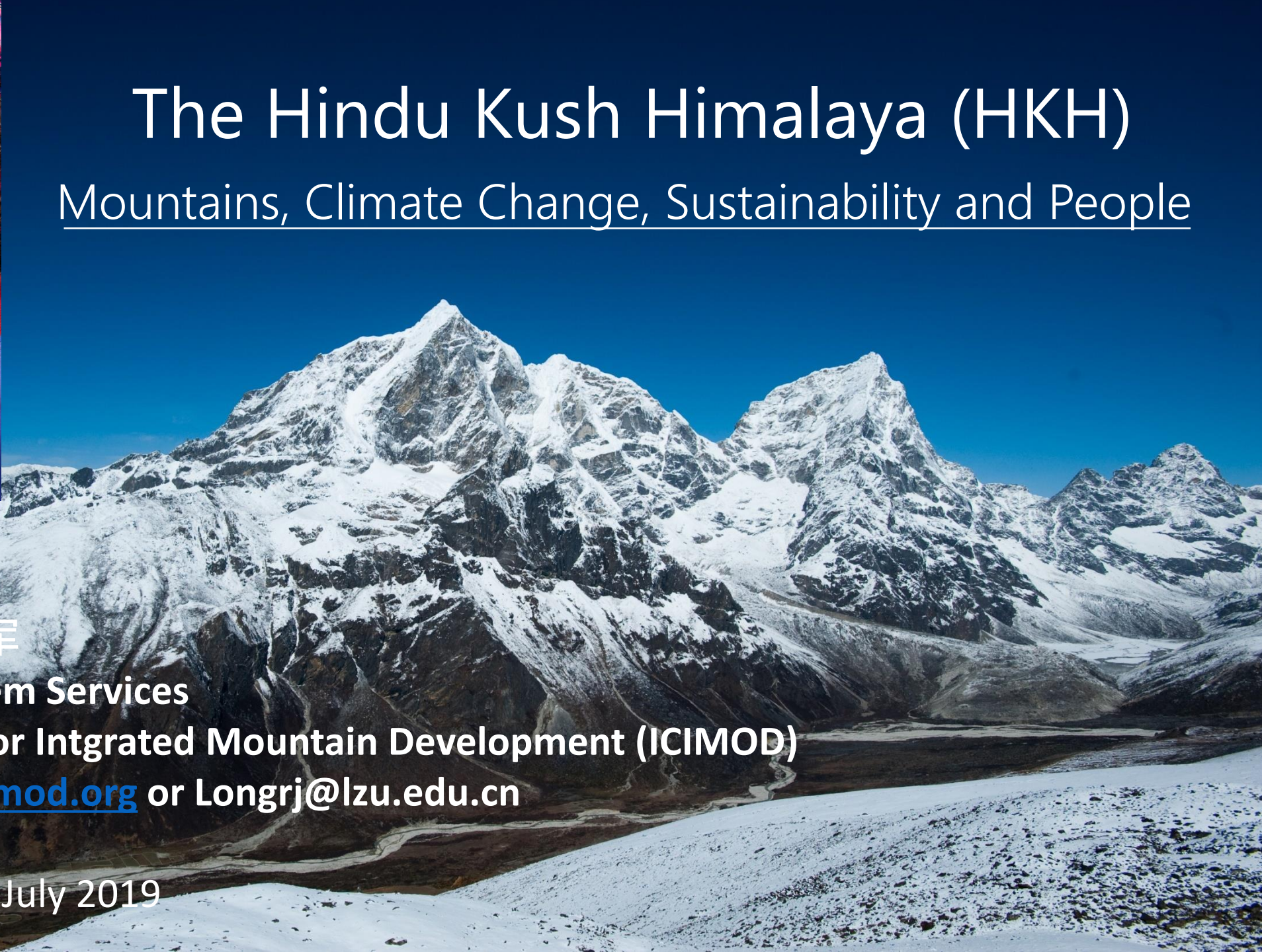




The Hindu Kush Himalaya (HKH)

Mountains, Climate Change, Sustainability and People



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Theme Leader, Ecosystem Services

International Center for Integrated Mountain Development (ICIMOD)

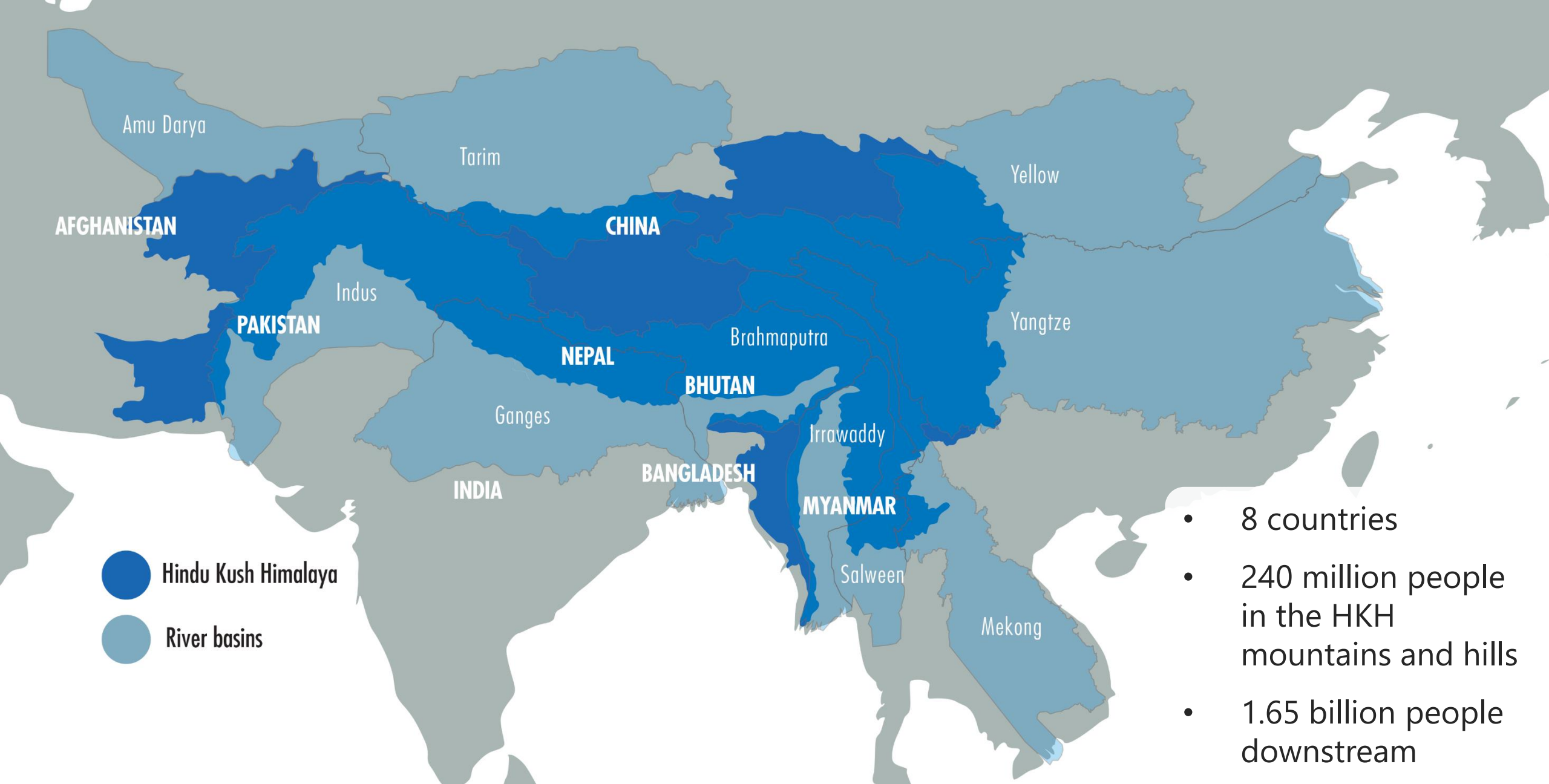
Email: Ruijun.Long@icimod.org or Longrj@lzu.edu.cn

