

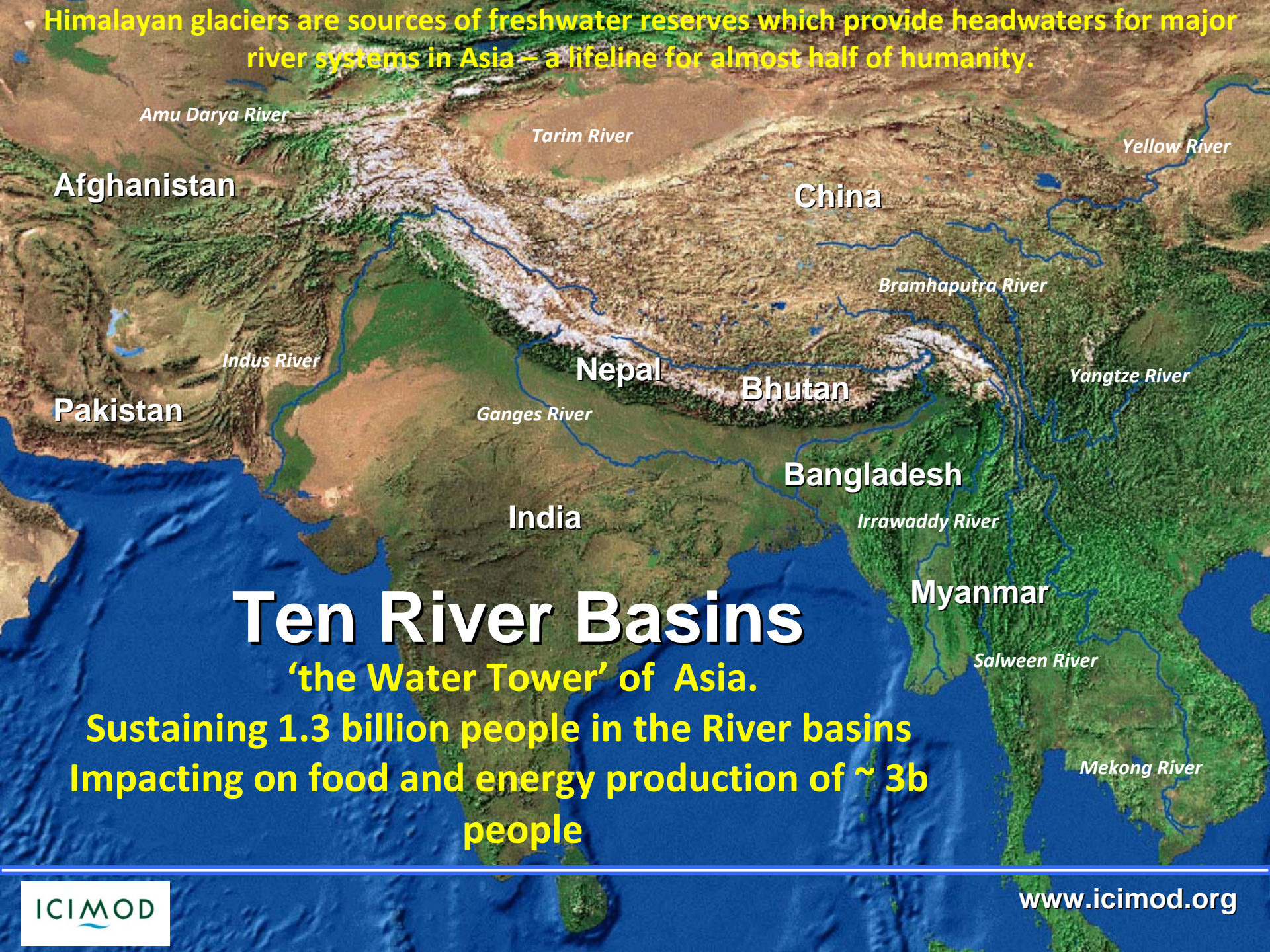
# Regional Water Governance Strategy in Hindu Kush Himalaya Region

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International Centre for Integrated Mountain Development

Kathmandu, Nepal

▶ Himalayan glaciers are sources of freshwater reserves which provide headwaters for major river systems in Asia – a lifeline for almost half of humanity.



