



# Upper Indus Basin Network

## Country progress report

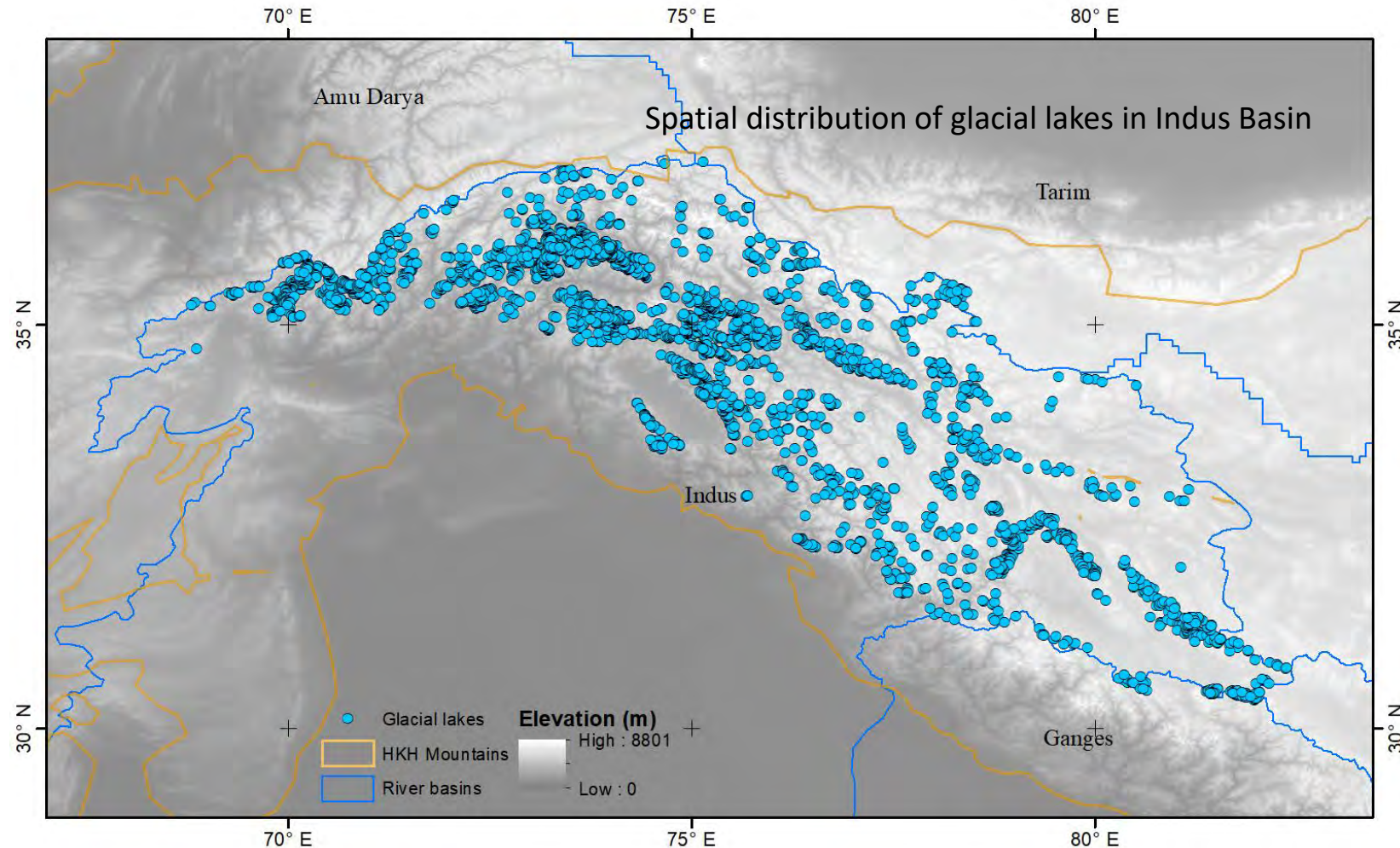
### India Chapter



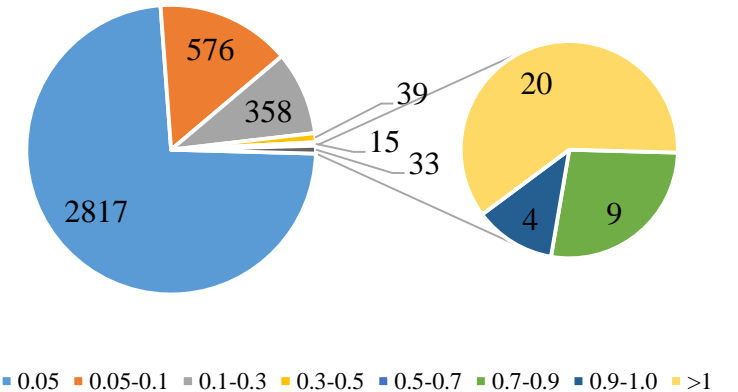
## Progress of the 6 Technical working groups (TWGs)

