

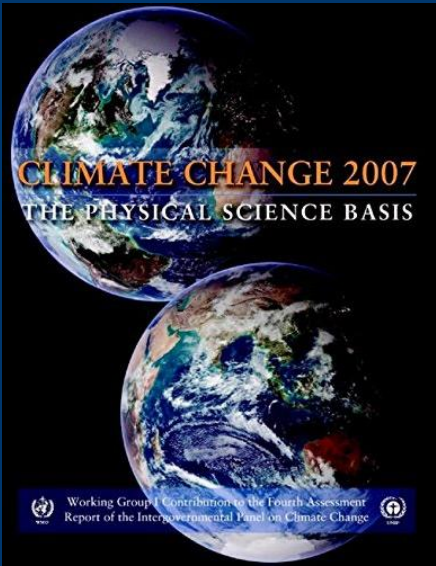


The Hindu Kush Himalaya Assessment

Mountains, Climate Change, Sustainability and People



Dhrupad Choudhury
**International Centre for Integrated
Mountain Development**



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



The Hindu Kush Himalaya

A Global asset

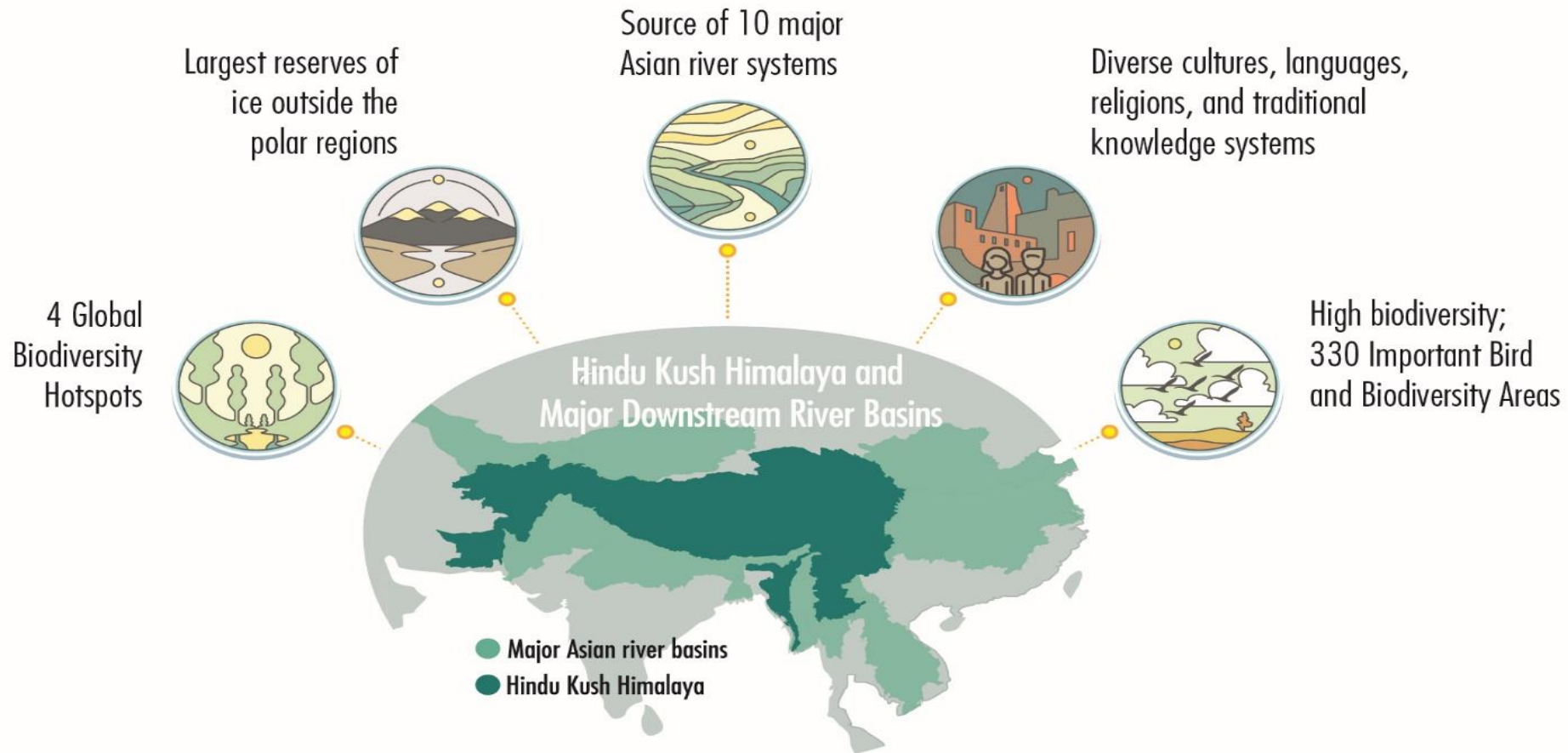
- water, energy, food
- cultural and biological diversity

