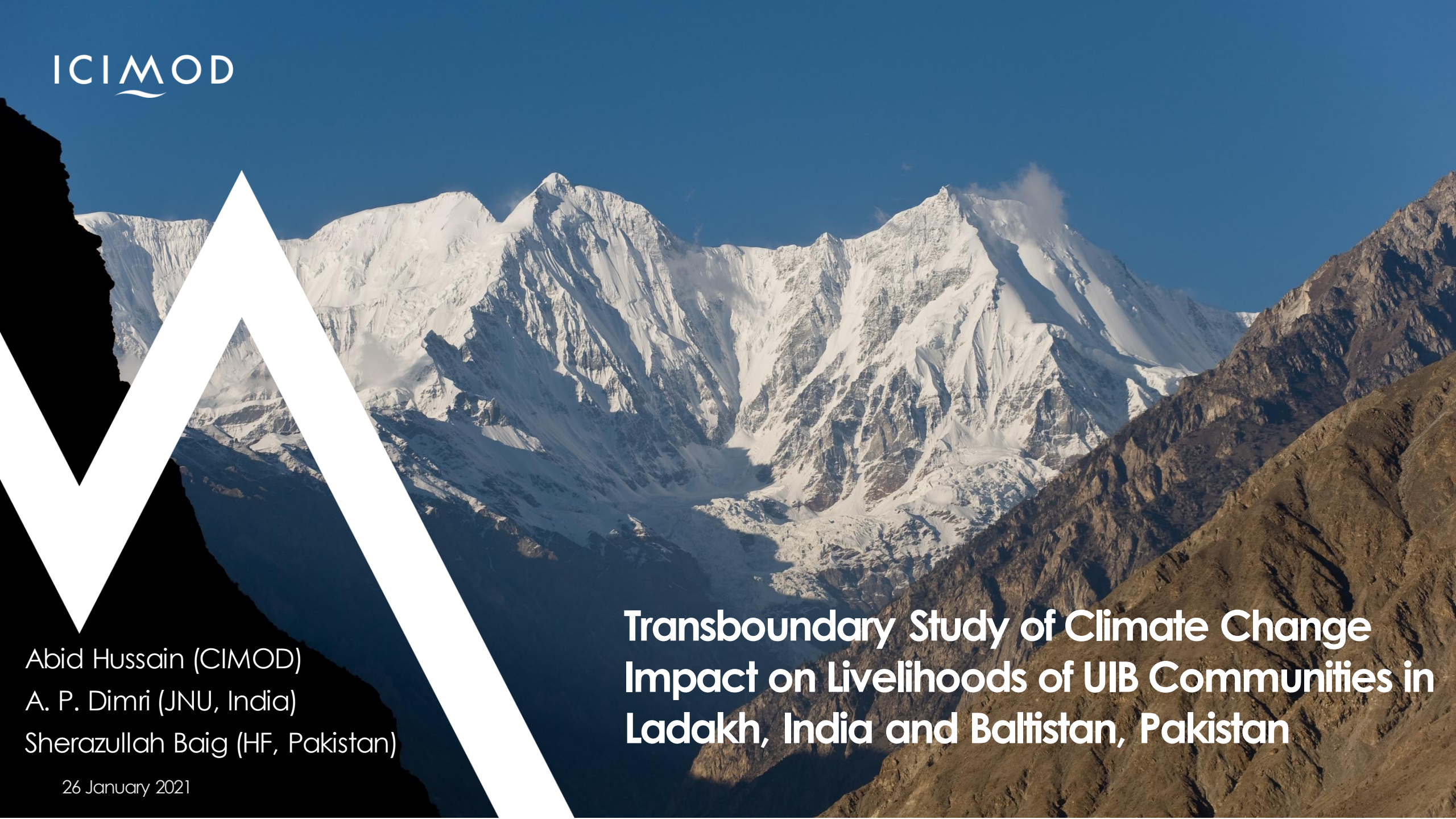

Transboundary Study of Climate Change Impact on Livelihoods of UIB Communities in Ladakh, India and Baltistan, Pakistan

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Background

- One of the goals of Indus Basin Initiative of ICIMOD to enhance resilience of communities and generate evidences to inform policies through:
  - Regional cooperation
  - Engaging stakeholders (scientists, researchers, policy makers and media)
- Climate change is one of major challenges to livelihoods in UIB
- There is need to enhance cooperation to cope with climate change impacts
- UIB technical working groups can play role to conduct joint studies to understand climate change in more comprehensive way
- This is pilot study to start such joint studies and share knowledge

Objectives

General objective: To investigate the challenges to and opportunities for livelihoods of high altitude communities in the face of climate change in Baltistan (Pakistan) and Ladakh (India), and provide opportunities for learning from each other regarding good practices.