FAO IPROMO Ormea 13 July 2019

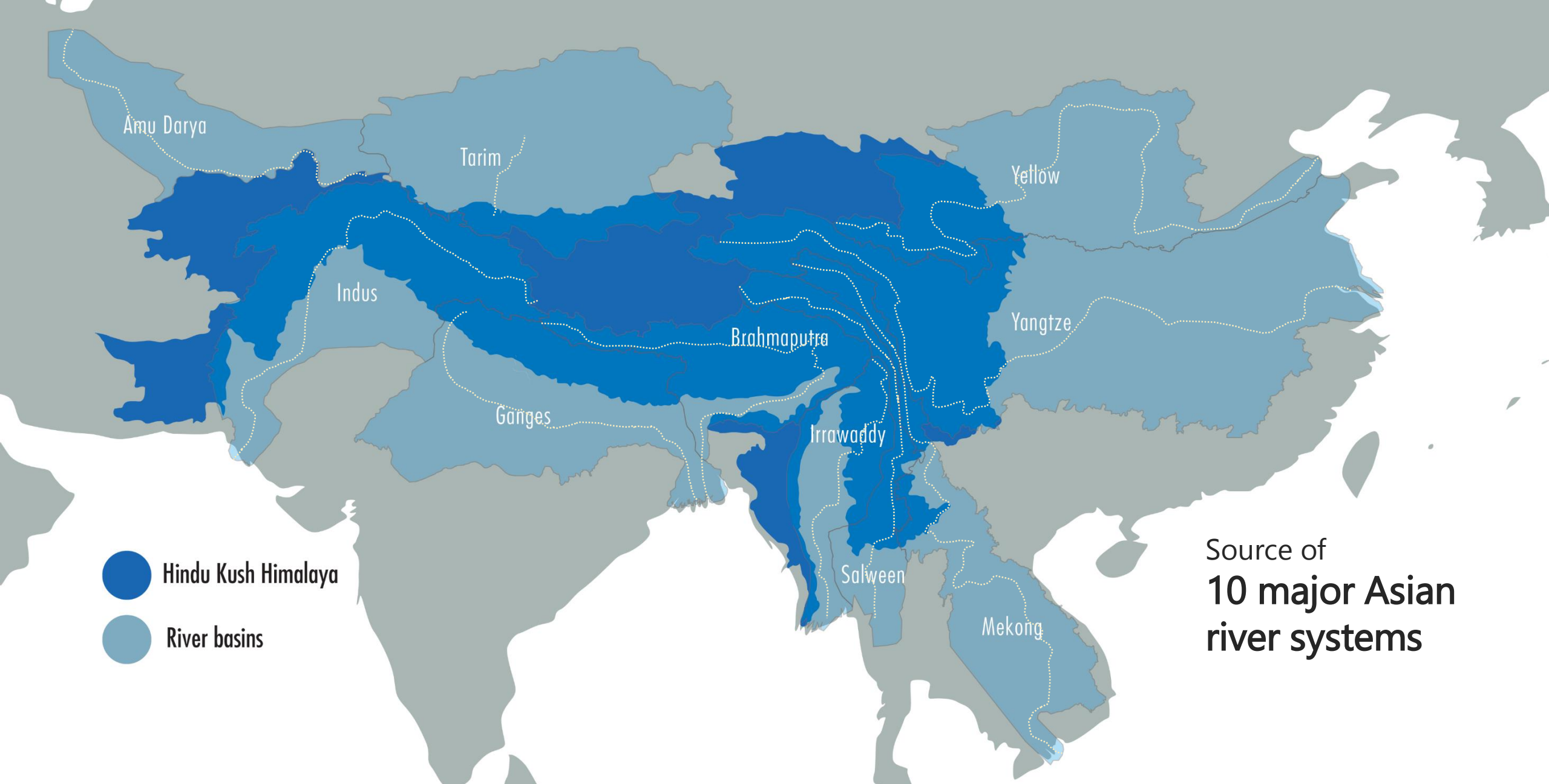


The Hindu Kush Himalaya

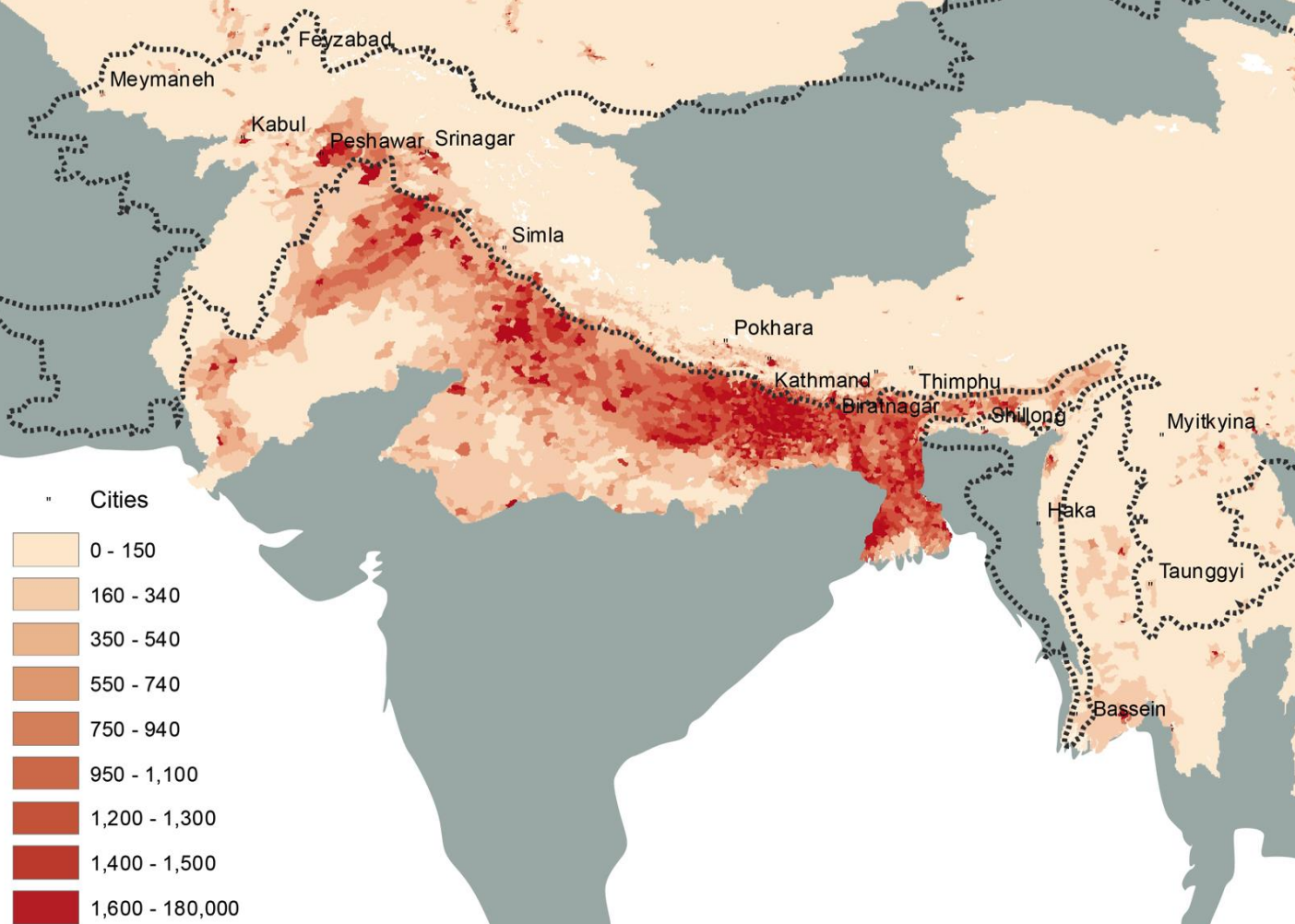
Global asset for food, energy, water, carbon,
and cultural and biological diversity



