Upper Indus Basin Network

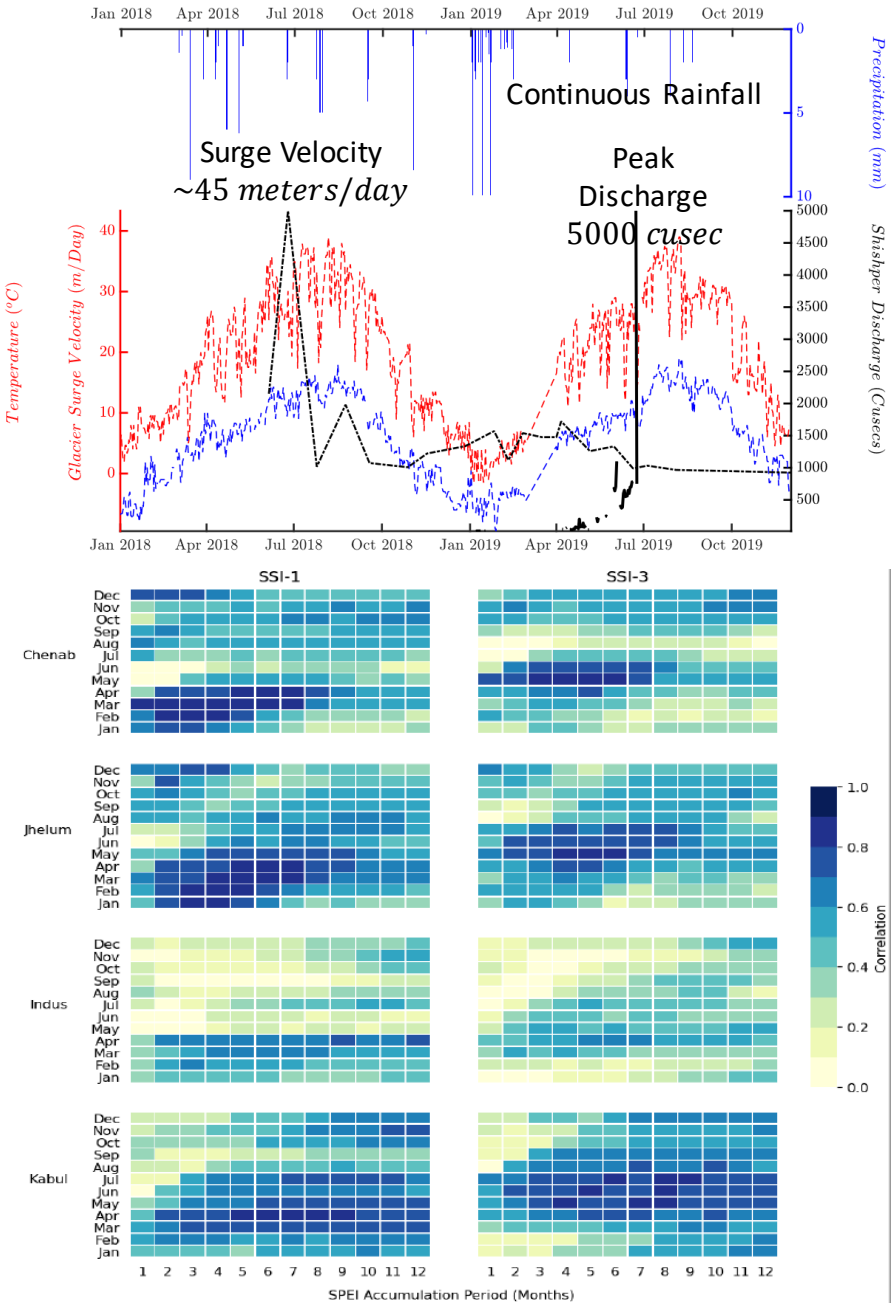
Country progress report

Pakistan Country Chapter

ICIMOD

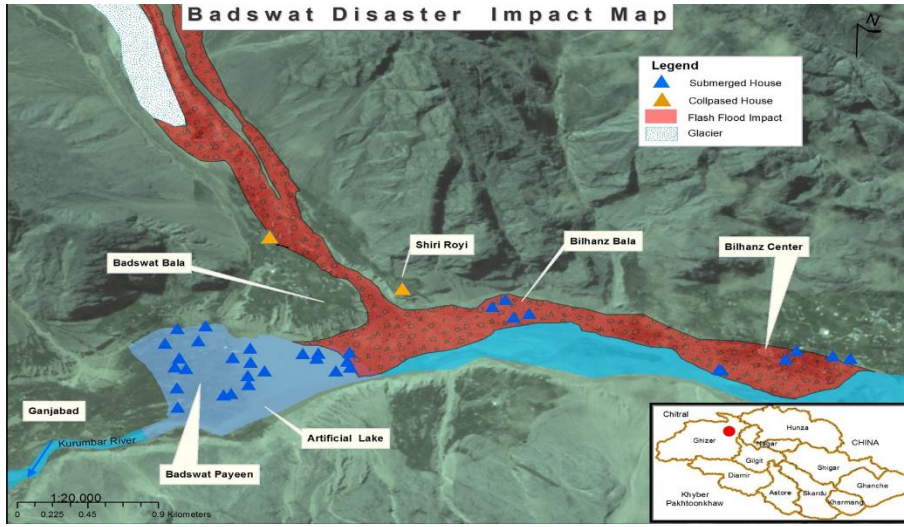
Progress of the 6 Technical working groups (TWGs)

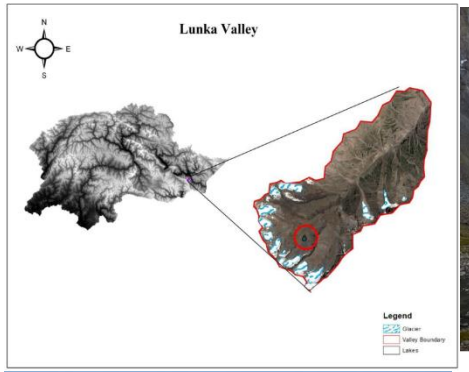
TWG	R.Q	Study	Result	Impact
1, 3 & 5	1 & 9	Hydro-meteorological analysis of Shishper Glacier GLOF activities	Identified different parameters of GLOF activity like surge velocity, volume, area, discharge	• Activate the line departments for joint studies, DRR & rehab • Continuous monitoring
2 & 3	2	Simulating the Urban Heat Island Augmented with a Heat Wave Episode Using ICTP RegCM4.7 in Mega-Urban Structure of Karachi	RegCM4.7 climate model successfully tested for 2015 heat wave in Karachi and found effective.	Enhanced Heat Waves resilience in the region as a much needed climate adaptation measure
2	1, 4 & 5	Drought monitoring and prediction in climate vulnerable Pakistan: Integrating hydrologic and meteorologic perspectives (2020-21)	Applicability of Hydrologic and meteorological indicators for early operational drought monitoring within Kabul, Chenab and Jhelum basins assessed	Enhanced drought resilience in the region as a much needed climate adaptation measure

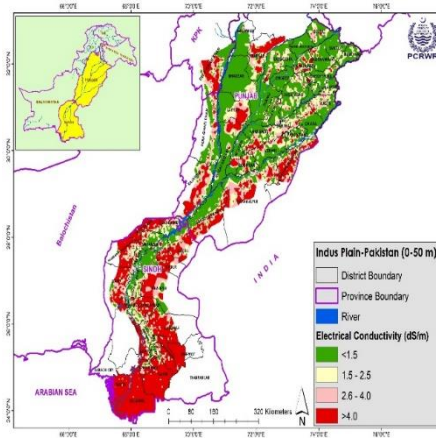


Progress of the 6 Technical working groups (TWGs)