Largest freshwater reservoir outside the Poles – Third Pole

Source of

10 major Asian river systems

Water Tower of Asia



240 million

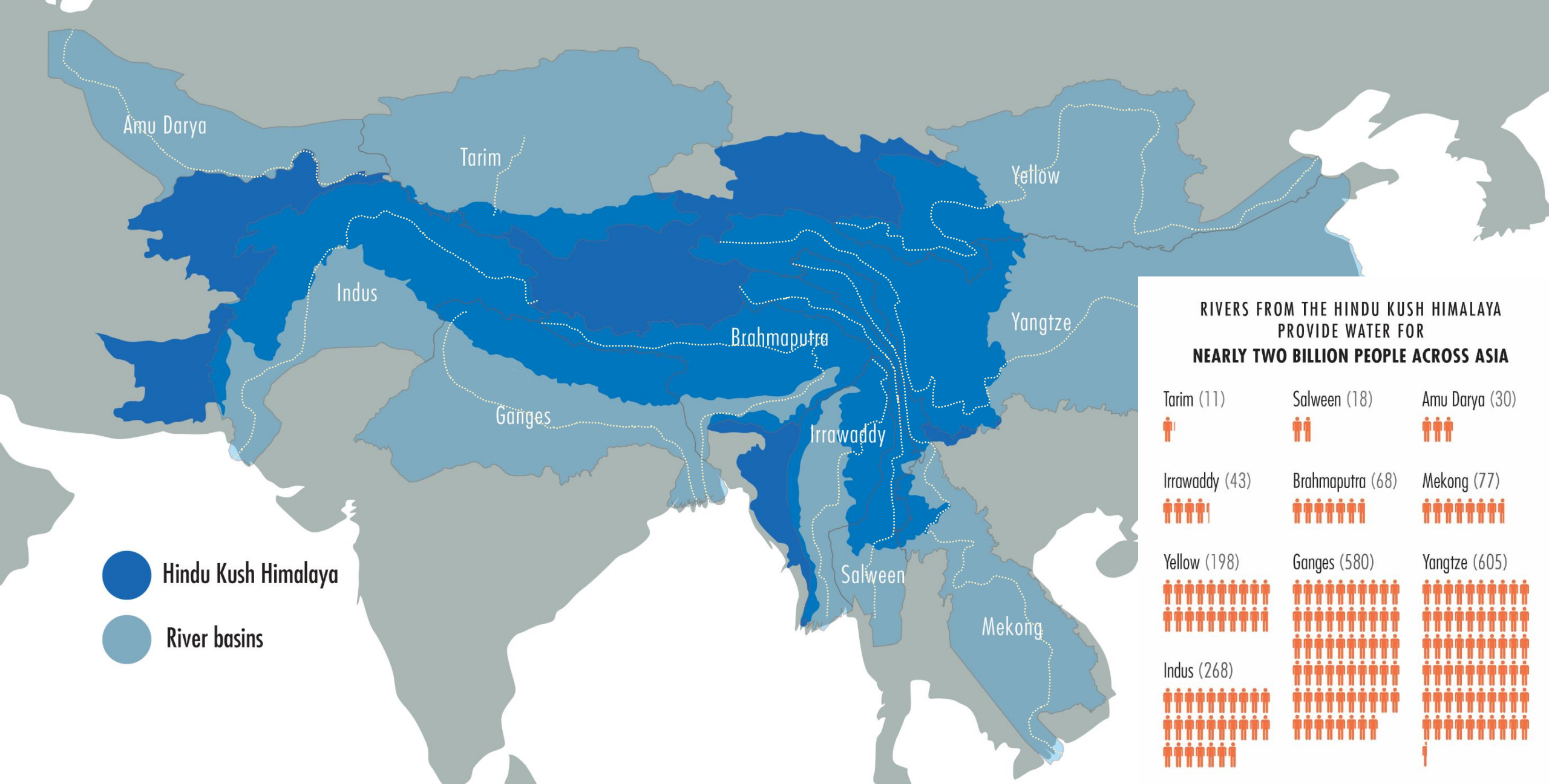
people depend directly on the HKH for their lives and livelihoods



1.9 billion

people depend on the HKH for water, food, and energy

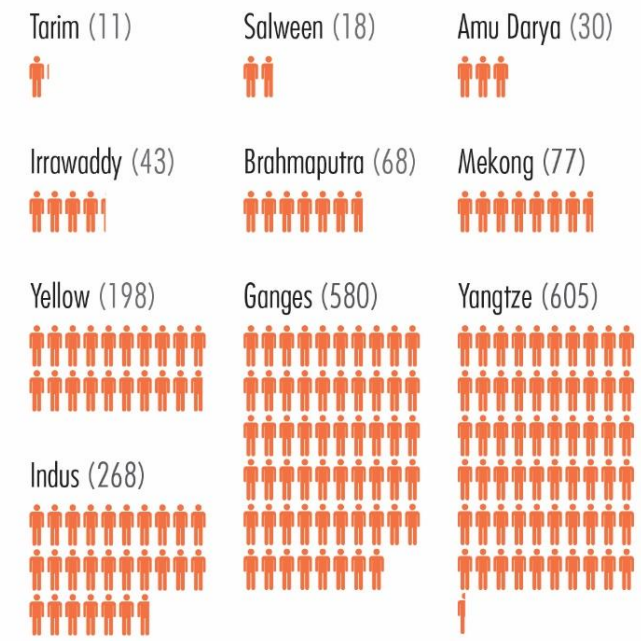
> 35%


of the world population benefits indirectly from HKH resources and ecosystem services