- 8 countries
- 240 million people in the HKH mountains and hills
- 1.65 billion people downstream



HKH basins support some of the world's most populated areas



But decisions about mountain resources are often made outside of the mountains



Diversity in the HKH:
Over 1,000 living languages
Yet Poverty Remains High

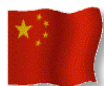
What happens here
affects one-fourth of the world

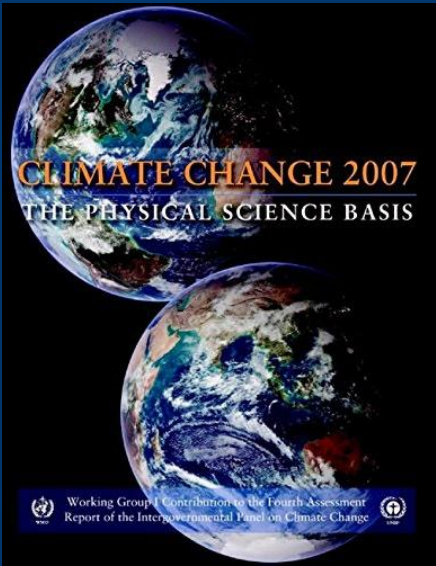




International Centre for Integrated Mountain Development

A regional mountain knowledge, learning, and
enabling centre devoted to sustainable
mountain development for mountains and
people





2007 IPCC AR4 Report

Climate change is the most prominent force of global change in the modern era

HKH region is seen as 'a data gap' area, lacking consistent long-term monitoring

Background



2014 IPCC AR5

HKH region still largely missing



>350
People

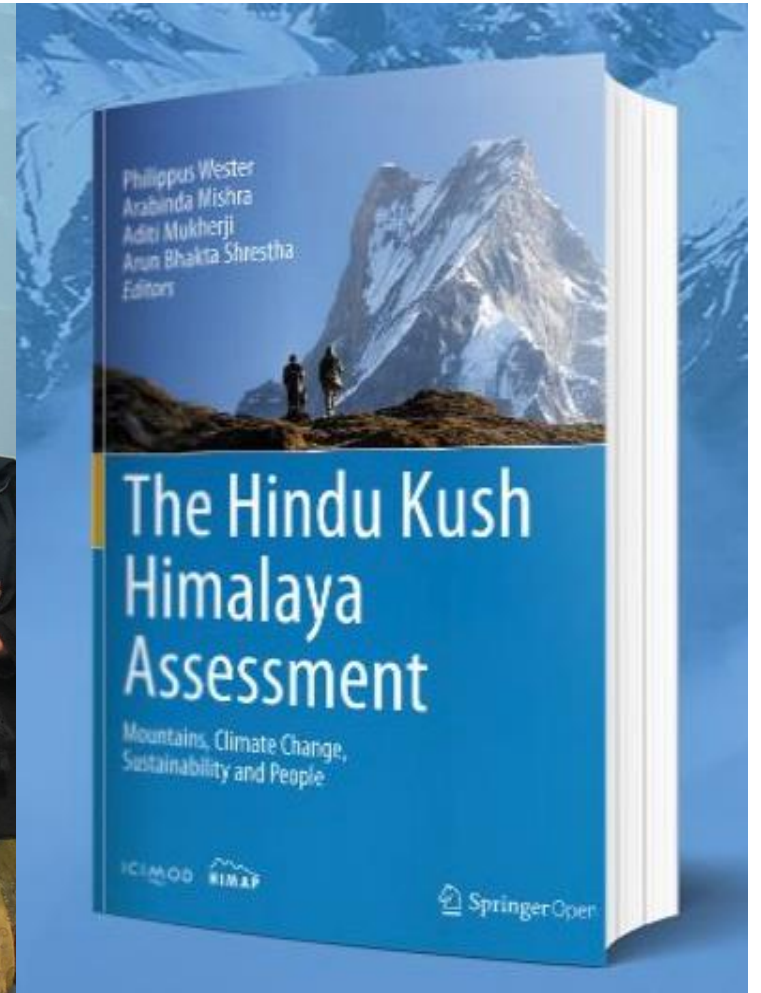
210
Authors
30% women
80% from the region

125
External Reviewers

20
Review Editors

4
Write Shops
(Jan, June, Sept 2016
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Even 1.5 Degrees is Too Hot

and amplified by Elevation Dependent Warming

HKH will warm more compared to global mean and warm more rapidly at higher elevations