TWG	R.Q	Study/Activity	Result	Impact
3	9 & 10	Impact assessment of Badswat Glacier lake Immit, North Pakistan	Temporal analysis of changes in Karamber Glacier, survey based data studies	Improved understanding of glacier changes, lake formation, GLOF activity and vulnerability of local communities
3 & 5	3, 4, 9 & 10	Impact assessment of glacial lakes on downstream community and EWS suitability by PMD, GLOF-II team, PDMA (KP&GB), P&D of GB and KP, GB water management dept.	Impacts of glaciers/ surrounding land cover on glacial/ Paraglacial lake formation, the vulnerability of communities again glacial/ Paraglacial lake outburst.	Improved understanding of triggering mechanism of GLOF Hazards and vulnerability assessment of local communities
4	7	Indus Telemetry by IWMI & PCRWR	**Phase-1:** Automatic flow measurements of 10 canal of 4 provinces **Phase-2:** Automatic flow measurement of 14 canals of KP	Increased trust among federating units regarding flow measurement
4	7	Groundwater investigations of Indus plain	Complete mapping of Indus plain with quality and quantity.	Basis for formulating groundwater regulations

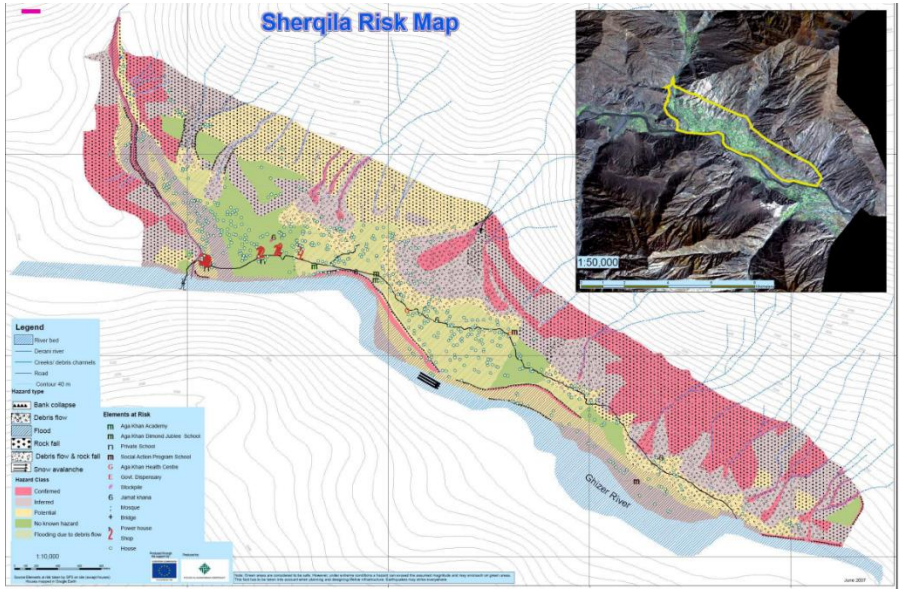






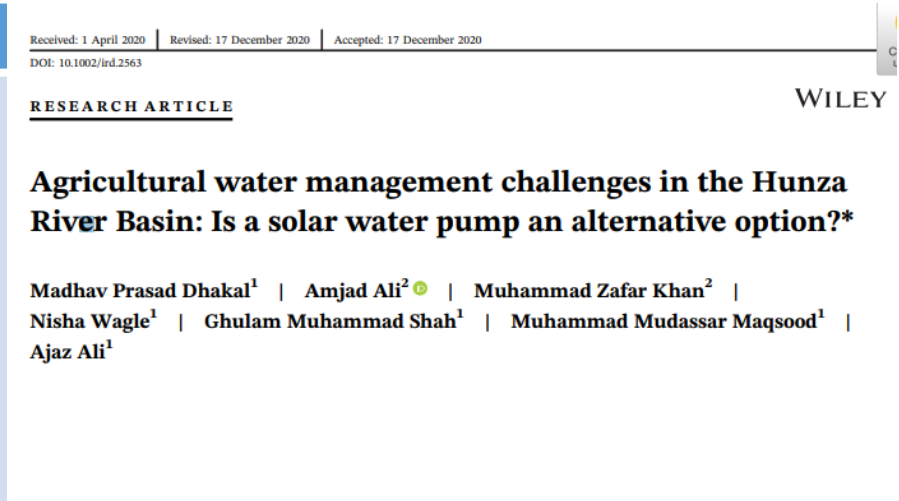
Progress of the 6 Technical working groups (TWGs)