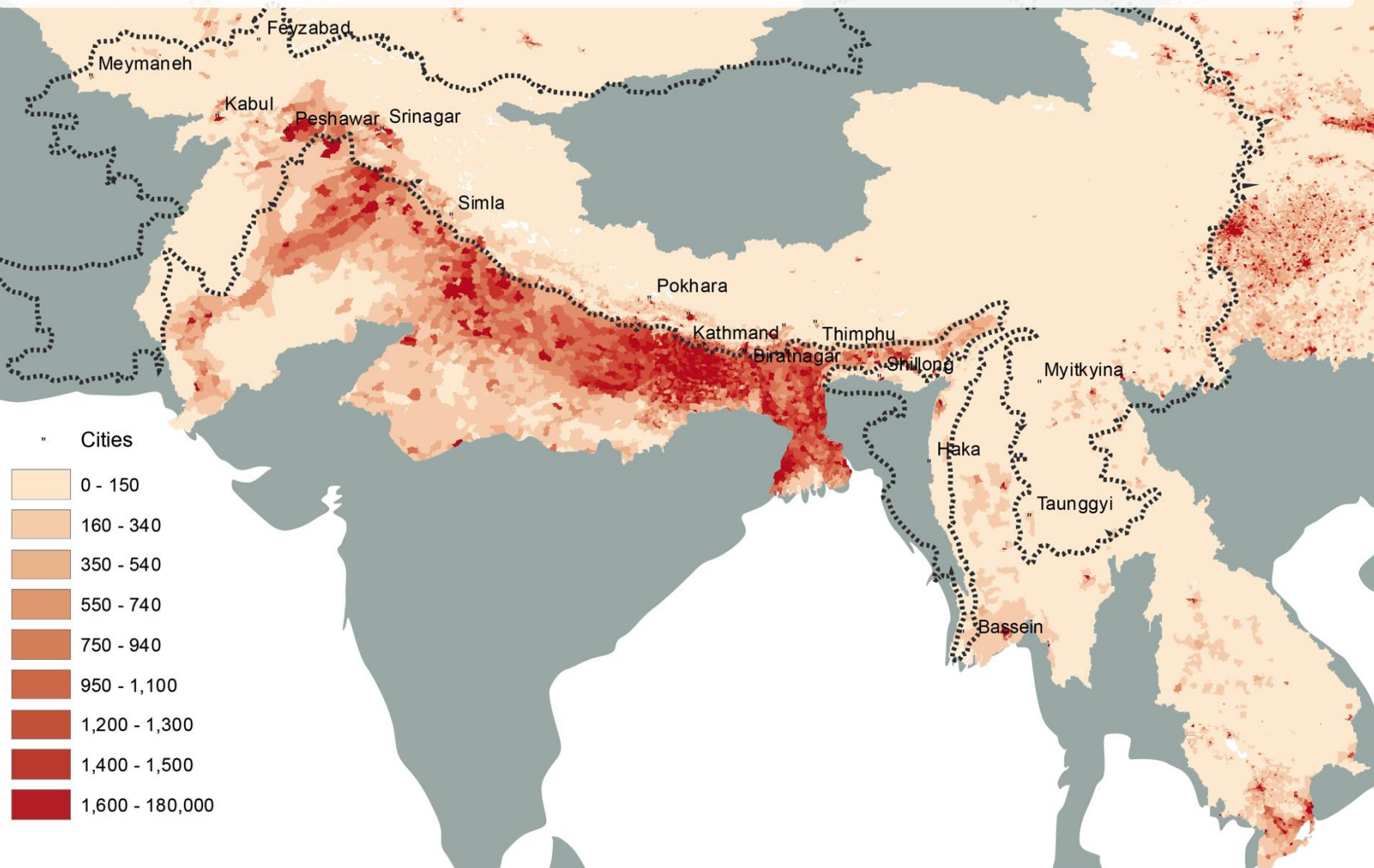
 Hindu Kush Himalaya
 River basins

**RIVERS FROM THE HINDU KUSH HIMALAYA
 PROVIDE WATER FOR
 NEARLY TWO BILLION PEOPLE ACROSS ASIA**



River basin name (population in millions)
 = 10 million people

HKH basins support some of the world's most populated areas as well as the major 'food bowls' of Asia



- **240 million** people in the HKH mountains and hills
- **1.9 billion** people downstream
- Supports an estimated **USD 4.37 Trillion** economy

Inter-Governmental Institution – serving the mountain people in eight countries

ICIMOD

FOR MOUNTAINS AND PEOPLE

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

■ Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan

The Hindu Kush Himalayan Region

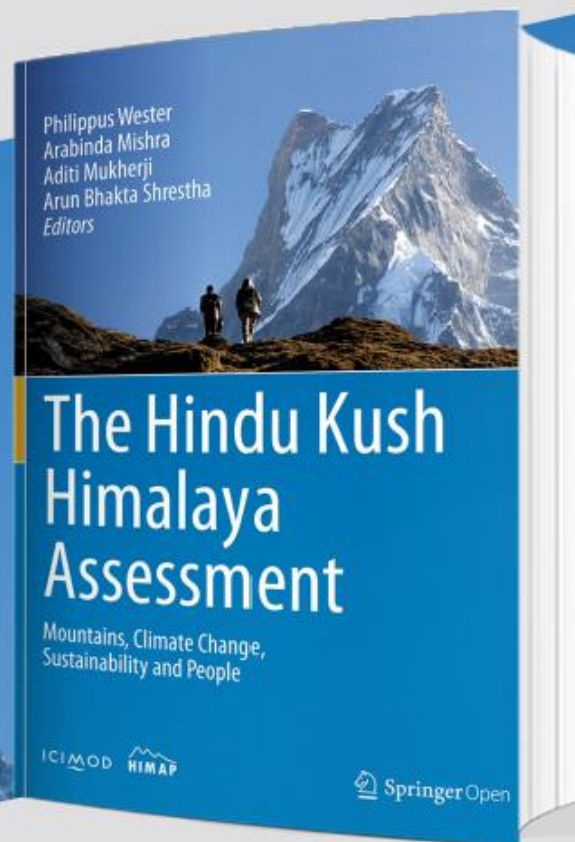


Extends over 3,500 km from Afghanistan to Myanmar and home to 240 million people





HINDU KUSH HIMALAYAN MONITORING AND ASSESSMENT PROGRAMME (HIMAP)



Scan 
to access

350

RESEARCHERS, POLICY
EXPERTS, AND PRACTITIONERS

22

COUNTRIES

185

ORGANIZATIONS

The first comprehensive assessment of the HKH outlines the critical importance of the region's distinct environment, people, and wildlife.



