

Third regional Upper Indus Basin Network annual meeting

22 February 2022

SECTION 1

Key messages

- Collaboration is key to addressing climate change, and the Upper Indus Basin Network (UIBN) serves as an exemplary neutral platform for transboundary cooperation to address the impacts of climate change in the basin.
- The consultation process on water resource management and disaster preparedness must be inclusive and involve marginalised communities. The most marginalised groups, including women and girls, are heavily impacted by disasters and climate change.
- Promote collaboration through joint research among countries on nonpolitical issues in the region.
- Explore more capacity-building activities and scholarship opportunities to encourage younger scientists to work in the Himalayan region.
- Include policy messages in research papers to support decision makers and link science and decision making.
- Foster science and knowledge sharing within and across the basin countries, focusing on what changes in sources mean for downstream communities.

SECTION 2

Opening session

Welcome remarks

– **Pema Gyamtsho**, Director General, ICIMOD

UIBN, as a neutral and voluntary network, serves as a platform for scientists and policy makers who play a crucial role in generating evidence and resolving issues. Rivers and disasters do not see boundaries, which is why solutions from science and technology should go beyond national boundaries.

Water is a common resource for the countries sharing the basin and facing similar challenges. Cooperation among these riparian countries is essential to address common issues. The size of the country should not be a factor in collaboration, as the role played by each country is crucial to maintaining growth and balance.

ICIMOD will continue to support the UIBN and implement recommendations coming from this meeting.

Remarks

– **Naim Eqrar**, Chair, UIBN

The technical working groups (TWGs) in country chapters have made good progress in scientific research over the past year. Exchanging those research findings among the UIBN members will contribute to strengthening regional cooperation and improving opportunities for further research.

Overview of the last regional UIBN annual meeting decisions

– **Arun Bhakta Shrestha**, Regional Programme Manager, River basins and Cryosphere, ICIMOD

In 2021, Naim Eqrar from Afghanistan took over as chair of the UIBN from Khalid Mamod, Pakistan.

Members agreed that establishing a theory of change (ToC) will strengthen the network and establish a common understanding of the network's long-term goal. Country-level ToCs will be developed respectively by the chapters.

The Pakistan chapter has developed its ToC and formed the Gender Resource Group (GRG), which supports gender integration into the UIBN network. The Pakistan chapter shared its experience of forming the GRG. Other chapters have indicated that they too will explore creating a similar gender group for their country. This process, however, has been delayed by the COVID-19 pandemic. Country chapters are expected to reinstate the process in the coming months.

A joint project proposal by the four country chapters was proposed to strengthen collaboration. Considering the region's geopolitical sensitivity, members agreed to start with bilateral research addressing common issues, which could pave way for broader research collaboration with all countries. Similarly, the country chapters agreed on the need to identify the potential for bilateral capacity building within the member countries and a standardised methodology for data generation as available datasets are incompatible.

The meeting identified the following priority areas for research in the Upper Indus Basin (UIB):

- Natural resource management
- Mountain hazards and risk
- Air pollution and its impacts
- Water supply and demand under climate change
- Glacier dynamics

- Social capital
- Indigenous knowledge for climate change adaptation

Objectives of the 2022 regional UIBN annual meeting:

- Strengthen regional cooperation for sustainable management of the UIB
- Share new and relevant research related to the UIB
- Share experiences and progress in the country chapters

Remarks

– **HE Felicity Volk**, Australian Ambassador to Nepal

Regional cooperation and knowledge sharing are the cornerstones of addressing climate change challenges and river basin management. The UIBN connects policy, science, and knowledge to preserve the environment and support communities dependent on these environmental services. Australia is keen to be a close supporter of the UIB through the Commonwealth Scientific and Industrial Research Organisation.

Solutions for climate change impacts must be generated by communities and technical experts regardless of where boundaries are drawn on a map. Evidence-based, cooperative, and consultative engagement in water resource management and water-induced hazards is crucial to ensure that the region's water needs are met sustainably and, in a way, communities can navigate those contemporary challenges of too little water on the one hand and too much on the other.