TWG	R.Q	Study/Activity	Result	Impact
5	9	Multi Hazard Vulnerability Risk Assessment Mapping, Gilgit Baltistan	MHVRA of all 10 districts to be carried out by NDMA, GBDMA and NDRMF	Improved understanding of hazard types in GB that will be helpful in devising comprehensive Disaster Risk Management plan
5	8	Extension of Community based Early Warning Systems (CBFEWS) Network by GBDMA, WWF, AKAH with support from ICIMOD	• Two CBFEWS installed in Shighar and Ghanche for flash flood by GBDMA & WWF • One landslide EWS in Mayoon by AKAH	Enhanced resilience of vulnerable communities Local manufacturing of CBFEWS and outscaling by local organization started
6	8	Piloting and scaling of improved climate smart agricultural & irrigation practices in GB by WWF with ICIMOD & UNDP support	271 ha land brought under agriculture by installing 31 hydro ramp pumps installed in 13 Villages and 32 solar water pumps installed in 17 Villages	• Livelihood of households of 30 villages increased • Upscaling by the provincial govt through out GB with support of federal govt



Progress of the 6 Technical working groups (TWGs)

TWG	R.Q	Study/Activity	Result	Impact
6	9	Assessment studies related to disasters impacts, risk associated with tourism and hospitality	• Risk assessment in tourism and hospitality sector in Hunza • Socio economic impact of Shishper glacier surge in Hasanabad Hunza. • Pre assessment of feasibility for PGS.	• Improved under standing of local socio-economics, vulnerability of local communities to diasters. • Certification mechanism for promotion of organic products introduced
6	8	Assessment studies of potential of glacier fed irrigation (by PARC), new technologies for river water lifting in Hunza (WWF, KIU & ICIMOD)	• Potential of cryosphere fed irrigation for culture able waste in Hunza assessed. • Economic and performance evaluation of climate smart water lifting and irrigation technologies assessed	Improved under standing of potential of conventional and improved irrigation methods for Hunza



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RESEARCH ARTICLE

WILEY

Agricultural water management challenges in the Hunza River Basin: Is a solar water pump an alternative option?*

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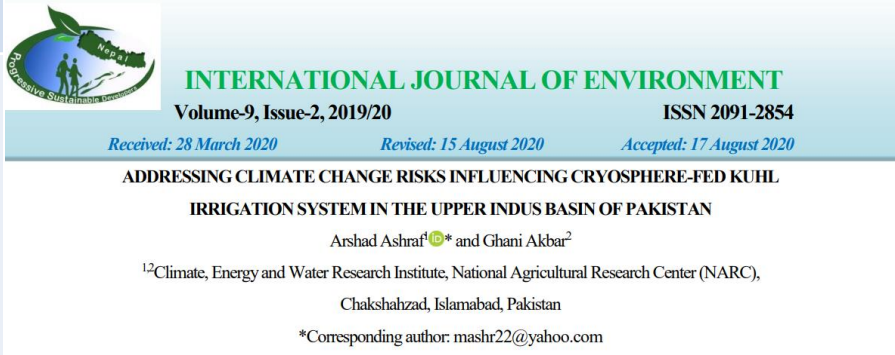

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ADDRESSING CLIMATE CHANGE RISKS INFLUENCING CRYOSPHERE-FED KUHL IRRIGATION SYSTEM IN THE UPPER INDUS BASIN OF PAKISTAN

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Progress based on intermediate outcomes of UIBN