>350
People

210
Authors
30% women
80% from the region

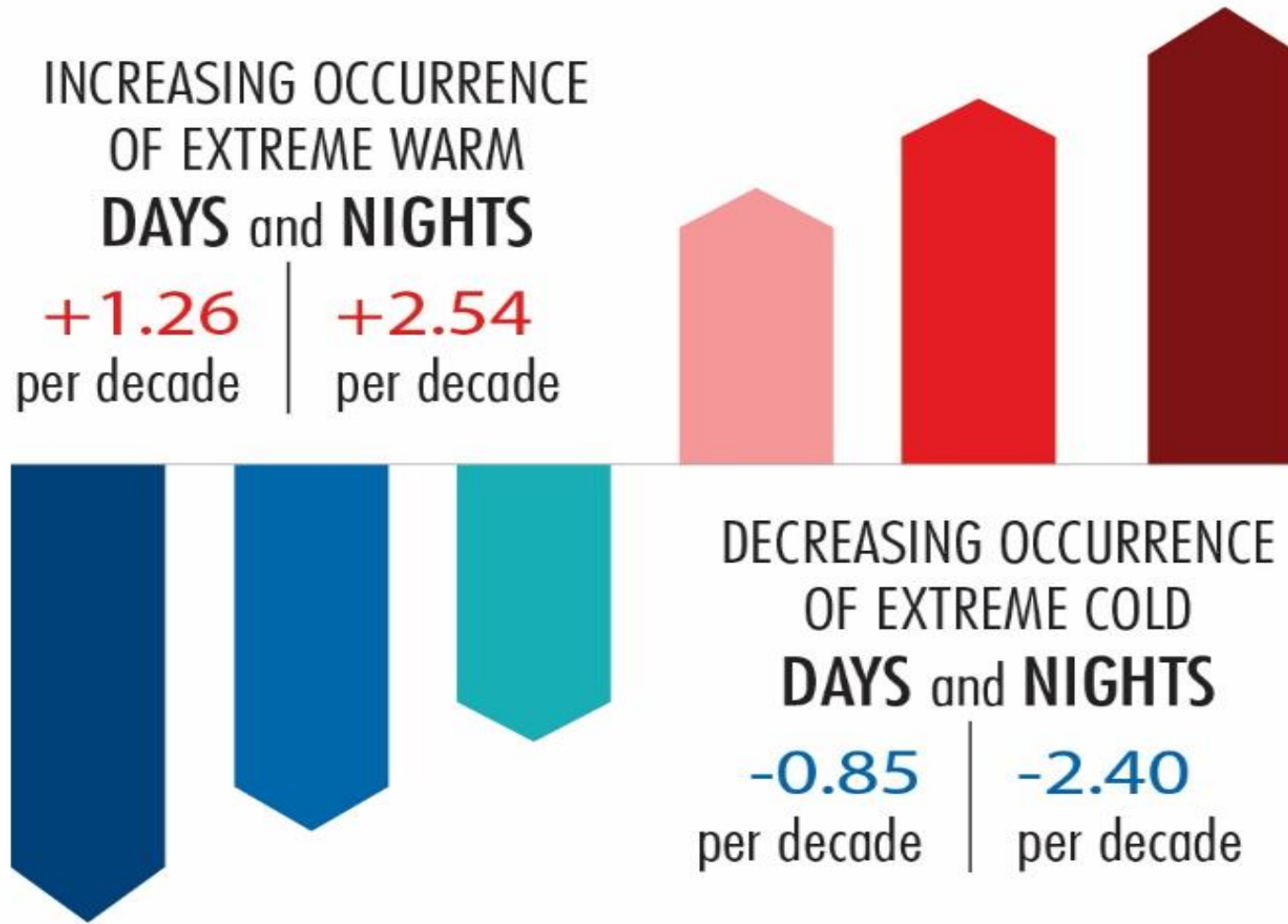
125
External Reviewers

20
Review Editors

4
Write Shops
(Jan, June, Sept 2016
& Aug 2017)

Open Access
Published by Springer Nature

DAYS AND NIGHTS ARE GETTING WARMER



SIGNIFICANT CHANGES IN PRECIPITATION EXTREMES IN PAST DECADES



Significant increase in the number of wet days and extreme rain events recorded over the western Himalaya and the Karakoram.



In the eastern Himalaya, the total amount of precipitation did not change much and the number of rainy days decreased, which meant a higher amount of rainfall in a shorter period of time.