Afghanistan

Amu Darya River

Tarim River

Yellow River

China

Brahmaputra River

Yangtze River

Nepal

Bhutan

Ganges River

Bangladesh

Irrawaddy River

India

Myanmar

Salween River

Mekong River

Pakistan

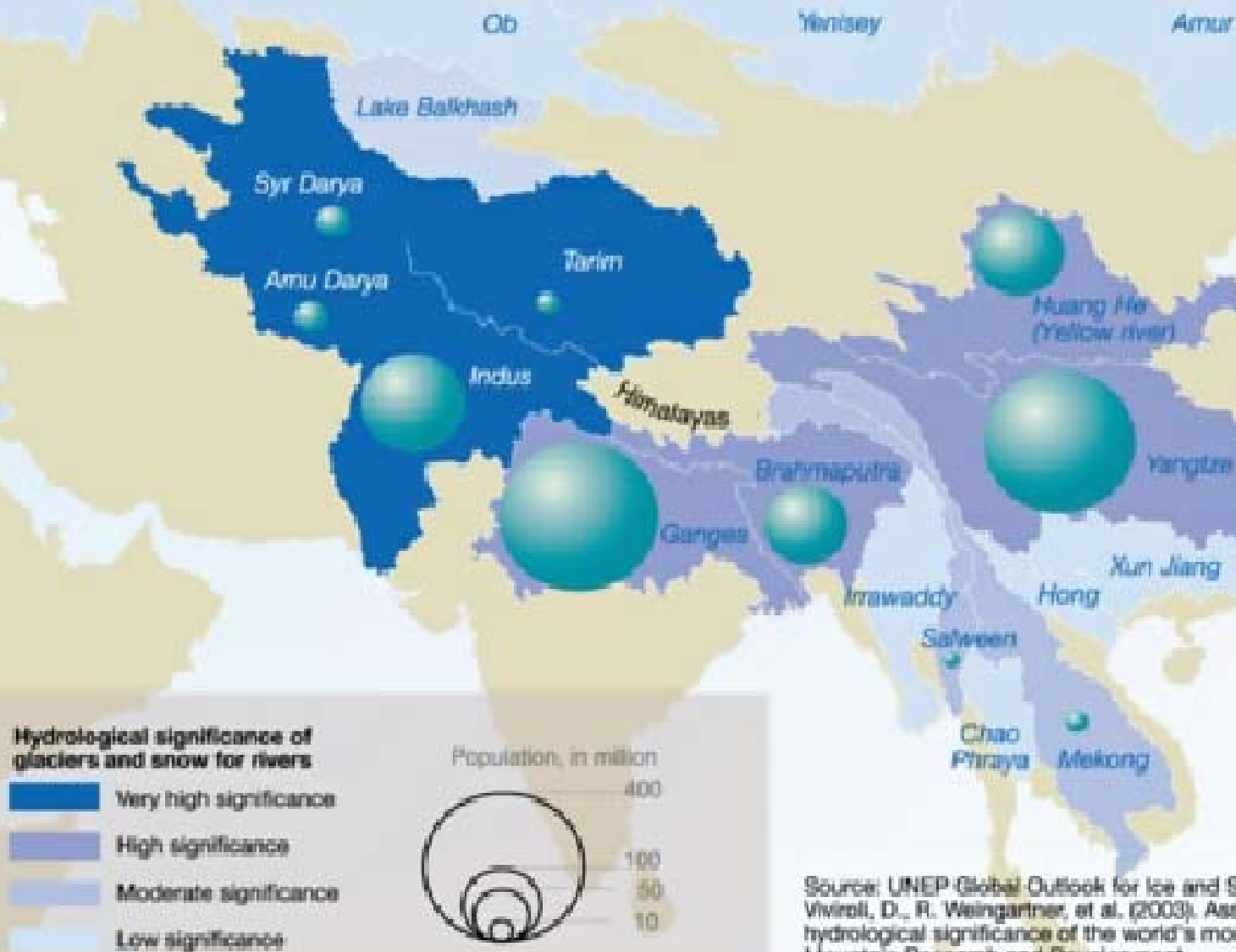
Indus River

# Ten River Basins

‘the Water Tower’ of Asia.