Progress parameter	Evidence
Increased country ownership	The leads and co-leads of TWGs are mostly from government institutions. More institutions are joining the network like Ministry of Foreign Affairs, Federal Water Management Cell, Federal Flood Commission, UET Lahore, Punjab University etc
Policy level participation in meetings	Higher level policy and decision makers participated in annual meeting of Pakistan Chapter in January 2020.
Regional collaborative projects on science and capacity building	1st **bilateral study** between Pakistan and India on; a. Climate Change Impact on Livelihoods of UIB Communities in Ladakh and Baltistan Three **bilateral projects** between Pakistan and China; a. Interaction of westerly and summer monsoon in upper Indus basin and its impact on water resources b. Projection and Attribution of Stream Flow Composition at Mountain Rivers in China and Pakistan (Chitral) c. The impacts of Climate Change on the glacier merits in Hunza Valley, Comsats and University of Yunnan

Progress based on intermediate outcomes of UIBN

Progress parameter	Evidence
Increased interaction of the network with relevant government set-ups	Since, most of the members of TWGs are representatives from different government agencies, thus interaction already exists. However, network has increased joint studies i.e., Shishper and Khurdopin Glacier GLOF assessment etc
Increased evidence of use of UIBN products for policy, development projects and research	Recommendations of First Annual UIBN-PC meetings were shared with FFC (on request) to be incorporated during design of implementation framework of National Water Policy

Key Recommendations

- Pakistan's dependence on water for its agriculture-based economy needs to be balanced with its projected population growth, which is expected to reach 227 million by 2025[3]. Along with improved water storage capacities, sensitization for more efficient water use is needed.
- Regional collaboration is key. Investing in joint research on transboundary collaboration for addressing key developmental issues in the Indus basin is crucial given the delicate geopolitical context of the region.
- Each sub-basin region of the Indus basin has its own dynamics which need to be properly captured through better observation. This will require better coordination between nodal ministries and focal points/government departments that have access to these datasets. More monitoring stations are also needed to capture high quality data on atmospheric processes.
- A number of datasets have been identified that can help answer key research questions on climate change, cryosphere dynamics, and changing vulnerabilities. These key questions were identified in earlier UIBN meetings.
- Cross-integration of gender in all research components is vital. A specialized gender resource group (GRG) was organized during the meeting to identify key gender priority areas that would be added to the network's goals in policy advocacy. During discussions, the Asia Foundation and Seeds of Education, Policy, Legal Awareness & Advocacy (SEPLA) Foundation have both assured support to the GRG. The GRG will possibly be linked to groups working on water and energy issues across the country.
- A theory of change (ToC) was deliberated and developed for the UIBN–PC, aiming to provide future direction to the network. The UIBN's technical working groups will refer to the ToC while developing their future plans. During the meeting, key guiding questions on what needs to be done to achieve strategic results were discussed, and the results have been captured in the proceedings for reference.
- Considering the range of expertise and representation from government organizations, the participants discussed whether the UIBN country chapters can serve as a think-tank for their respective governments to advise on issues related to climate change adaptation, water management, and disaster risk reduction. Discussions also covered the possibilities of integrating the UIBN–PC in the national water policy implementation framework and for the country chapter to act as an advisory forum on issues related to water and disaster management.
- The UIBN–PC suggested exploring avenues for housing the country chapter in the ministry or an institutional partner to encourage stronger ownership from key government stakeholders.Re

Future plans for the country chapter

Particular	Evidence
Future plan to contribute to the intermediate outcomes of UIBN	Each TWG developed its short term, medium term and long term action plans to contribute to UIBN outcomes
How is the country chapter thinking of sustainability?	1. Each TWG aligned its future actions plans with the government policies as government is focusing on implementation of national policies 2. Country specific proposals based on joint proposal developed by ICIMOD for funding opportunities 3. Inclusion of private sector who are main beneficiaries like Nestle, Pepsi etc 4. Wider dissemination of UIBN through media
What are your plans for cross-country collaboration (joint research, capacity building)?	Common issues like pollution/black carbon/smog/comparative study of socio-economic challenges and solutions linked to climate change affects with any member country having similar context
What are proposed country chapter meeting dates for 2021 (dates, venues/virtual)	June and November 2021

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