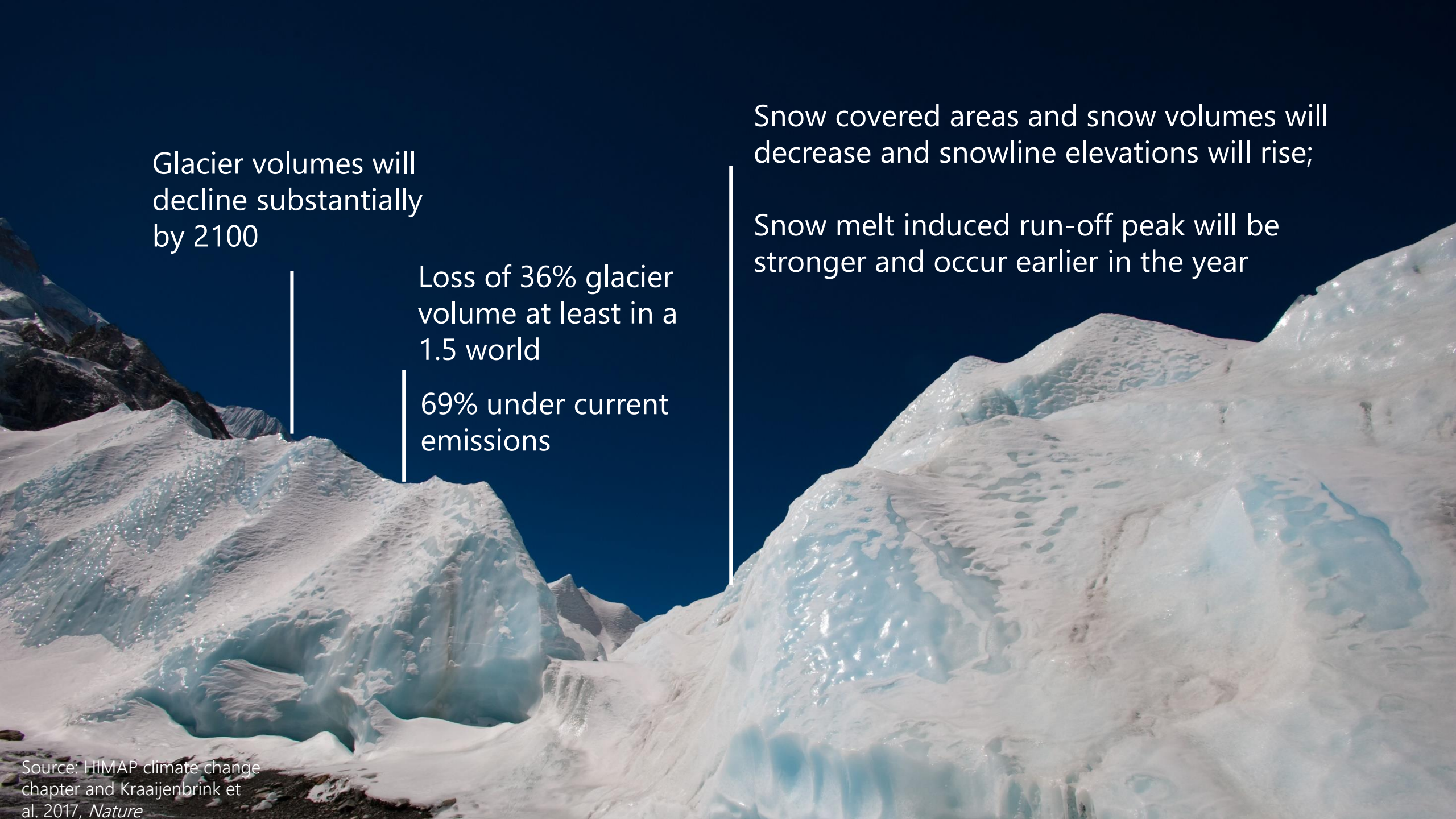
- $2.1 \pm 0.1^{\circ}\text{C}$ (PI) in a 1.5 degree world
- $2.5 \pm 1.5^{\circ}\text{C}$ relative to 1976-2005 (RCP 4.5)
- $5.5 \pm 1.5^{\circ}\text{C}$ by 2100 at current emission levels

Source: HIMAP climate change chapter and Kraaijenbrink et al. 2017, *Nature*

2009

Glacier retreat is
prevalent in HKH

Photography: David Breashears, GlacierWorks



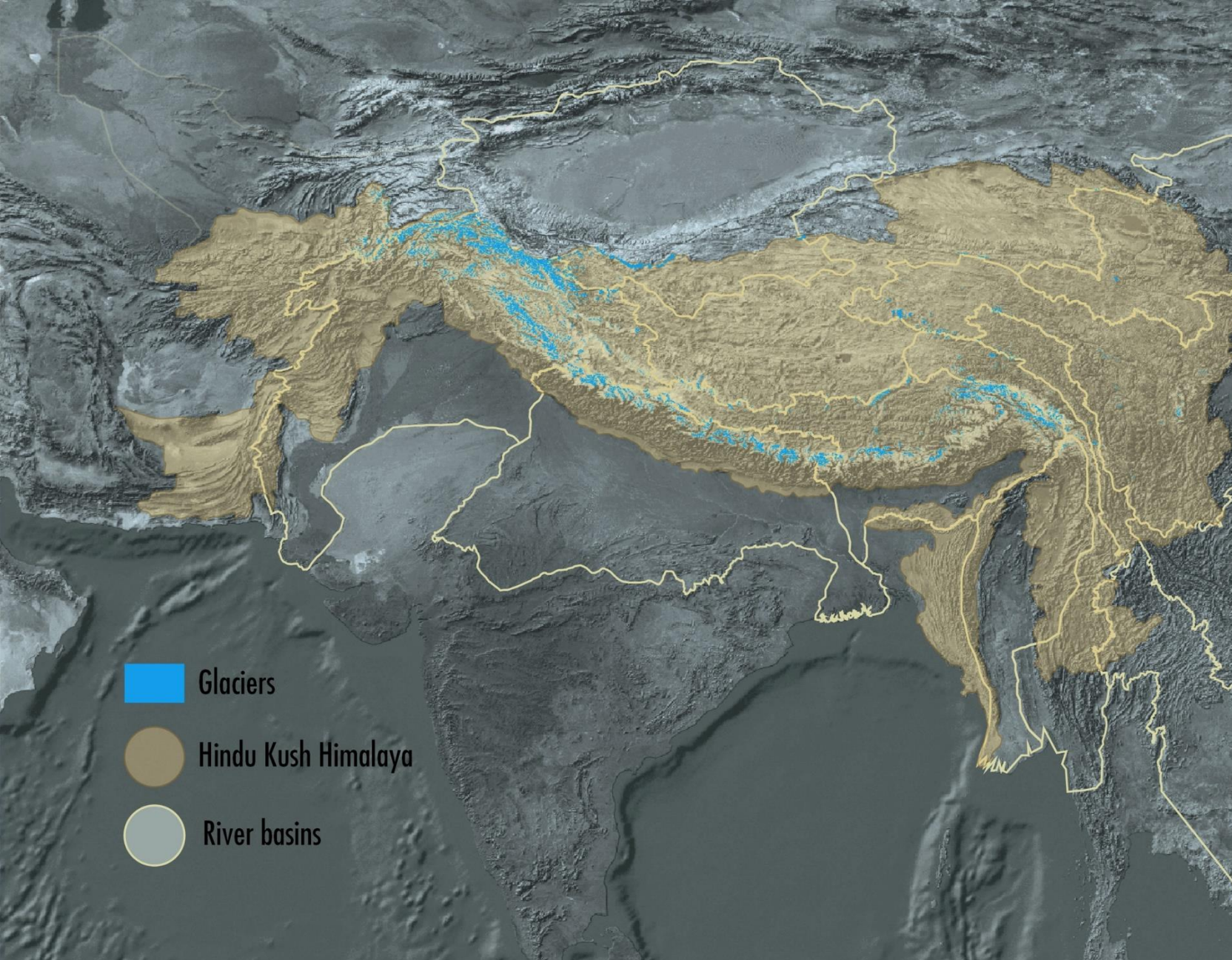
Glacier volumes will
decline substantially
by 2100

