Presentation from

2016 World Water Week in Stockholm

www.worldwaterweek.org

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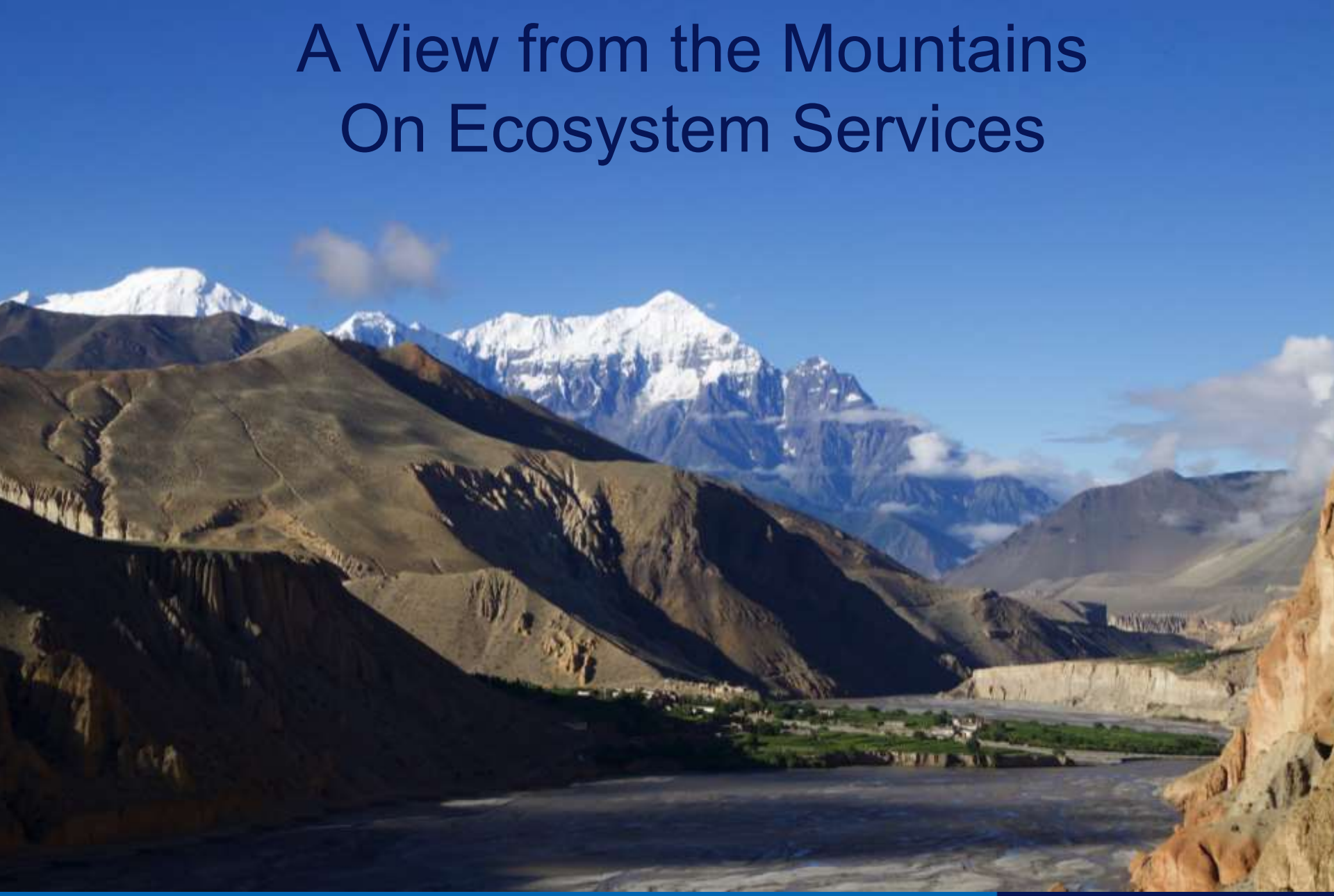
A View from the Mountains On Ecosystem Services



David Molden
International Centre for Integrated Mountain Development

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Importance of Mountain Regions