- TWG 1: Evaluating ground water resources in UIB
- TWG 2: Climate Change projections over UIB using high resolution downscaled data
- TWG 3: Permafrost Status in the UIB
- TWG 4: Water availability assessment and extreme rainfall analysis in the UIB under the climate change scenario
- TWG 5: GLOF hazard in the UIB
- TWG 6: Changing ecosystem in Ladhak: Community resilience and cultural responses to climate change

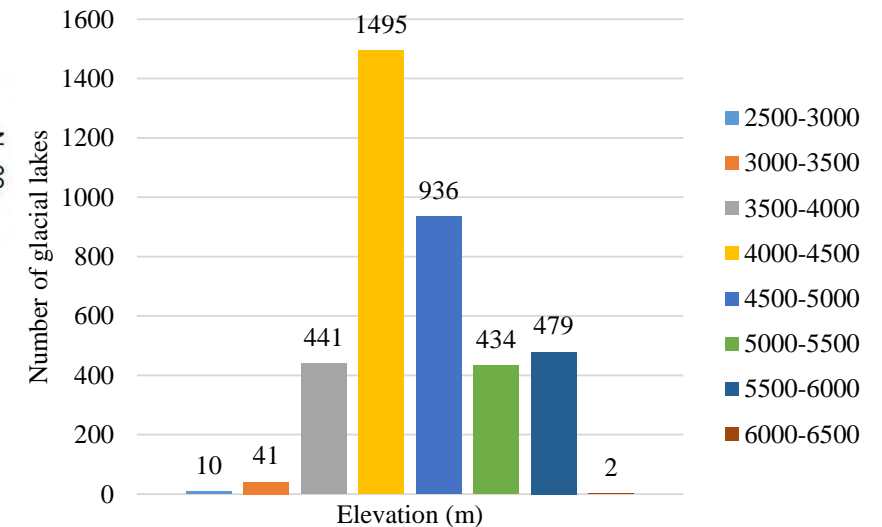
# TWG 5: Hazards



Distribution of glacial lakes based on area (km<sup>2</sup>)



Elevational distribution of glacial lakes



Next steps:

- 1) Estimation of potential flood volumes
- 2) Estimation of flood risks

# TWG 6: Gendered socio-economic impacts of climate change: A case study of Ladakh

## Background

- Ladakh located in far northern reaches of Indian Himalayas
- Comprises two districts – Leh and Kargil -- Leh constitutes the epicenter of government, tourism, commerce and education sectors.
- Agriculture is mainstay of local population, with over 90% of region's population engaged in agriculture and allied activities. Others include -- government, defense and an evolving tourism industry -- in and around Leh.
- Ladakh's ecology faces constrained water supplies, such that local agricultural activities have had to adapt to region's extreme physiographic situations.
- As such, climatic variables such as water source, altitude, slope and aspect, solar radiation, soil content and proximity to snowline significantly influence local farming, with large dependency of food systems affected by climate variability.
- Interdependence between society and ecology in mountains makes local communities acutely sensitive to impacts of climate change, including variable weather patterns, climatic perturbations, biodiversity loss and natural hazards such as landslides, droughts and floods (IPCC, 2014) -- affecting water supply, energy use, food production and health.

## Proposed work – district level – Leh & Kargil

- Prepare a framework of analysis to capture gender-differentiated vulnerabilities and risks working through
  - Geo-physical,
  - Agro-ecological, and
  - Socio-economic factors.
- Estimation of overall climate risk index using a composite of
  - Hazard,
  - Vulnerability,
  - Exposure.
- Zoom onto analyzing food and nutritional security of population, and its linkages to climate change;
- Capture disparities in food and nutrition status between men and women, and role of climate variations in creating these disparities/ inequalities;
- Study role of government policies in adaptation to climate change and enhancing food and nutritional security;
- Understand role of women in adaptation to climate change – being stewards of natural resources and occupying key position vis-à-vis environmental realities.
- Constraints:
  - Methodological: extracting the effect of climate change while controlling for the underlying socio-economic factors, institutions and role of government policies;
  - Data availability and access: secondary (NSSO, Census. NFHS) and primary data (household surveys) at the district level – for any meaningful estimations.

Progress based on intermediate outcomes of **UIBN-IC**

- 1. Increased country ownership of the network**
  - Involved larger section of the society
- 2. Policy level participation in network meetings**
  - Published work recently in BAMS
- 3. Regional collaborative projects on science and capacity building**
  - Project sanction on Permafrost, Pine- Oak interaction, etc.
- 4. Increased interaction of the network with relevant government set-ups**
  - Increased visibility
- 5. Increased evidence of use of UIBN products for policies, development projects and research**
  - Specialized enhancement over UIBN from projects

# Future plans for the country chapter

- Student capacity development
- Joint PhD programme on the upper Indus basin issues
  - In JNU, if any one from other country chapters Interested
  - India ICSSR Fellowship
  - Science Co-operation
- International conference on the upper Indus basin: Decision on dates, committee, domain, etc.
- Special issue: Journal or Monograph on UIBN
- Comparative study in Leh-Ladakh and Gilgit-Baltistan
  - WAY FORWARD FOR COHABITAT RESEACRH
  - Transboundary Research

## Future plans for the country chapter

- Integration of/with other Indus Basin Network Knowledge groups
- Joint knowledge co-production
- Consolidation of different ideas.....





Thank you