Loss of 36% glacier
volume at least in a
1.5 world

69% under current
emissions

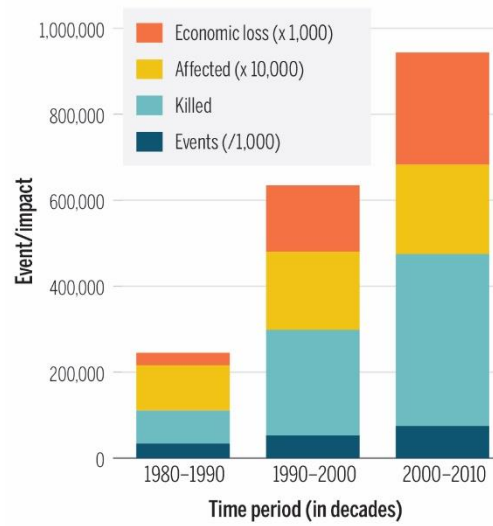
Snow covered areas and snow volumes will
decrease and snowline elevations will rise;

Snow melt induced run-off peak will be
stronger and occur earlier in the year



Climate change impacts on water resources

- Loss of storage in the form of ice
- Greater impact for those living closer to glaciers
- Changing precipitation and flow patterns – more floods and droughts; high uncertainty
- CC also likely to affect springs in the mid-hills of the HKH, but limited evidence.
- Indus: increased glacier melt, then declines after mid-century
Ganges/Brahmaputra: increased runoff mainly due to precipitation



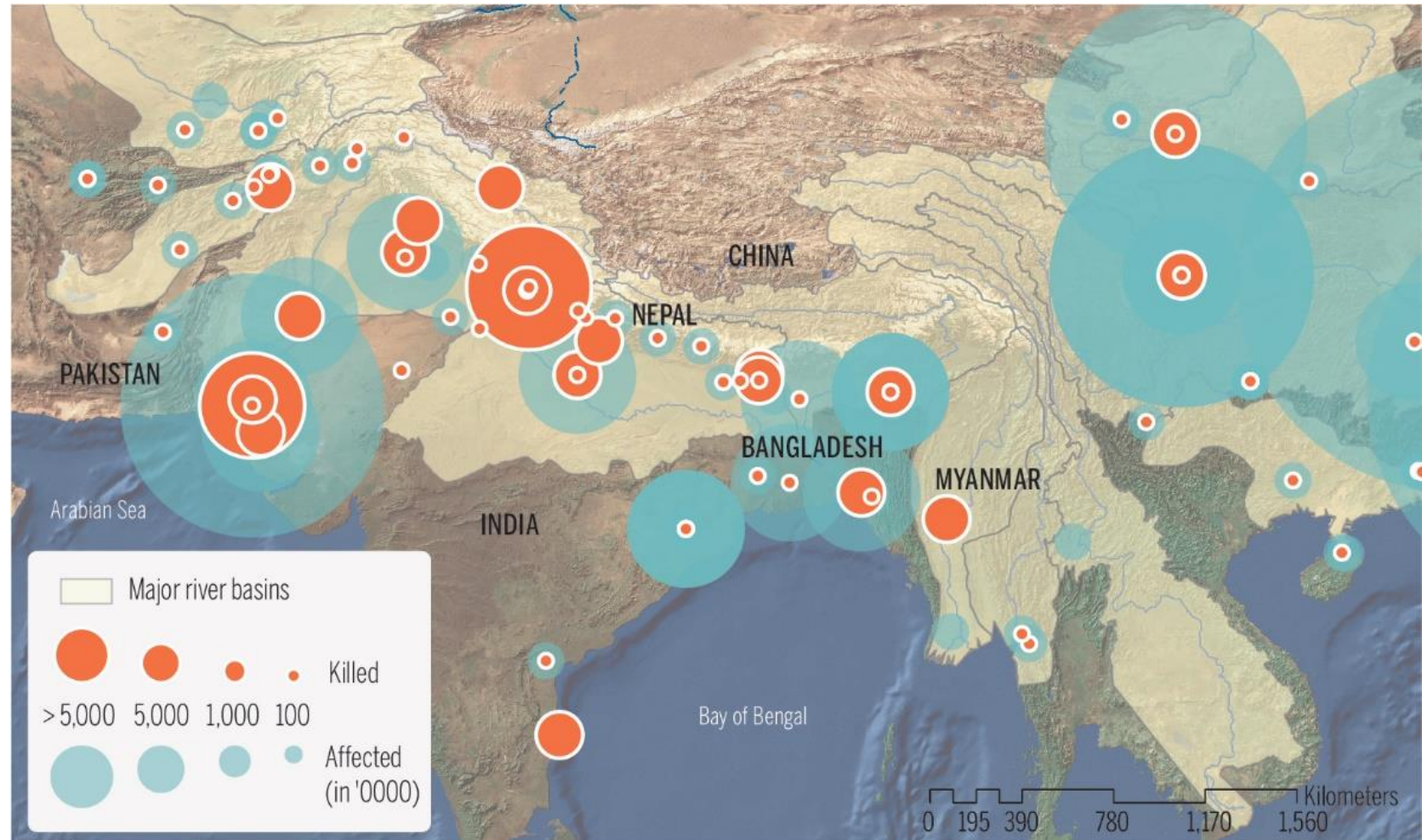
Disaster risk is increasing

Floods, droughts, landslides, glacial lake outburst floods

One-third of disasters are floods, many crossing national borders

More than 1 billion people at risk of exposure to increasing frequency and intensity of natural hazards