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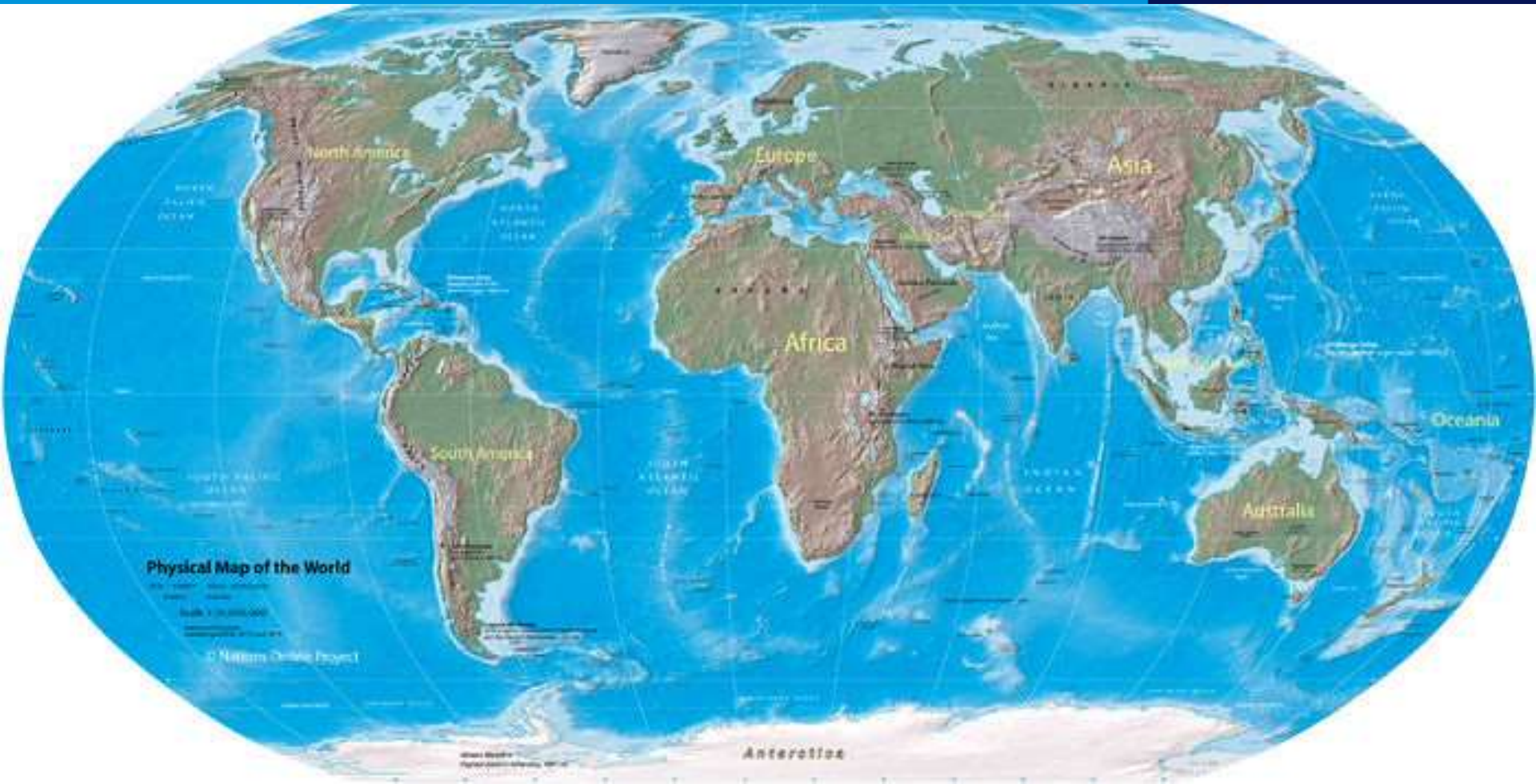

Mountains occupy 24% of global land surface; home to 12% population; >40% of population depend on water, hydroelectricity, timber, biodiversity and niche products, mineral resources, recreation, and flood control