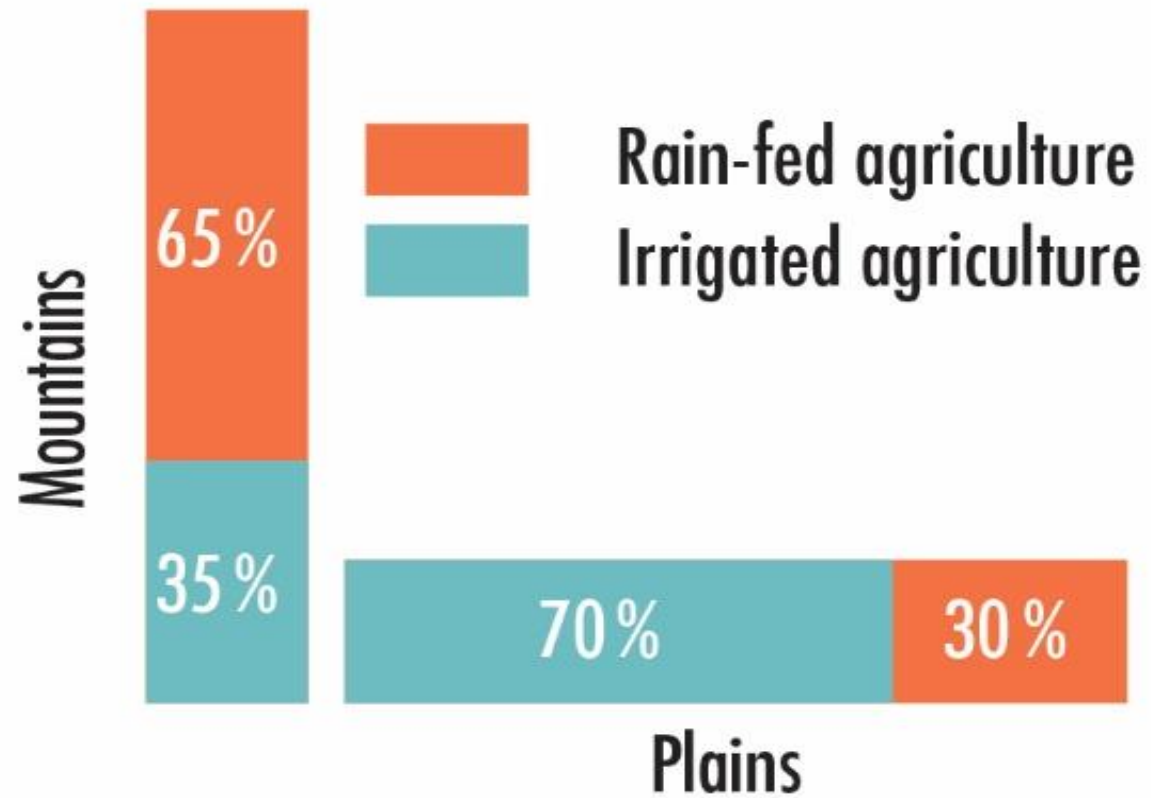
Climate Change and Agriculture

Agriculture and food production highly susceptible to climate change

Climate change is affecting all dimensions of food security and nutrition



DIFFERENCES IN THE MOUNTAINS AND THE PLAINS DEMAND DIFFERENT STRATEGIES FOR ENSURING WATER SECURITY





Climate Change and Agriculture

Small holder farmers are on the frontline of climate change

- *Most vulnerable habitats*
- *Climate sensitive natural resources*

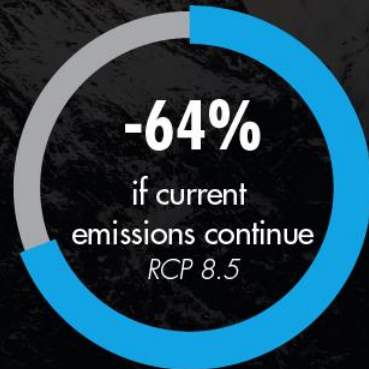
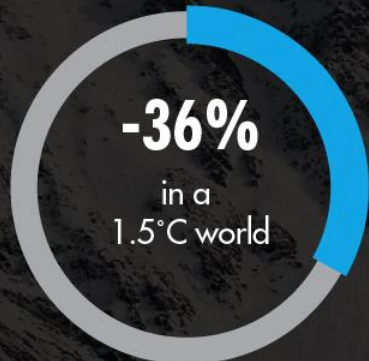
Small holders are the main producers of food globally

- *60-70% food produced in developing countries*

EVEN IF GLOBAL WARMING IS LIMITED TO 1.5 DEGREES CELSIUS BY THE END OF THE CENTURY, THE HINDU KUSH HIMALAYA WILL WARM BY AROUND 2.1 DEGREES CELSIUS.

1.5 Degrees is too hot for the Himalayas

Amplified by Elevation Dependent warming



GLACIER MASS LOSS HAS INCREASED SINCE 2000, AND WILL ACCELERATE IN THE FUTURE. HKH GLACIER VOLUMES WILL DECLINE SUBSTANTIALLY BY 2100.

In a 1.5 °C world, HKH glaciers



WILL LOSE
36% ↓

of their current volume (by 2100)



**A 2 DEGREES
CELSIUS RISE IN
AVERAGE GLOBAL
TEMPERATURE BY
2100 COULD
MELT HALF THE
GLACIERS IN THE
HINDU KUSH
HIMALAYA,
DESTABILIZING
ASIA'S RIVERS.**

Strong Seasonality

Too much and too little water

More extreme events

Longer dry periods, increased intensity of precipitation

Floods and droughts more frequent

Some floods are **transboundary** in nature

2 ZERO HUNGER



1 NO POVERTY



Food and nutritional security in major Asian breadbaskets will be **THREATENED**



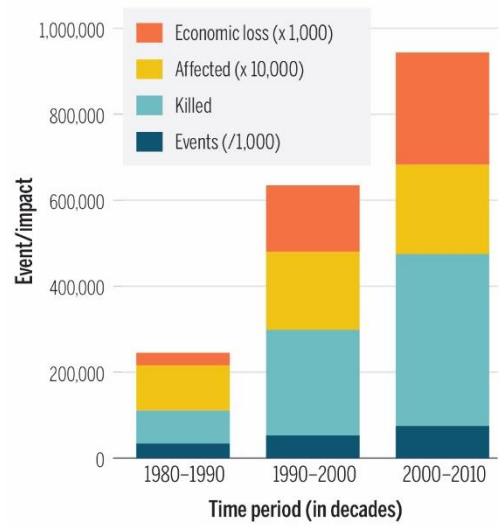
**MIGRATION IS A
SIGNIFICANT
LIVELIHOOD
STRATEGY IN
THE HINDU
KUSH HIMALAYA
REGION.**