Women more susceptible to natural disasters than men



Data source: EM-DAT OFDA Cred Database

Map prepared in Sept. 2015

ICIMOD



Communities dependent on glaciers
and snow melt are feeling the
impacts

Nang, Ladakh, India
Photo Karen Conniff

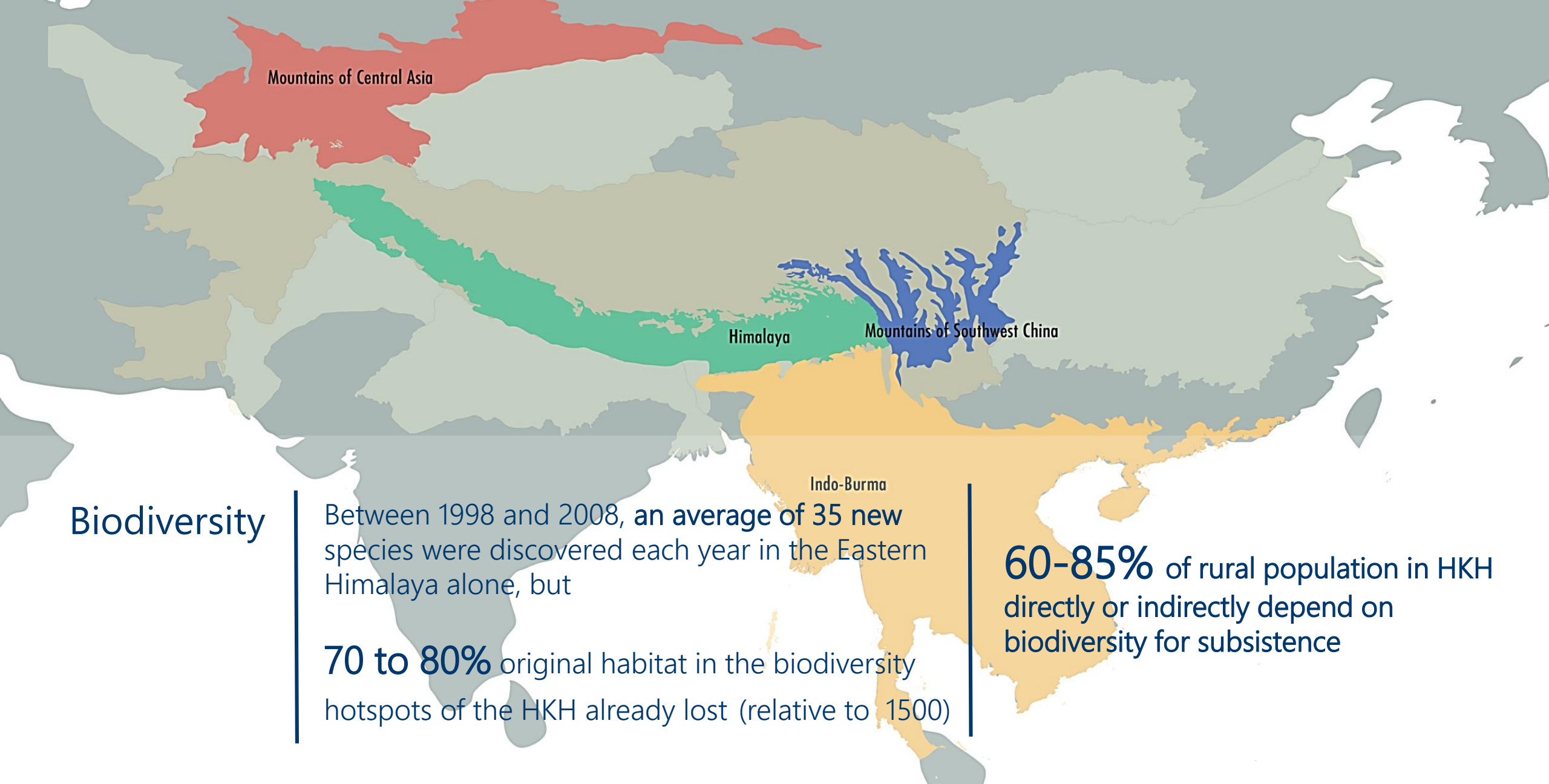
The background image shows a wide-angle view of a valley. In the foreground, there are green and yellow agricultural fields. In the middle ground, a densely populated city with many buildings is visible. In the background, there are large, forested mountains under a clear sky. The overall scene is a landscape view of a valley with a city and mountains.

Air Pollution and Black Carbon

- Air pollutants originating in and near the HKH amplify climate change
- Raises temperatures
- Accelerates glacier and snow melt
- Affects the circulation of monsoons and distribution of rainfall over Asia
- Negatively impacts health
- Reduces crop yield



Two Punjabs...
but one atmosphere



Biodiversity

Between 1998 and 2008, an average of 35 new species were discovered each year in the Eastern Himalaya alone, but

70 to 80% original habitat in the biodiversity hotspots of the HKH already lost (relative to 1500)

60-85% of rural population in HKH directly or indirectly depend on biodiversity for subsistence



33% in
mountains
compared to
national
average of 25%

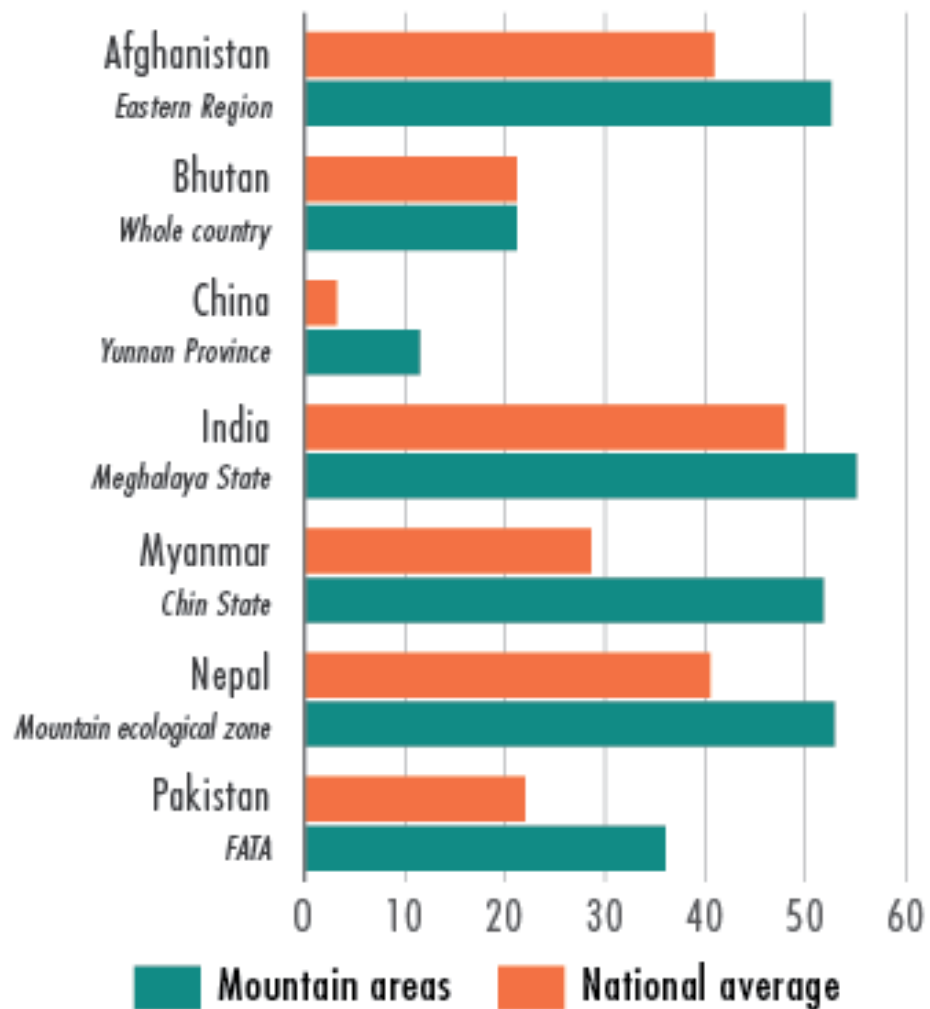
Poverty

Blanket approaches to country-level poverty not sufficient

Acute shortage of mountain specific poverty data

Poverty has a distinct gender dimension

Stunting of Children <5 in the HKH mountains



Note: The specific mountain area to which data refers is listed below the country. Data for the Chittagong Hill Tracts of Bangladesh is not available. Data for severe stunting is presented for the Federally Administered Tribal Areas (FATA) of Pakistan.