Consultation on water resource management and disaster preparedness must be inclusive and engage marginalised communities. The most marginalised groups, including women and girls, are heavily impacted by disasters and climate change.

Women and girls in remote areas are losing access to education and livelihoods as they travel further each day to access scarce water resources. Women's voices need to be heard in the conversations of the UIBN. Moreover, agriculture practices and patterns are affected by climate change, thereby threatening food security.

Country chapters' experiences, progress, and plans

Session chair: **Naim Eqrar**, UIBN chair

UIBN Afghanistan chapter

– **Naim Eqrar**, Country Chapter Coordinator

Completed activities

Afghanistan's political development and regime change derailed work for about six months. The chapter members are regularly meeting and have published two research papers highlighting the impacts of rapid glacier melt and groundwater depletion in Afghanistan.

There is growing concern about groundwater contamination with increasing nitrate content in Kabul. Overextraction for household and industrial usage along with poor waste management and sewage systems are contributing to degrading water quality. The paper on groundwater conservation and contamination finds indirect relationships between precipitation and increased nitrate content in groundwater.

Ongoing activities

Afghanistan's water law for surface and groundwater, which was passed in 2009, needs to be revised. The Afghanistan chapter is exploring support from the UIBN in modifying the water law structure.

Plan

- Conduct research in areas identified by the government
- Reach out to other country chapters, particularly China and India, for capacity building in water resource management
- The Afghanistan chapter looks to other countries for support as about 60% of researchers have left the country
- The chapter has committed to organising regular meetings and publishing ongoing research

UIBN China chapter

– **Shiyin Liu**, Institute of International Rivers and Eco-security, Yunnan University, China

Completed activities

The chapter explored funding agencies in China and found six projects related to the UIBN. These include support for two projects under the National Natural Science Foundation of China (NSFC) and the Pakistan Science Foundation and one project for the NSFC and ICIMOD. Four projects under these fundings have been completed.

The chapter published 24 papers related to the UIBN: four papers on climate trends and variability, eight on cryosphere components, two on the impact of climate and cryosphere dynamics on water availability, four on future water demand, and six on natural hazards.

Ongoing activities

- Collaborative research related to the UIBN by the Alliance of International Science Organisations – Chinese Academy of Science (CAS): Multimodal integrated subseasonal to seasonal prediction and application in disaster risk reduction
- Collaborative research on feasible technologies and strategies for safe drinking
- Improving drinking water quality in Southeast and South Asian Belt and Road countries
- Alliance of International Science Organizations atmosphere observation network server for the Belt and Road Initiative
- Research on the rapid acquisition of remote-sensing images and their application in commercial aerospace
- Research collaboration on Thailand's new synchrotron light source facility (SPS-II)
- Scholarships for 200 MSc and 300 PhD students to study in CAS institutes

Plan

- Explore and align UIBN-related projects with projects funded by the NSFC and the Ministry of Science and Technology
- The next chapter meeting is planned for August 2022. The chapter will seek ICIMOD support for organising the meeting.

UIBN India chapter

– **A.P. Dimri**, Country Chapter Coordinator

Completed activities

- The India chapter conducted fieldwork for permafrost research in September 2021. Findings were presented at ICIMOD's permafrost conference.
- Contributed to preparing 100 knowledge questions regarding climate change and impacts in the UIB for a soon-to-be-published journal paper.

