The Hindu Kush Himalaya Assessment
Mountains, Climate Change, Sustainability and People

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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

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
Hindu Kush Himalaya and Major Downstream River Basins

- Largest reserves of ice outside the polar regions
- Source of 10 major Asian river systems
- Diverse cultures, languages, religions, and traditional knowledge systems
- 4 Global Biodiversity Hotspots
- High biodiversity; 330 Important Bird and Biodiversity Areas

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
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
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

Extends over 3,500 km from Afghanistan to Myanmar and home to 240 million people
The first comprehensive assessment of the HKH outlines the critical importance of the region’s distinct environment, people, and wildlife.
DAYS AND NIGHTS ARE GETTING WARMER

INCREASING OCCURRENCE OF EXTREME WARM DAYS and NIGHTS
+1.26 per decade  +2.54 per decade

DECREASING OCCURRENCE OF EXTREME COLD DAYS and NIGHTS
-0.85 per decade  -2.40 per decade
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

Of the 240 MILLION PEOPLE in the HKH that directly depend on its resources:

1/3 live below the poverty line

30% do not have enough to eat

50% suffer from some form of malnutrition
Differences in the mountains and the plains demand different strategies for ensuring water security.

- Mountains:
  - Rain-fed agriculture: 65%
  - Irrigated agriculture: 35%

- Plains:
  - Rain-fed agriculture: 70%
  - Irrigated agriculture: 30%
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
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

Food and nutritional security in major Asian breadbaskets will be THREATENED
MIGRATION IS A SIGNIFICANT LIVELIHOOD STRATEGY IN THE HINDU KUSH HIMALAYA REGION.
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
MORE THAN A BILLION PEOPLE ACROSS THE HKH ARE AT INCREASED RISK FROM NATURAL HAZARDS LIKE FLOODS, LANDSLIDES, AVALANCHES, DROUGHTS AND EARTHQUAKES.

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

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.
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.
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.
POLICIES AND RESPONSES IN THE HINDU KUSH HIMALAYA COUNTRIES OVERLOOK THE MULTIPLE FORMS OF OPPRESSION AND EXCLUSION THAT WOMEN FACE.
REGIONAL COOPERATION AND ENVIRONMENTAL GOVERNANCE HOLD THE KEY TO THE FUTURE OF SUSTAINABLE DEVELOPMENT IN THE HINDU KUSH HIMALAYA REGION.
Three priorities for action

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