Hindu Kush Himalayan River Basins from Source to Sea

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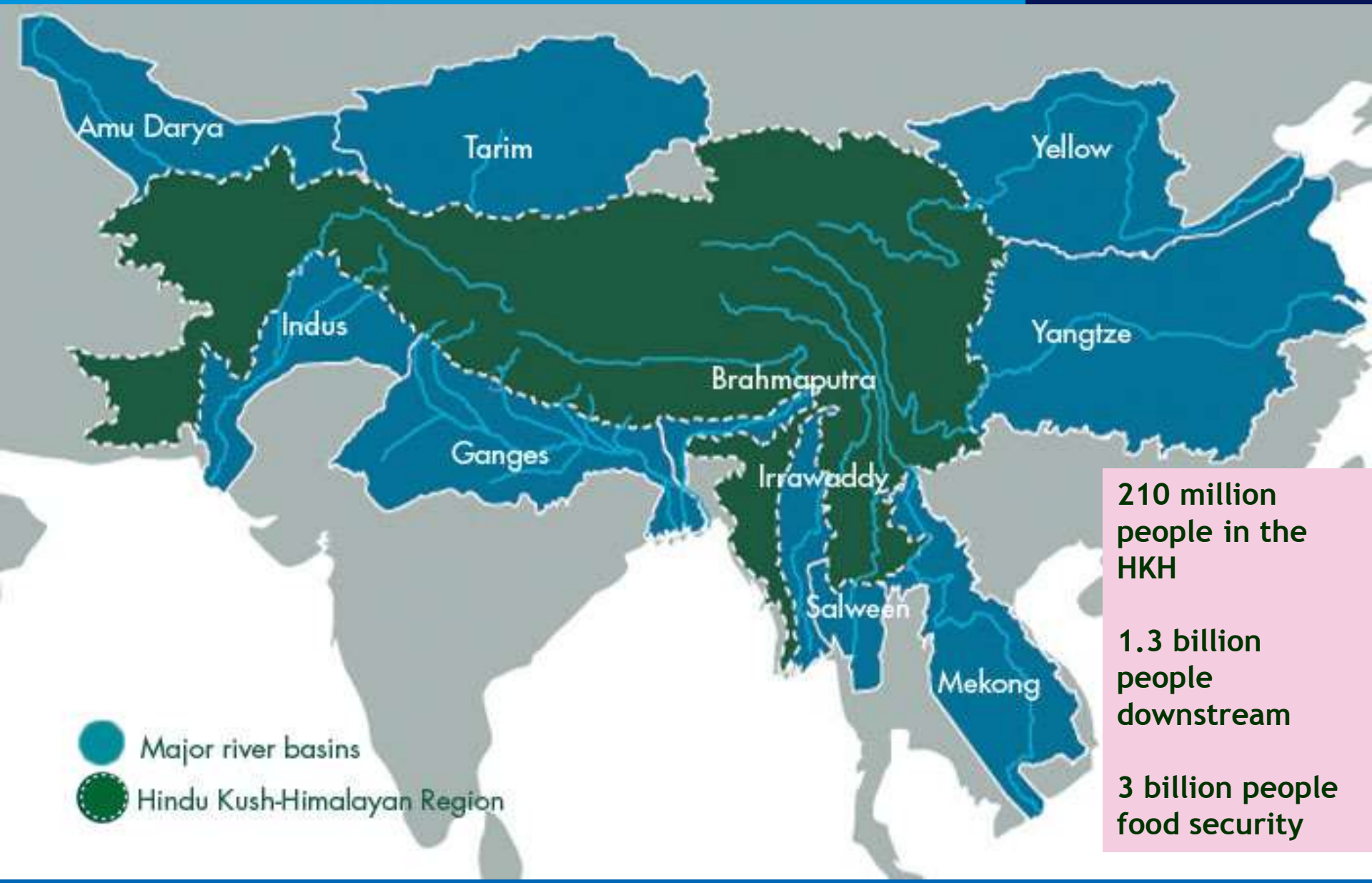

210 million people in the HKH

1.3 billion people downstream

3 billion people food security

Rivers from the Sacred Mountain: Mount Kailash

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Still discovering new species…

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Dracula fish
Myanmar (2009)

Leaf Deer
Myanmar (1999)

Bugun Liocichla
India (2006)

Smith's Litter frog
Assam, India (1999)

Orange spotted snakehead
Assam, India (2000)

Snubbed nose monkey
Myanmar (2010)

Agricultural Biodiversity: Important for future food security

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The Hindu Kush Himalayas: More than 600 living languages