Ongoing activities

- Research project on impact of climate change on terrestrial water storage in the basin
- Research project on total water availability budget in the UIB, the Ganges, and Brahmaputra basin in the Indian context
- Research project on changing characteristics of precipitation, unseasonal snowfall, elevation-dependent warming, and their impact on water storage, including replenishing groundwater aquifers. These are impacts of climate change on water storage with direct implications for society and habitats in the UIB.
- Commenced permafrost field data collection for the past four years in the UIB; data collected will help improve understanding of the state of permafrost and its implications for water storage and localised contributions to the rise in global temperature
- Supporting two students completing PhDs from Kashmir University and the National Institute of Hydrology

Plan

- Prioritise translating scientific findings to address social needs
- Revamp membership structure and assess how the changes in members due to the pandemic will affect the objectives. A tentative list will be shared with ICIMOD.
- Complete ongoing research under the national mission project on soil moisture and water chemistry and share a documentary prepared for outreach by the chapter on permafrost fieldwork
- In-person capacity-building events

UIBN Pakistan chapter

– **Muhammad Ashraf**, Country Chapter Coordinator

Completed activities

TWG 1

- Disseminated freely available hydromet, hydrogeological, and demographic data

TWG 2

- Simulated snow and glacier melt in the Chitral River Basin under several climate change scenarios to better understand peak discharge and improve flood management
- Demonstrated use of open-source tools to analyse and visualise climate change projections at different timescale

TWG 3

- An assessment for Shisper Glacier surge, hazard risks, and access to data has been completed. The evaluation outcomes provided an early alert for recent flooding and contributed to saving lives and livestock.

TWGs 3 & 5

- Analysis of glacial lake outburst flood event in Golain Valley for 2019–2021 and contributed to improving early warning systems
- Improved understanding of potential socioeconomic impacts of climate change and associated hazards in four valleys through a joint assessment
- Mapped glaciers and glacial lakes and conducted vulnerability assessment in 13 valleys of Gilgit-Baltistan, supporting the development of disaster risk reduction strategy and public awareness

TWG 4

- Developed integrated water resource management guidelines for provincial and federal governments

TWG 5

- Determined hydromorphology of the tributaries and active flood plains of the Indus River, a contribution to improving early warning systems and flood management systems

TWG 6

- Completed the impact assessment for interventions related to livelihoods promotion in Gurujur and Minapin
- Promoted high-value agriculture practices and food security for marginalised communities by the Aga Khan Rural Support Programme, Hashoo Foundation, and WWF-Pakistan

Ongoing activities

- Increased country ownership of the network: Most leads and coleads of TWGs are civil servants. The country chapter is hosted by the Pakistan Meteorological Department, Pakistan Council of Research in Water Resources, Pakistan Agricultural Research Council, Karakoram International University, and TAF Foundation.
- Policy-level participation: high-level policy and decision makers participated in the annual general meetings
- Regional collaborative projects on science and capacity building
- The first bilateral study by Pakistan and India on climate change impact on the livelihoods of UIB communities in Ladakh and Baltistan

Three bilateral projects between Pakistan and China:

- Interaction of westerly and summer monsoon in UIB and impact on water resources
- Projection and attribution of streamflow composition in mountain rivers in the two countries
- Impact of climate change on glacier melt in Hunza Valley by COMSATS Pakistan and the University of Yunnan, China

Increased interaction of the network with relevant government setup:

- Most members of TWGs work in different government agencies and interact regularly
- Joint studies on Shisper Glacier, Khurdopin Glacier, and glacial lake outburst flood assessment by relevant government and nongovernment agencies: Pakistan Meteorological Department, Gilgit-Baltistan Disaster Management Authority, Aga Khan Agency for Habitat, Aga Khan Rural Support Programme
- Increased evidence of using UIBN data for policy, development projects, and research

Plan

- Contribute to the immediate outcomes of the UIBN
- Nomination of lead and co-leads is ongoing
- Develop realistic working plans incorporated in the country chapter's ToC
- Improve sustainability of the country chapter
- Align TWGs' actions with government policies
- Develop country-specific proposals based on joint proposals developed by ICIMOD for funding opportunities
- Next country chapter meeting: May/June/November 2022

Gender Resource Group

– **Sadaf Dar**, Rural Support Programmes Network, Pakistan

Background

Addressing gender inequalities and improving women's empowerment are central to improving water, food, and energy security. Policies in these sectors neglect to recognise women as an important part of the decision-making and problem-solving process.

