you

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