Mountain resources support some of the most populated areas on the globe

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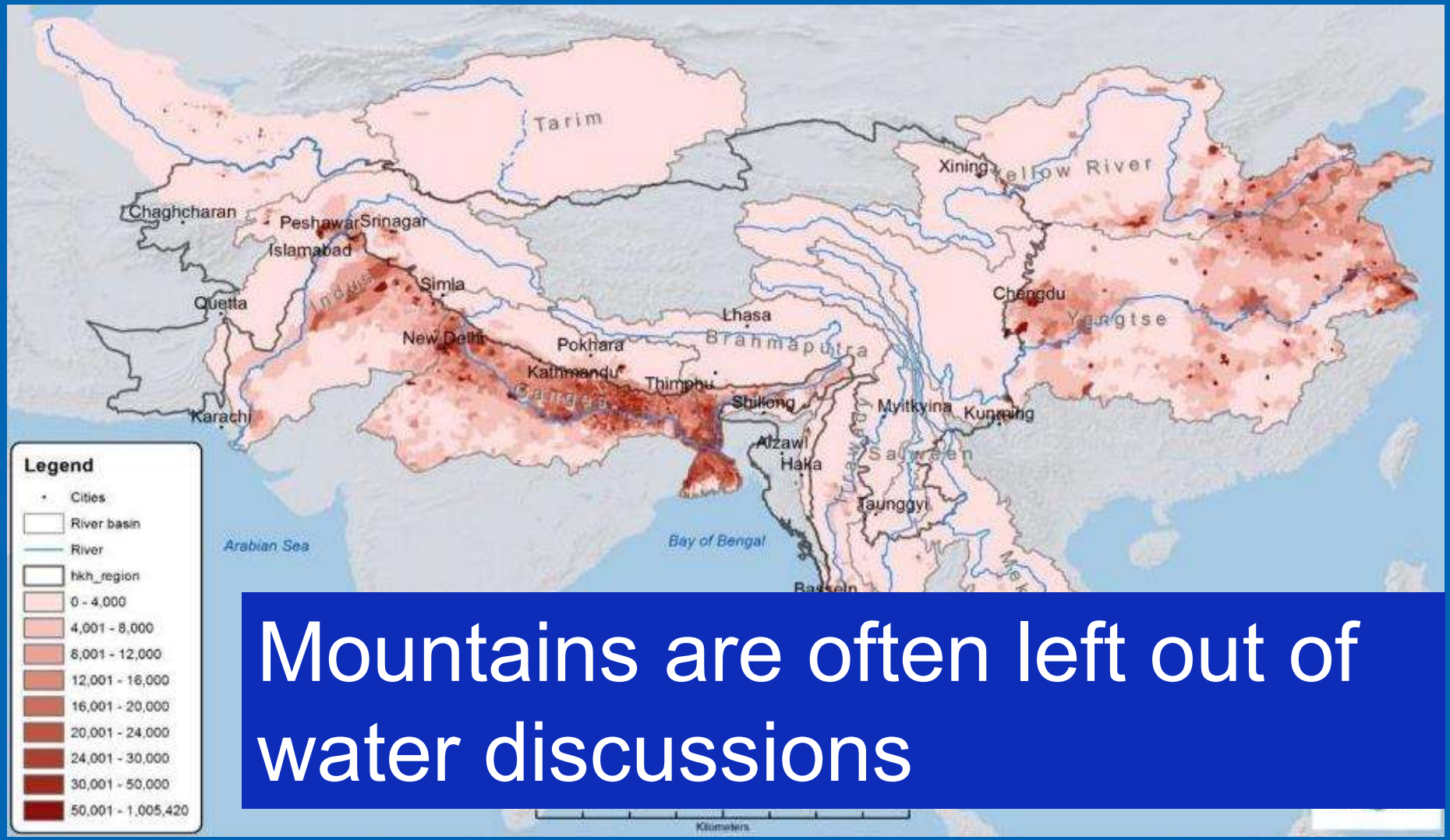
Population Density in the 10 River Basins of the Hindu Kush Himalayan Region



Mountains are often left out of water discussions

Rapid Change in Mountains

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What has changed?