11 SUSTAINABLE CITIES
AND COMMUNITIES



1 NO
POVERTY



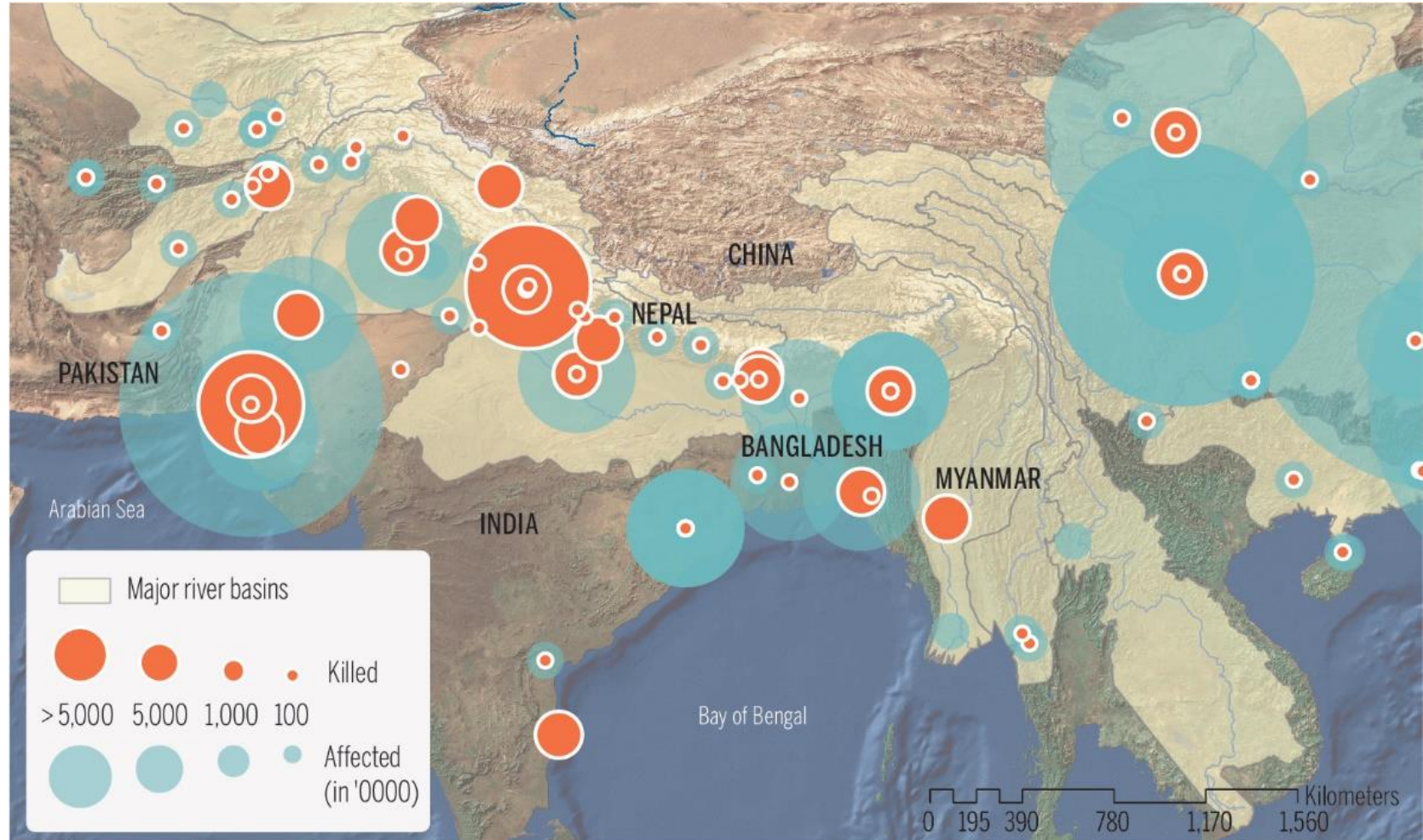


Disaster risk is increasing

Floods, droughts, landslides, glacial lake outburst floods

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

Women more susceptible to natural disasters than men



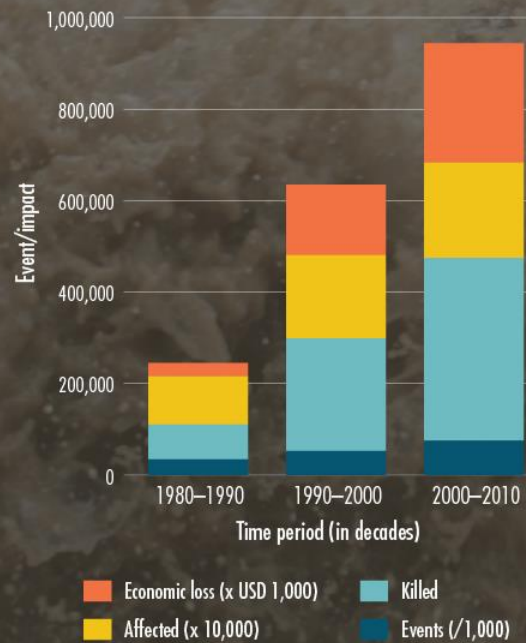
Data source: EMDAT OFDA Cred Database

Map prepared in Sept. 2015

ICIMOD



THE ECONOMIC AND HUMAN IMPACTS OF NATURAL HAZARDS ARE INCREASING



MORE THAN A BILLION PEOPLE ACROSS THE HKH ARE AT INCREASED RISK FROM NATURAL HAZARDS LIKE FLOODS, LANDSLIDES, AVALANCHES, DROUGHTS AND EARTHQUAKES.

RIVERS FROM THE HINDU KUSH HIMALAYA
PROVIDE WATER FOR
NEARLY TWO BILLION PEOPLE ACROSS ASIA



River basin name (population in millions)
 = 10 million people

GOOD WATER GOVERNANCE IS NEEDED TO ENSURE WATER SECURITY IN THE HKH AND IT MUST BE POLITICALLY AND CULTURALLY TAILORED TO THE LOCAL, NATIONAL, AND REGIONAL CONTEXTS.