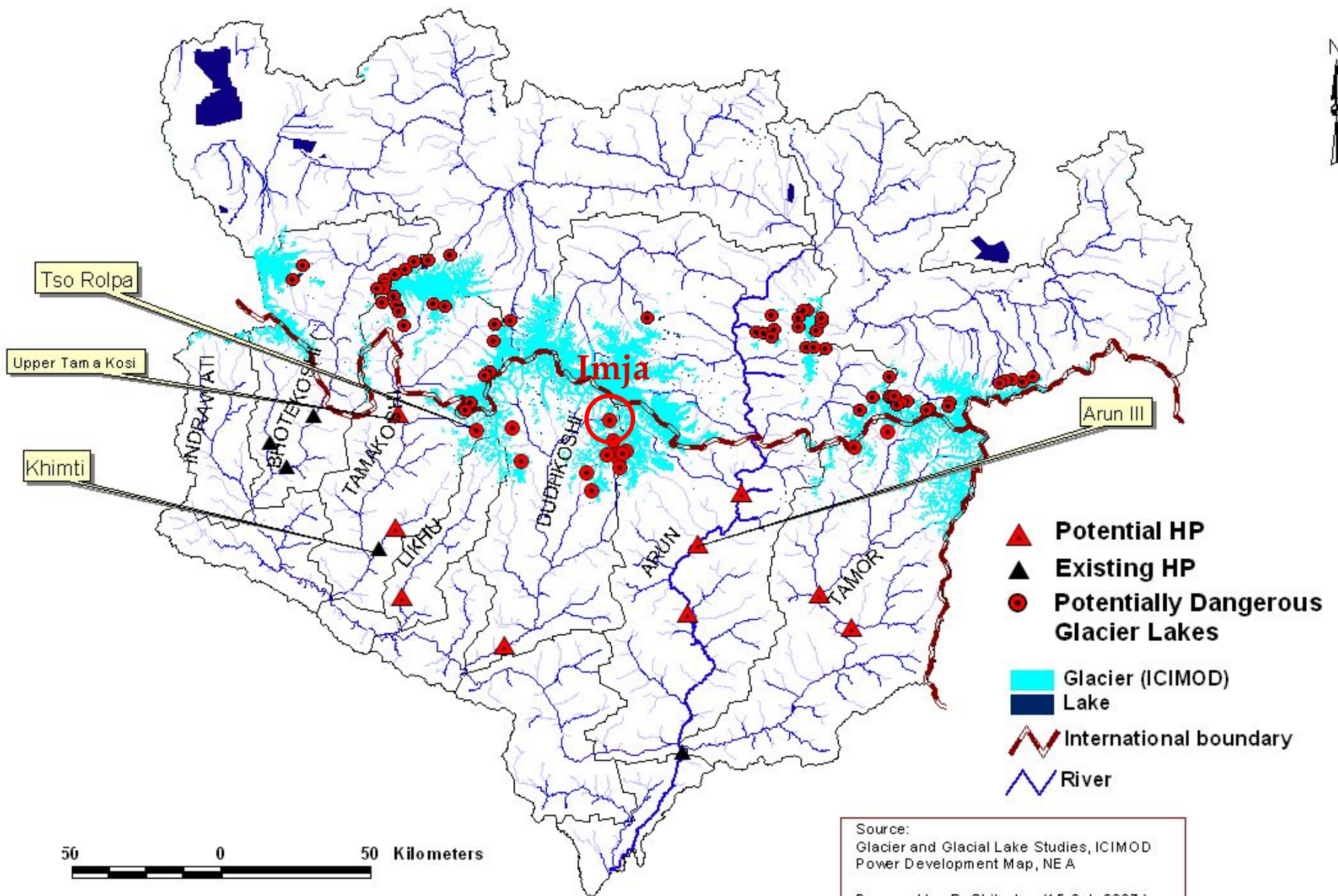
Sustaining 1.3 billion people in the River basins  
Impacting on food and energy production of ~ 3b  
people