- Increased globalization
- Outmigration – especially male
- Urbanization
- Better communication – ict, cellphones
- Infrastructure – dams, roads

Some issues persist

- Poverty
- Ecosystem degradation
- Land use change

Land Use Change

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Increasing Demand for Energy from Hydropower

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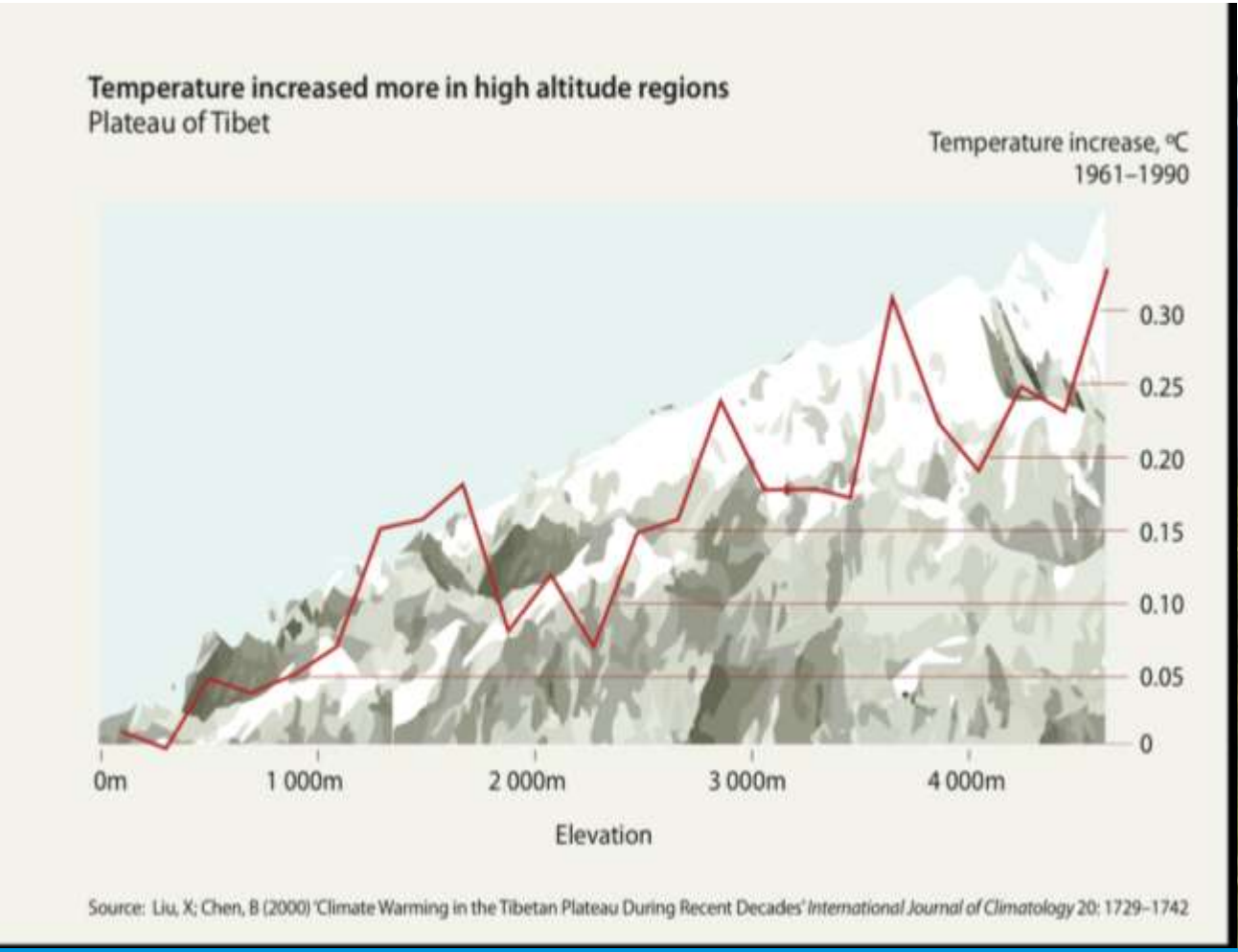
Climate Change: Amplification of Temperature with Elevation

Temperatures across the mountainous Hindu Kush Himalayan region will increase by about 1-2°C (in places by up to 4-5°C) by 2050. The temperature will increase more in high altitude regions.



Source: Water and Climate Atlas: ICIMOD, GRID, CICERO

Impact on Water Resources?