The GRG creates knowledge through research; ensures the visibility of women through advocacy and influencing policy; collaborates with partners; and links with stakeholders at local, national, and regional levels. In parallel, the group builds capacity and raises awareness of gender issues among communities.

The GRG has identified water, energy, and food insecurity and land ownership as core issues for women in Pakistan. Access to land is critical and interrelated with the other three areas.

Progress

- Better representation of women from grassroots organisations, government line agencies, and nongovernment organisations
- Organised a meeting to understand the impact of COVID-19 on women, identify actions taken by various members, and determine gaps and efforts to address those gaps
- Collaboration with ICIMOD's Gender Unit to gather ideas on empowering women and contributed to ICIMOD's CUTS International

survey, where the GRG was able to connect experts with women in the communities. Women respondents from Pakistan were comparatively higher than in other countries.

Ongoing activities

- Participation in the annual rural leader conference in Pakistan attended by women farmers, entrepreneurs, and working women. Participants shared issues related to access to water and food.
- Increasing participation of rural women in climate change conferences such as COP26, amplifying social messages
- Developing beneficiary safeguarding policy as required by some UN agencies
- Training on women's leadership in rural communities with a special focus on Balochistan; this has contributed to forming women's community organisations in nine districts
- The GRG played a crucial role in policy advocacy on water and women, with inputs on several bills:
 - Transgender bill and policy committee
 - Homebased workers bill steering committee
 - Early marriage bill committee
 - Malpractices in aesthetic procedure committee
 - Women property issues committee
 - Committee on legislative scrutiny of workplace harassment against women act
 - Khyber Pakhtunkhwa domestic violence against women act 2021

Plan

- Annual capacity-building event for members and engaging them in the six TWGs of UIBN
- Devise a five-year strategic plan
- Improve social media presence
- Raise awareness among community members on the relation between women and water and enhance the capacities of women in water issues and conservation

SECTION 3

UIBN advisers panel discussion

Chaired by: **Pema Gyamtsho**, Director General, ICIMOD

Recommendations from the panel discussion

- Promote collaboration through joint research among countries on nonpolitical issues in the region.
- Explore capacity-building activities and scholarship opportunities to encourage younger scientists to work in the region.
- Work closely with relevant government agencies and make an official recommendation for their support on Indus basin work; improve access to data and research collaboration.
- Research papers should include policy messages to influence decision makers.
- Continue science and knowledge sharing among scientific work within and across countries, focusing on what changes in sources mean for downstream communities.
- Provide a platform for mountain communities to share their experience and solutions.

What are the potential roles that the country chapters could play in an advisory role to their governments? How can this be done in the next two to five years and beyond?

Naim Eqrar, Afghanistan

- Country chapters must take practical steps by joining each other in collaborative research initiatives. The sustainability of the network needs to be ensured.
- Groundwater issues are crucial for Afghanistan and Pakistan and must be considered for future research.
- Capacity enhancement and PhD scholarships should be explored for Afghan young scientists and students.

Liu Shiyin, China

- ICIMOD should provide recommendations to the Ministry of Science and Technology, CAS, and the National Natural Science Foundation of China on UIBN-specific research.
- The CAS's special scholarship for students from the region could be utilised.
- On ICIMOD's request, high-resolution data could be acquired and made accessible by the Government of China.
- Every year, specific topics related to issues of the UIB could be published and recommended to the government for policy making.

Ghulam Jeelani, India

- Encourage early-career researchers and faculty members to work in the Himalayan region and engage them through PhD scholarships, training opportunities, and workshops covering cryosphere, groundwater, permafrost, and hydrology related to mountain issues. ICIMOD could lead this initiative given its positioning and resource availability.
- Collaborative interventions and initiatives are needed between and among the UIB countries for scientific activities. Internship opportunities at ICIMOD for early-career researchers and creating a network of early-career researchers from member countries could contribute to improving regional cooperation.
- A faculty exchange programme could be arranged to share expertise and experiences across borders.