# River basins and their hydrological significance

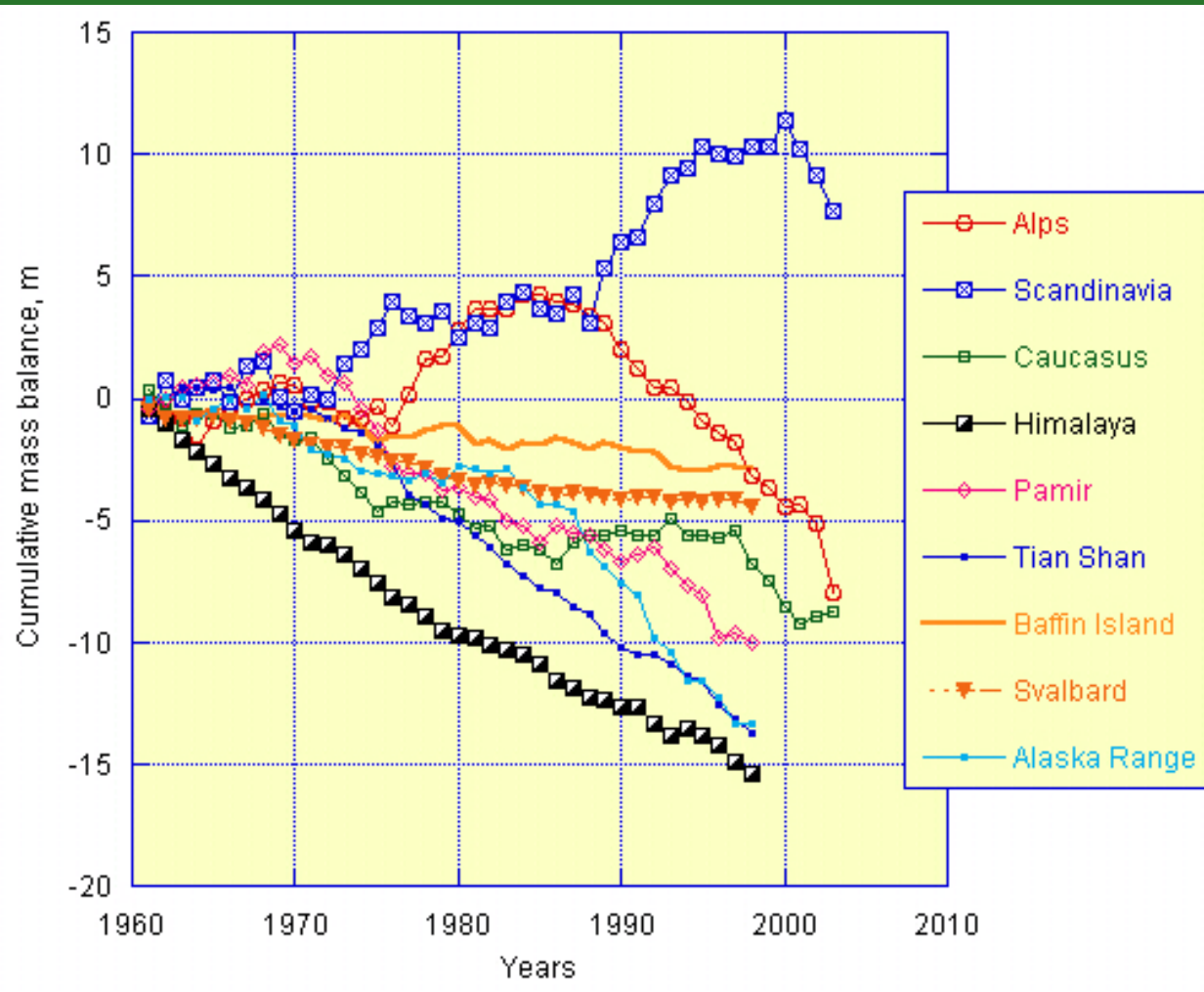


Source: UNEP Global Outlook for Ice and Snow, 2007; Viviroli, D., R. Weingartner, et al. (2003). Assessing the hydrological significance of the world's mountains. Mountain Research and Development.

# Potentially Dangerous Glacier Lakes and Hydropower Stations in the Kosi Basin



# Changing Glacier Mass Balance



► **Himalayan glaciers are shrinking more rapidly than elsewhere**

Dyurgerov and Meier, 2000

# Climate Change Impacts on Water Resources

- As glaciers melt, **river runoff** will first increase and then decrease;
- Extreme events already on the rise;
- Likely shortage scenario for downstream agriculture and other users
- Wellbeing of about half billion people in the HKH region including China will be affected.

## 1. River basin approach

- Integrate IWRM with IRBM
- Promote co-operation between the physiographic regions through ecosystem management & market chains
- Enhance local socio-economic development and community participation in local decisions;
- Implement mechanisms for allocation of water rights within the river basins;
- Develop domestic capital markets and partnership with private sector for risk management

## 2. Promote Regional Economic Co-operation

- Co-operation in water should be part of the broader regional economic cooperation framework with focus on water;
- Enhance co-operation between upstream - downstream countries as producers and consumers of ecosystem services;



# 3. Use problems as opportunity

- Drivers like climate change and globalization have added new dimensions and opportunities for regional co-operation;
- Supply augmentation through water storage (both natural and human-made) should be part of IWRM/IRBM.
- Increase role of knowledge hubs in documenting and sharing good policies and practices.



**Thank You!**