Increasing disaster risk: floods, droughts, landslides, avalanches, GLOFs

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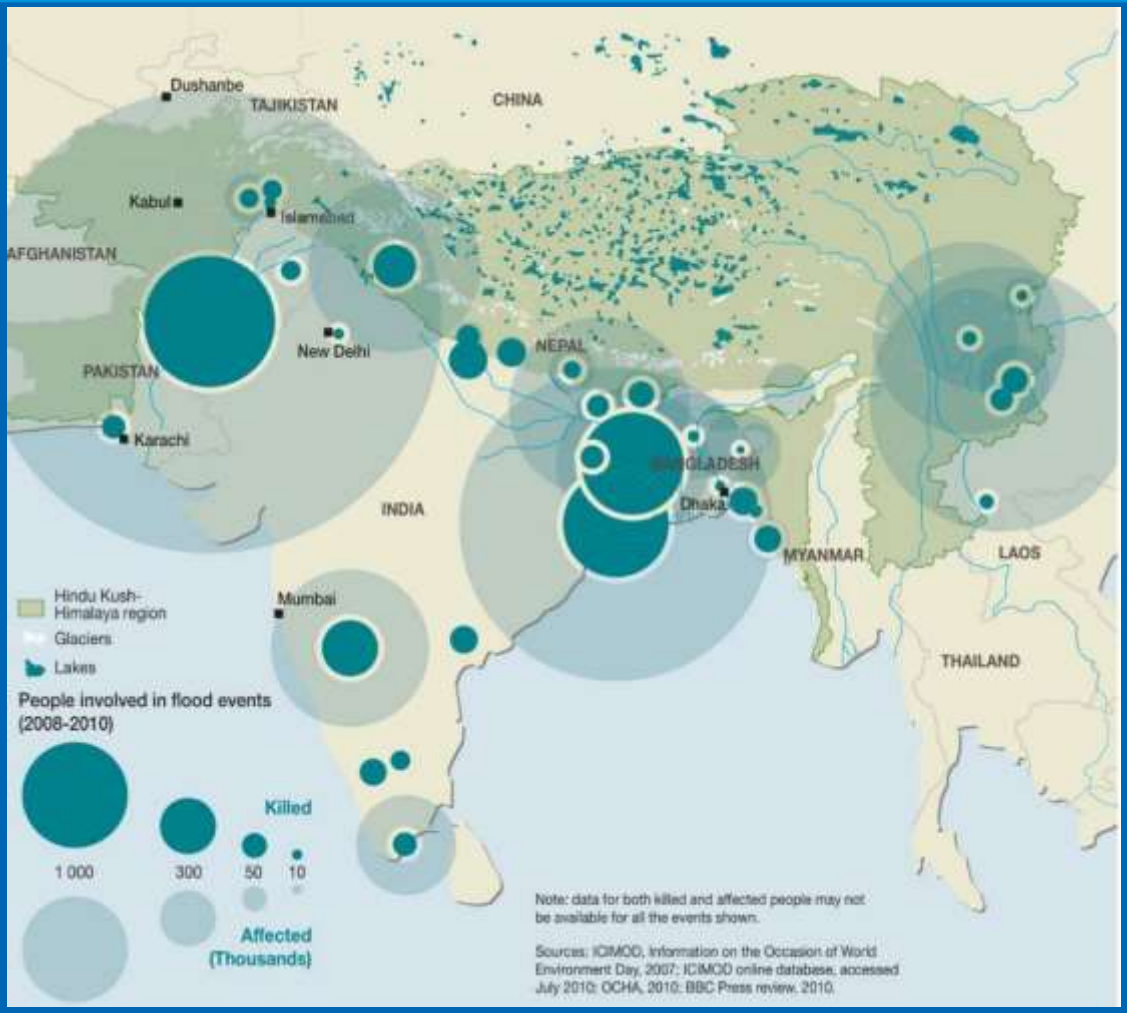