Food (In)Security

30% of HKH population suffers from food insecurity

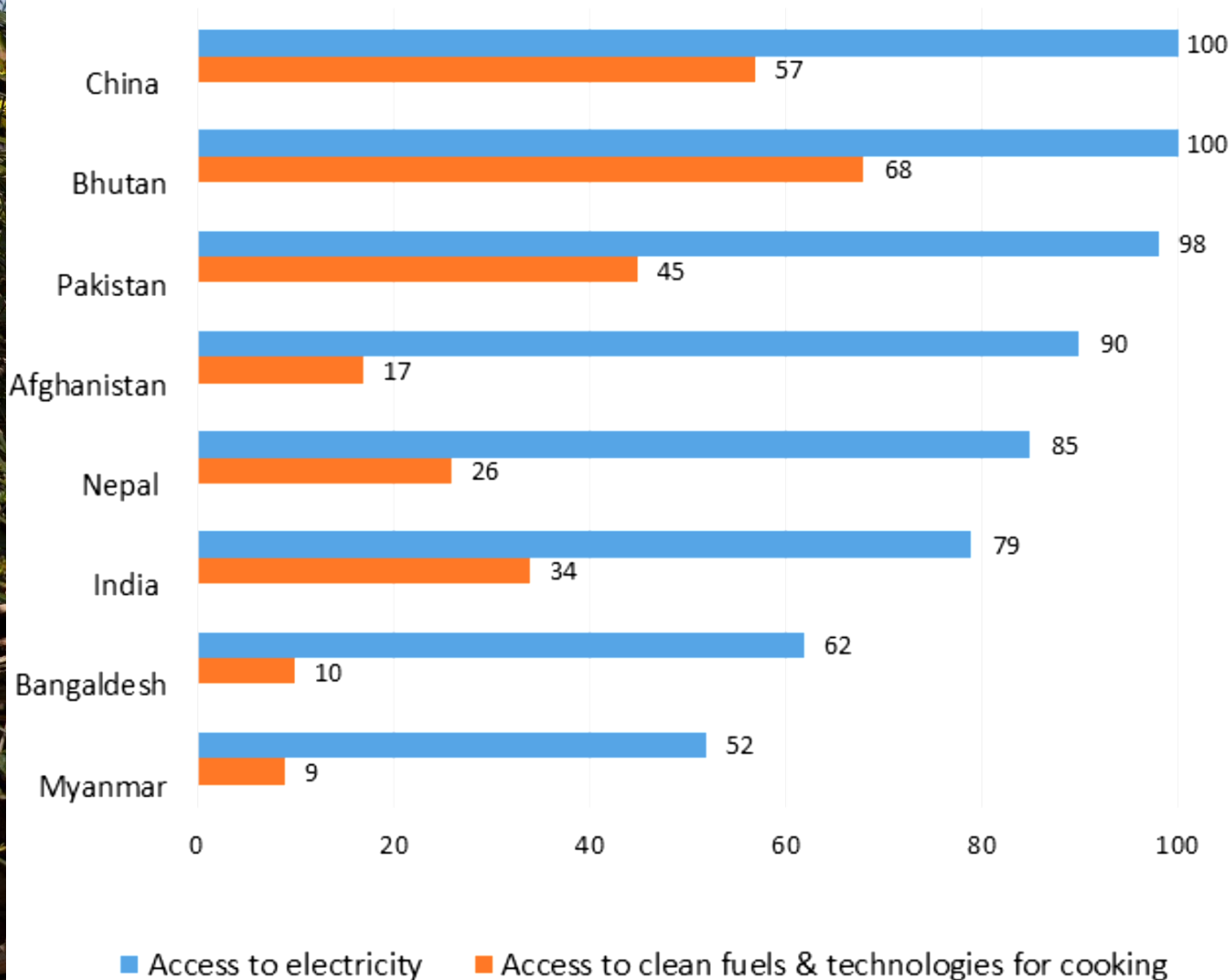
50% malnutrition, and **one-fifth to one-half** of children <5 suffer from stunting

Agriculture and food production highly susceptible to climate change

Traditional food systems are replaced by rice and wheat

Low returns from agriculture – non-agri forms of livelihood means abandonment of land

% of population having access to electricity & clean fuel for cooking in 2014 (Source: IEA & World Bank, 2017)

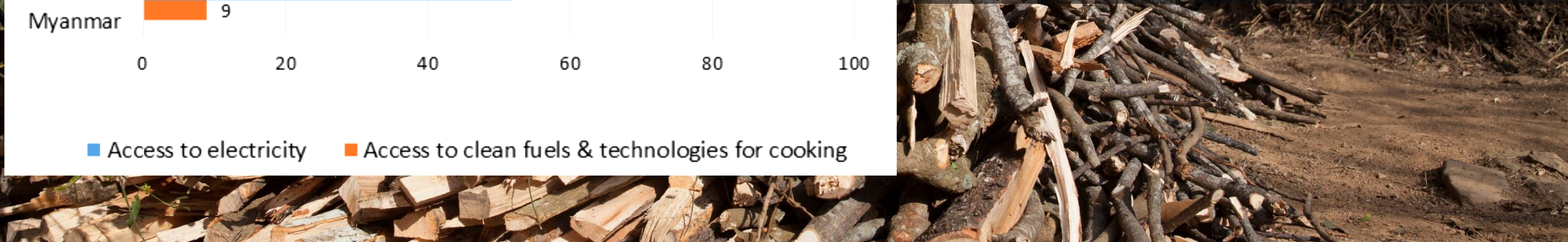


Energy
Poverty
500 GW

hydro
potential

80% population
lacks access to
clean energy for
cooking

Energy development policy in the HKH too strongly focused on supply and growth—and not yet on sustainability, despite the region's huge potential for renewables.