6 CLEAN WATER AND SANITATION



2 ZERO HUNGER



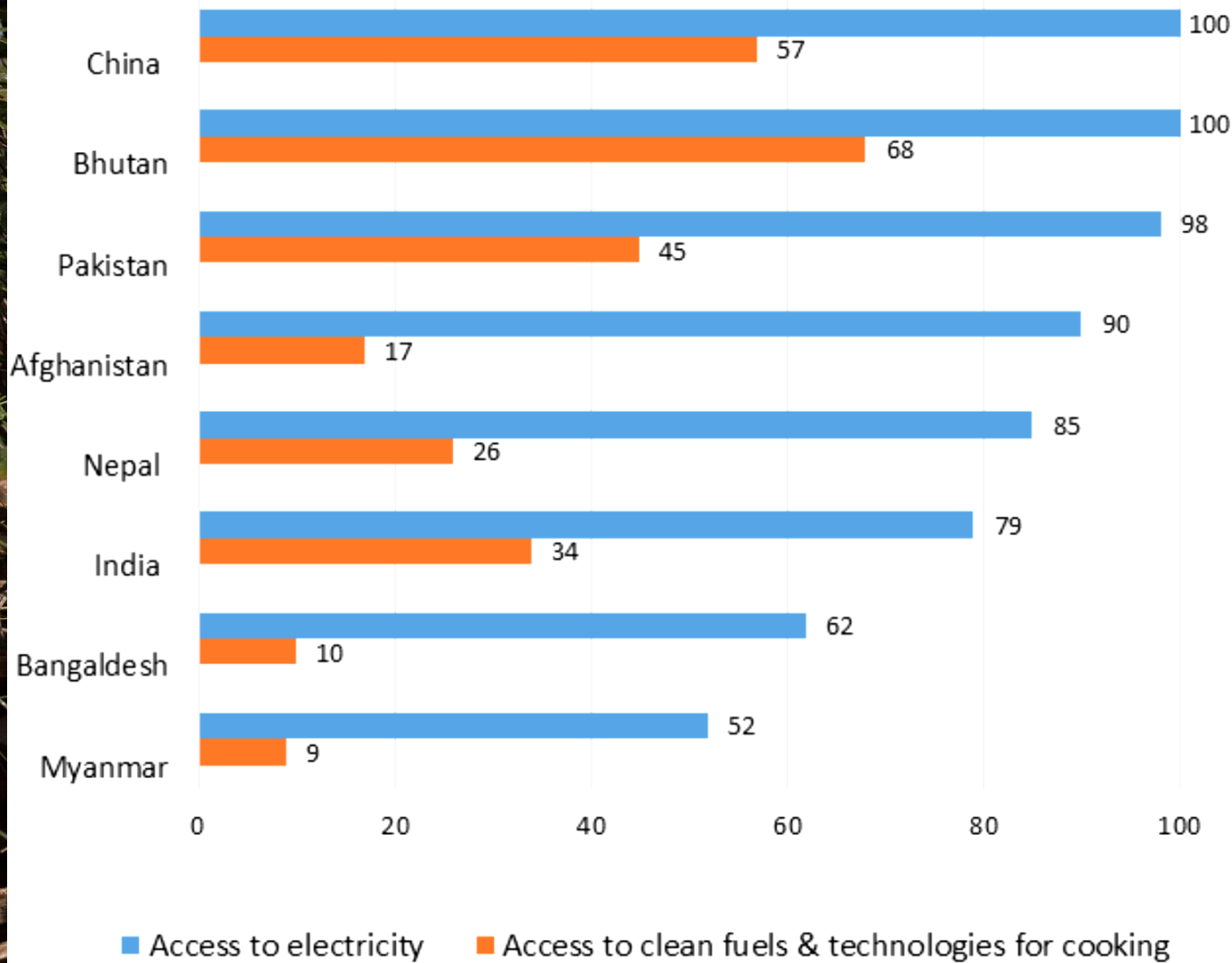
1 NO POVERTY



5 GENDER EQUALITY



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



Energy Poverty 500 GW

hydro
potential =
energy for
half a billion
homes

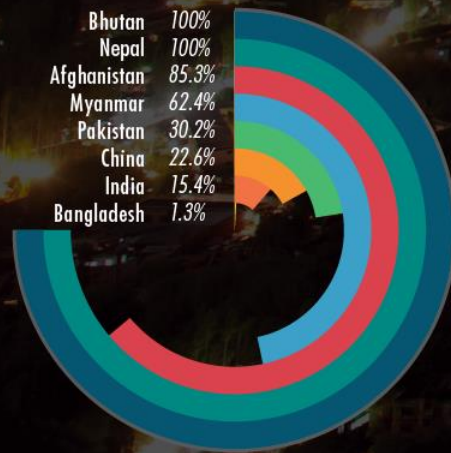
80% rural
population in
HKH countries
lacks access to
clean energy
for cooking

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

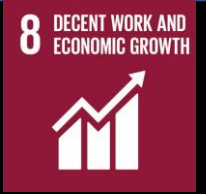
Regional energy cooperation is critical to achieve both rapid development and energy self-sufficiency.



SHARE OF RENEWABLES IN TOTAL ELECTRICITY GENERATION IN HKH COUNTRIES



THERE IS A NEED TO ACCELERATE THE PACE OF REGIONAL COOPERATION AND TRADE IN SUSTAINABLE ENERGY THROUGH A HIGH-LEVEL, EMPOWERED, REGIONAL MECHANISM.



ADAPTATION IS BECOMING INCREASINGLY URGENT FOR THE HKH, WHILE DATA, CAPACITY, AND RESOURCE GAPS CONTINUE TO CHALLENGE POLICYMAKERS.



**POLICES AND
RESPONSES IN THE
HINDU KUSH
HIMALAYA
COUNTRIES
OVERLOOK THE
MULTIPLE FORMS OF
OPPRESSION AND
EXCLUSION THAT
WOMEN FACE.**





HIMAP ICIMOD

**REGIONAL
COOPERATION AND
ENVIRONMENTAL
GOVERNANCE
HOLD THE KEY TO
THE FUTURE OF
SUSTAINABLE
DEVELOPMENT IN
THE HINDU KUSH
HIMALAYA REGION.**

17 PARTNERSHIPS
FOR THE GOALS



#HKHAssessment

www.hi-map.org

   @icimod

Three priorities for action

The image shows three tea sets arranged horizontally on a light-colored, textured surface. Each set consists of a small white cup filled with tea and a matching white lid. The lids are placed upside down, and each is topped with a generous amount of dried, green tea leaves. The background is slightly blurred, focusing attention on the tea sets and the text overlays.

Concerted action is urgently needed to keep global level climate change to 1.5 degrees by 2100.

Recognize and prioritize the uniqueness of the HKH mountain people.