1/3 of Disasters are floods, many crossing national boundaries

Regional Atmospheric Pollution

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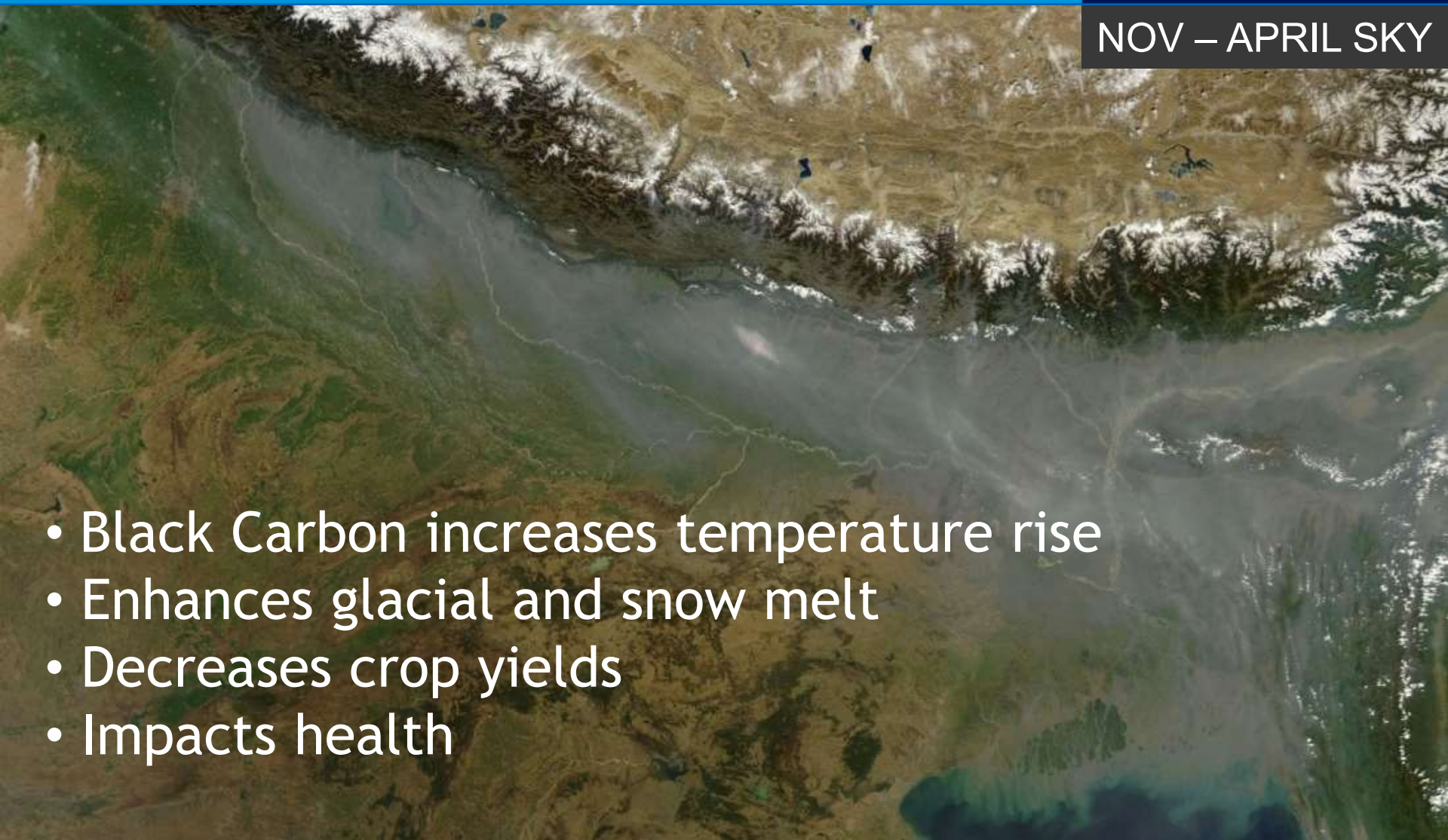

- Black Carbon increases temperature rise
- Enhances glacial and snow melt
- Decreases crop yields
- Impacts health

From Vicious to Virtuous Cycles

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Work with Nature – Revive Springs

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Rethink Water Storage

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Upstream – downstream Benefit sharing

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- From Source to Sea
  - Himalayas to Ocean (H2O)
- Recognition of value of ecosystem services, and compensation for them
- Develop institutional and governance arrangements

Build Resilience & Adapt to Many Changes

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- Early warning systems
- Climate services
- Alternative livelihood options
  - High valued mountain products
  - Remittances from migration

Thank you

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