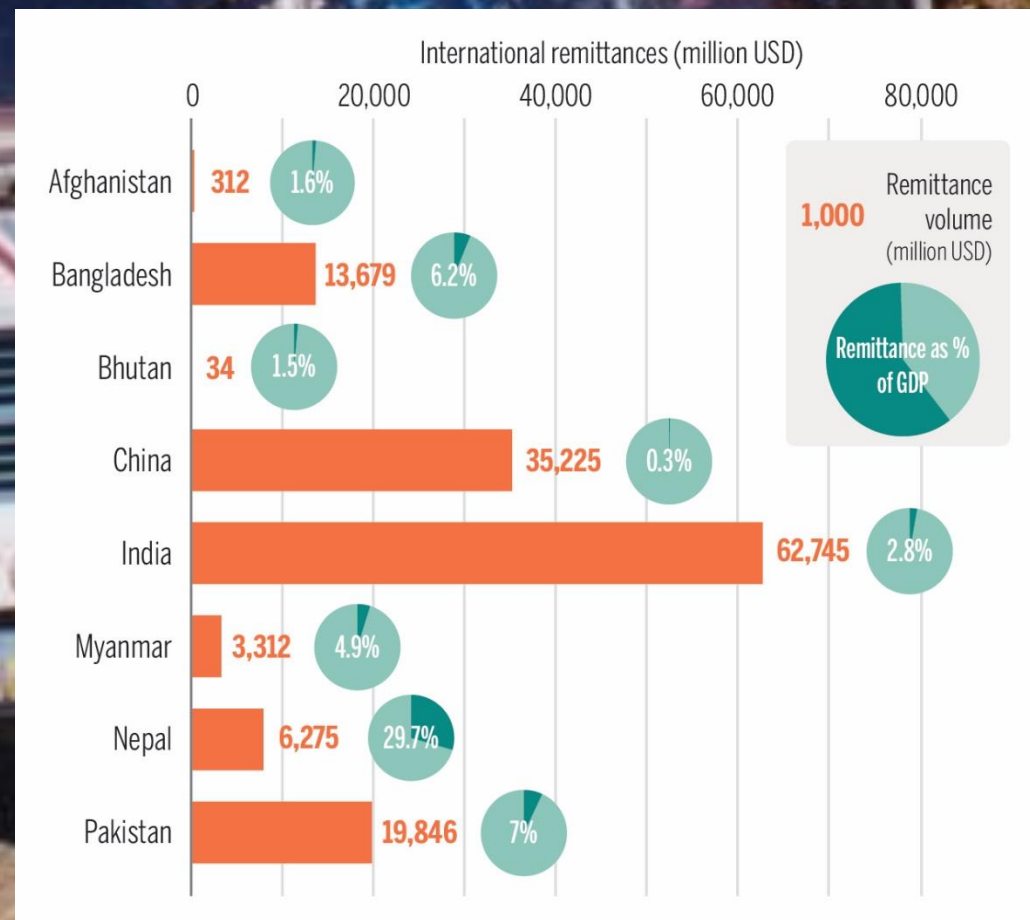



High Out-Migration

Labor migration contributes significantly to poverty reduction in HKH region, but depends on who is able to move and under what conditions

Migration can promote resilience to climate change, but investment in agriculture or climate adaptation is rarely the first priority of migrant households in mountainous area

Internal migration peripheral to policy discussions, even though there are three times as many internal migrants compared to international migrants



A woman with dark skin and short dark hair is carrying a large, heavy bundle of sticks and branches on her head. She is looking directly at the camera with a slight smile. She is wearing a dark blue long-sleeved shirt and a patterned shawl. The background is blurred, showing some greenery and a wooden structure.

Poverty (income and energy), food insecurity, and migration affect women, children and marginalised communities more severely than others, but policies and responses in HKH countries overlook these multiple forms of exclusions.

We know
enough to take
action,

but better data
and knowledge
and better
communication
will mean better
action



ICIMOD

The HKH Regional Call to Action

To Sustain Mountain Environments
and Improve Livelihoods in the
Hindu Kush Himalaya



SIX URGENT ACTIONS FOR THE HINDU KUSH HIMALAYA

Cooperate at all levels
across the HKH

Limit global
warming to
under 1.5 degrees

Enhance ecosystem
resilience



Recognize and
prioritize the
uniqueness of HKH
mountain people

Achieve the SDGs
in the HKH

Share information
and knowledge

1 Cooperate at all levels across the HKH region for sustainable and mutual benefits

Take actions at national, regional and international scales to **sustain the Hindu Kush Himalaya as a global asset**

Build momentum on more **robust regional cooperation** for bringing higher investment in sustaining mountain environments and **improving livelihoods** in the HKH

Nurture and **strengthen** people to people, business to business and government to government **cooperation** and **trust building** in the region

Promote the **HKH Science-Policy Forum as a platform for knowledge exchange**, stakeholder engagement including science-policy, and regional cooperation



2 Recognize and prioritize the uniqueness of the HKH mountain people

Strength of mountains lie in the **diversity of people and cultures** that should be valued and respected

Collectively define the HKH mountain agenda with **inputs from all stakeholders** from the eight HKH countries

Strengthen the national, regional and global voice for the HKH region and its people, including indigenous groups



Promote actions that lead to **gender equality and inclusive development**

Promote resilience of mountain communities by supporting the **diversity of cultures, situations and systems**

Support “**The HKH Calling**” for cooperation on mountain issues and solutions

Promote mountain champions and leaderships, and encourage networks and alliances

3 Take concerted climate action at all levels to keep global warming to 1.5°C by 2100

Promote **global recognition of HKH** as hotspot of climate change and sustainable development

The **challenges faced by** the HKH due to the **impacts of climate change** are urgent and need to drive mitigation efforts globally and adaptation regionally

Take concerted action at regional, national and local levels on sharply reducing short-lived climate pollutants (SLCPs), reduce biomass burning and **promote clean energy solutions**

Achieve **carbon neutral societies** in the mountains and hills of the HKH region by 2035 by providing opportunities, incentives and compensation mechanisms

Use both **North to South and South to South cooperation** to develop concerted climate action for the HKH region

4 Take accelerated actions to achieve the SDGs and 9 Mountain Priorities

Nine mountain priorities **consistent with SDGs** should be mainstreamed in each of the eight countries SDG action and reporting

National governments in the HKH region to **promote** use of **multi-dimensional poverty measures**

Enable mountain specific policies and development pathways that are pro-poor, and gender and socially inclusive

Adaptation to climate change should be **top priority** as it is cross-cutting with multiple SDGs; draw more investments for adaptation in the HKH

Labor migration within (rural-urban) and outside from the HKH is huge and **needs to be mainstreamed into development and adaptation**

5 Enhance ecosystem resilience; halt biodiversity loss and land degradation

Promote incentives and means for mountain communities to conserve and manage ecosystems for improving their livelihoods

Sustainably managing forests, rangelands and other ecosystems in the HKH through **promoting transboundary cooperation** for landscapes and river basins in the context of climate change

Implement programs on freshwater ecosystems including cryosphere, watersheds and springsheds adopting river-basin management in transboundary scale.

Build biodiversity information systems for better planning; adopt approaches to conserve and wise use of biodiversity including development of highly remunerative biodiversity products; address illegal trade

6 Regional data and information sharing and science and knowledge cooperation

Fill data gaps and **develop actionable knowledge** that is mountain focused and HKH specific

Foster cooperation and capacity building on data generation methodologies for consistent, disaggregated, timely and quality data on range of issues

Data generation and sharing underpins many topics but there are urgency for new data on climate variables, air pollution, water, energy, food security, biodiversity

Proactively promote HKH-wide cooperation in open **data sharing** for public good and services

Promote and make use of ICIMOD's "**Regional Database System**"



Thank You