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

Need for complimentary Regional Adaptation Plans for effective NAPs

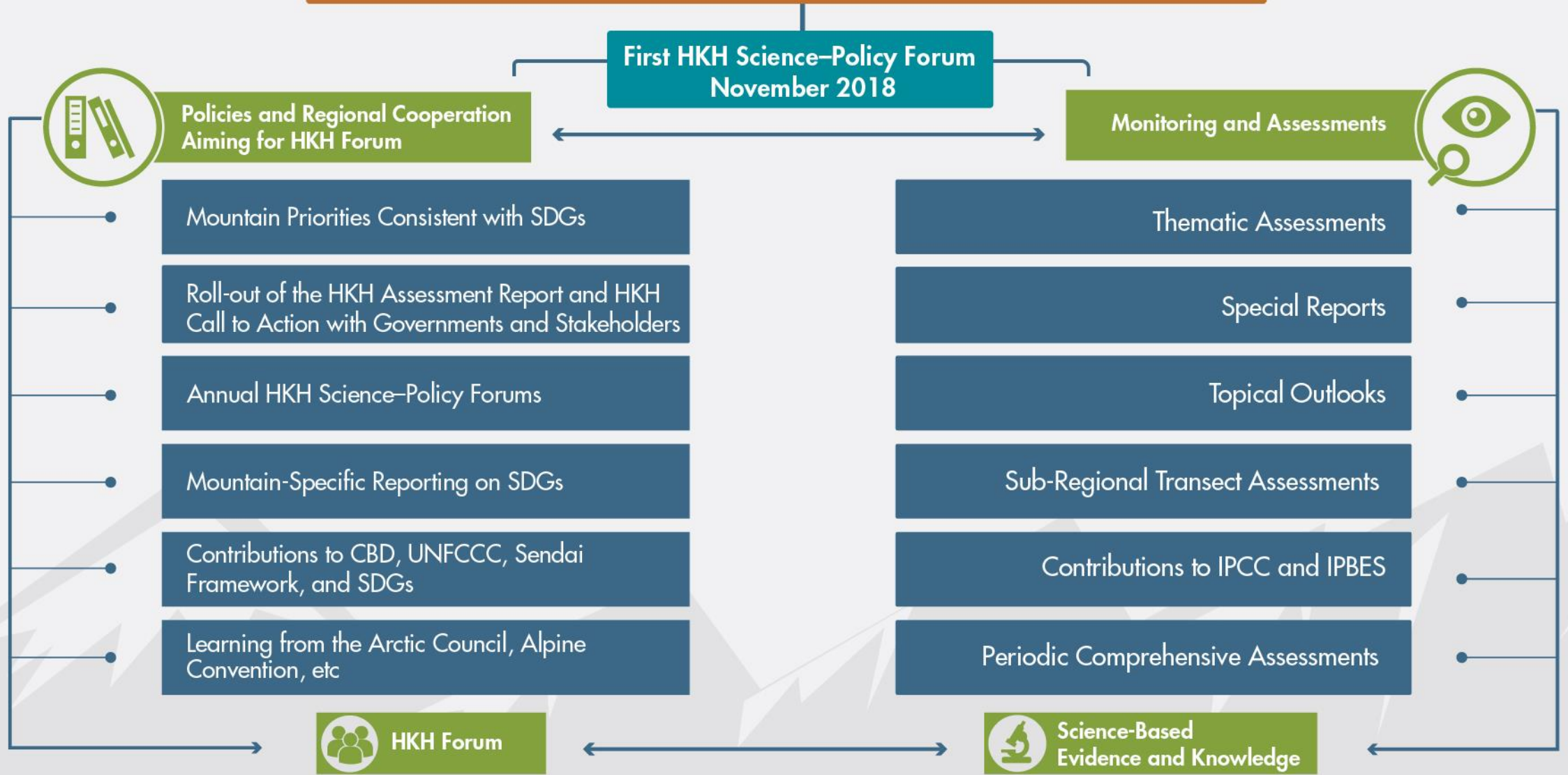
- *Climate impacts – transboundary*
- *National NAPs maybe **inadequate** for addressing transboundary impacts*
 - Need to consider **Regional Adaptation Planning**
 - **Mechanism** for initiating **collective action**
 - **Upstream-downstream** information & **knowledge exchange platform**
 - **Regional Climate Action Forum/Alliances**



HIMAP ICIMOD

TO ACHIEVE **PROSPERITY** IN THE HKH BY **2080**, INTEGRATED SOLUTIONS INCLUDING LARGE-SCALE **SUSTAINABLE DEVELOPMENT INVESTMENT** WITH **REGIONAL COOPERATION** AND **BOTTOM-UP INVESTMENT** WITH LOCAL AND NATIONAL COOPERATION ARE NEEDED.

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23-25 Jan 2019
UN Environment 3rd Forum of Ministers and Environment Authorities of Asia Pacific, Singapore

4+17 Feb 2019
#HKHAssessment Launch + Ambassadors Meeting

March 2019
UNEA4, Nairobi
(11-15 Mar)
APFSD, Bangkok
(27-29 March)

April-Aug 2019
HKH Call to Action RMC Science-Policy Dialogues
Raise political ambition & Identify solutions + Get Ministerial & Secretary level support for 20 March 2020 HKH Ministerial Mountain Summit and UNSGC side events

12-17 Sept 2019
ICIMOD Board Meeting
Sikkim, India

28-30 Aug 2019
Cryosphere Services Conference, ICIMOD

June 2019
UNFCCC SBSTA
17 to 27 June, Bonn, Germany

April 2019
UNFCCC NAP Expo
8 to 12 April, Songdo, Korea
Mobilise focal point support for action in mountain regions

23 September 2019
UNSG Climate Summit
New York, USA, ICIMOD facilitated event bringing Ministers, Ambassadors, Focal points etc. to call for action in mountain regions + funding pledges to deliver action

29-31 Oct 2019
High Mountain Summit Geneva
(WMO, FAO, MP, MRI, UNESCAP, etc.)

14 November 2019
Preparatory meeting in Kathmandu for the March 2020 HKH Ministerial Mountain Summit

2-13 Dec 2019
UNFCCC COP25
Santiago, Chile

2020: HKH Calling
2020 CBD COP (Kunming)
Paris Agreement reporting

March 2020
HKH Ministerial Mountain Summit, ICIMOD
HKH Declaration on robust regional cooperation; increased funding for SDGs and urgent climate action

January 2020
Arctic Frontiers
Tromso, Norway