Nisar Memon, Pakistan

- Private sector engagement could be improved through the TWGs. Public-private sector engagement is working well in Pakistan and could be replicated in other country chapters.
- Research papers should contain policy messages to ensure their use for policy inputs. The UIBN Secretariat could guide country chapters to include such policy messages in their country chapter progress.
- Regional studies are needed on relevant transboundary issues like air pollution, groundwater, and natural disasters to define common challenges and responses.
- Capacity building should be taken up between two countries where it is viable logistically at bilateral, regional, and international levels.

- The country chapter coordinators and advisers should take up opportunities to share their work with relevant government representatives on the ICIMOD Board of Governors.
- Cooperation should focus not only on sharing water resources but also on the benefits of water. The country chapters need support from the network to establish collaborative interventions with at least one or more countries.

David Molden

- Regional cooperation is critical to increase knowledge base and benefit society. The UIBN brings together and nurtures science-based friendships for a geopolitically sensitive region.
- The country chapters should focus on regional/ bilateral/cross-country initiatives and individual country interventions.
- Local communities are on the frontline of climate change impacts and capturing local experience and sharing relevant experiences is vital.
- Scientists must reach out to policymakers with their scientific findings for application in decision making.
- ICIMOD can help organise a regional gathering to discuss regional issues, solutions, and ideas.

Arun Bhakta Shrestha, ICIMOD

- Science in silos cannot give a broader picture of the riparian country's regional issues, needs in collaboration, and science-based discussions. A conducive environment for science-based collaboration can address the silo deficit.
- Member countries need to recognise the incentives for cooperation by identifying commonalities and shared interests
- The UIBN can identify common knowledge creation areas where countries could come together to collaborate.

Scientific presentations

Session chair: **Neera Pradhan Shrestha**,
Programme Coordinator, Koshi River Initiative,
ICIMOD

- Researchers presented UIB-related research findings on climate change, glacial behaviour, extreme precipitation, potential sustainable hydropower development, identified sites for management of aquifer recharge, mountain social hydrological system, and linkages between future water use activities in the upstream and downstream in the UIB.
- Glaciers are retreating with spatial variability and climatic warming may be increasingly important in determining glacier changes in the Upper Indus Basin and Karakoram. The UIB is experiencing drier and wetter days, which could lead to more drought and flood events. Similarly, extreme events are increasing particularly during the summer monsoon.
- Water consumption and geohazard risks are significant constraints for hydropower development.
- Local communities may suffer severe impacts from even minor glacier changes.
- Socioeconomic development increases water stress in the upper Indus subbasin and may cause water scarcity during dry seasons. Water use activities in the upper Indus are becoming relevant for downstream communities.

Closing session

Key outcomes and action points of the meeting –
Arun Bhakta Shrestha, ICIMOD

- The UIBN will ensure that all its collaborative discussions and activities are carried out through a gender equality and social inclusion lens and reflect the voices and situations of women and children in remote areas.
- The Afghanistan chapter has pivoted to focus their research as per the needs identified by the government and explore capacity-building opportunities and bilateral research collaboration.
- The China chapter will explore funding agencies in China and recommend that ICIMOD provide specific inputs for UIBN-related issues
- The India chapter will focus on field-based permafrost research and terrestrial water storage and how it will be impacted by climate change in the UIB. The chapter will explore negotiating science and policy dialogue and the benefits of scientific research on social needs.
- The Pakistan chapter will incorporate its working plans within the ToC and align the activities of its TWGs with government policies for chapter sustainability.
- The GRG in Pakistan will focus on capacity building and actively engage participants in TWGs of UIBN.

Additional event information and materials (including presentations) are available at:

<https://www.icimod.org/event/regional-annual-meeting-and-strategic-committee-meeting-of-the-upper-indus-basin-network/>

Proceedings compiled by: Chimi Seldon

Rapporteurs: Ajaz Ali, Muhammad Mudassar Maqsood, Chimi Seldon

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International Centre for Integrated Mountain Development
GPO Box 3226, Kathmandu, Nepal
T +977 1 5275222 | E info@icimod.org | www.icimod.org