Specific Objectives:

- Study main livelihood sources
- Study climate change and related water hazards, and their impacts particularly on water availability, agriculture and livestock.
- Examine non-climatic challenges
- Document good local practices adopted to cope with climate change induced impacts.
- Identify arising opportunities for better adaptation to climate change and improve local livelihoods.

Study sites

- Ladakh, India:
  - Kharu Block (05 small villages in this block): Miru, Gya, Hemis, Shang, Martselang), District Leh
  - Stok, Matho , Shey, Basgo, Choglamsar, District Leh
- Baltistan, Pakistan:
  - Sundus, District Skardu
  - Tissar, District Shigar
  - Hushey, District Ghanche

Preliminary findings from Ladakh

- Mainly villages fall in single cropping zone
- Main income sources: agriculture, small businesses, livestock, tourisms
- Main crops: Barley, pea, potato, vegetables
- Main livestock: Cow, Dzomo/dzo, yak, sheep, goat
- Average landholdings: 1-3 kanal/HH
- Mainly organic practices in agriculture
- Main source of agri. water: Snow melt water
- Heavy dependence on external food items

Contd….

- Perceived increase in temperature & number of dry days
- Decline in average precipitation
- Increase in extreme events/hazards, i.e. floods/GLOFs, droughts, cloudburst
- Cloudburst/floods in 2010 caused a lot damages
- Decline in crop & livestock productivity
- Increase in crop pest attacks
- Increased rangeland/pastures degradation

Key points

- High variation in availability of water in agriculture
- A shift from agriculture based livelihoods to non-agricultural livelihoods.
- Shift from traditional crops & varieties to a few crops, i.e. vegetables
- Incidences of agricultural land abandonment

Preliminary findings from Baltistan

- Villages are in marginal double cropping zone
- Main food crops are wheat, maize, peas & potato
- Traditional crops are not among main crops (only in Tissar they are among main crops)
- Sheep, goat, zumo & dzo, cow
- Agriculture, tourism, small enterprises, livestock and jobs
- Main water source for irrigation is melt-water (glaciers)
- Average landholding is 5-10 Kanal/HH ()
- Agriculture has shifted to inorganic practices

Contd..

- Local people perceived increase in temperature & number of dry days/annum (ref. period 15 years ago)
- Change in solid precipitations and water availability for crops and livestock (+/-)
- Drying fresh water sources, i.e. springs
- Change (+/-) in crop productivity over time
- Increased occurrence of floods
- Increased degradation of rangelands & decreased livestock heads
- Incidences of crop pests and livestock diseases.

Key points

- Decrease in number of livestock and shift towards non-farm income generation activities like tourism, tourism products and services (Hushey)
- Shift to new improved wheat variety (6 month crop cycle) & reverting back to traditional variety (5 month crop cycle) (Hushey)
- No water management or storage measure
- Change in sowing time (Sundus): In winter now
- Glacier fed traditional irrigation systems (*kuhls*)
- GLOF risks in Tissar. 1984 event wiped away almost all agri. land

Key points

- Villages (Sundus) near towns have shifted from traditional cropping practices to commercial farming like raising fruit orchards of high value, cultivation of vegetables, dairy and poultry farming
- Crop rotation helps in increased productivity, while due to shift to commercial farming, crop diversity has decreased
- Land erosion due to fast melting of glaciers and flooding is perceived as a serious threat for livelihoods
- Excessive silting has been observed due to erosion which has also reduced crop productivity during the recent years
- Communities receiving economic benefits from tourism and those living near towns rely less on natural resources

Hussey valley

Tissar village

Future steps

- Comprehensive and gendered analysis of collected data
- Sharing of results and report with both country chapters – India and Pakistan, and global readers through journal article
- Sharing report to other country chapters – Afghanistan and China as a guiding document to plan studies in their countries.
- Sharing key findings with key stakeholders, policy makers, researchers and media in India and Pakistan.
- Select most prominent practices/solutions to cope with climate change from the list of identified good practices in this study, and pilot in appropriate locations.

Thank you

Protect the pulse.