

PROCEEDINGS

Upper Indus Basin Network – Regional Strategic Committee meeting

Promoting science-based
regional cooperation

26–27 August 2019, Kathmandu, Nepal



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SECTION 1

Background

Indus River Basin

The transboundary Indus River Basin, originating at the lake Ngangla Ring Tsho in the Tibetan plateau and spread across parts of Afghanistan, China, India, and Pakistan, serves about 268 million people as their primary source of water for agriculture, energy production, industrial use, and human consumption.

The basin plays a crucial role in enhancing the livelihood and economy of the region, but now, faced with rapid population growth, it is struggling to cope with the increasing demand for water, energy, and food. The glaciers that nourish the basin's headwaters are shrinking rapidly with some exceptions; there is also a change in the pattern of flow over the short term, with the possibility of reduced flows. Moreover, over-exploitation of groundwater is a common phenomenon in the downstream areas.

The measures to address these challenges are largely impeded by gaps in the understanding of

past and future climate trends, and in fathoming the trends and impacts of hydrological change on the upstream and downstream populations. This calls for the development of greater understanding and awareness that can lead to evidence-based solutions in the basin. All these challenges and solutions transcend national boundaries and so there is a great need for regional cooperation and sharing of knowledge.

Upper Indus Basin Network (UIBN): Fostering science-based regional cooperation

The Upper Indus Basin Network (UIBN) was established in 2014 as a platform to share knowledge in order to address the gaps in climate research, community interventions, and policies. The UIBN, being a knowledge and research hub for national and international institutions and researchers working in the basin, aims to strengthen upstream-downstream linkages, and foster higher coordination and research related to climate, cryosphere, water, hazards and vulnerability, and adaptation.

The governance structure of the UIBN consists of three main components: a Regional Strategic



Committee (RSC); country chapters and country-level strategic committees; and the Regional UIBN Annual Meeting (RUAM). In this structure, a group of advisors – consisting of one from each member country and two from the relevant international organizations – support the RSC technically. With the RSC as the governing body, each member country's UIBN chapter has six Technical Working Groups (TWGs), each focusing on their respective issues of cryosphere, air pollution, surface and groundwater hydrology, hazard management, management of socio-economic impacts, and establishing a framework for data collection and standardization. In addition, the country-level strategic committee reviews the progress made by the country chapter and also provides necessary strategic advice on matters such as national policies, research, and knowledge needs. Moreover, the RSC members, advisors, and the leads of each TWG of the member countries come together for the RUAM to assess the network's overall progress and devise its future strategies with particular focus on areas of regional cooperation.

Regional Strategic Committee (RSC): Guiding UIBN's strategic direction

The UIBN is governed through an 11-member RSC. It is headed by a chairperson who is supported by two members (country coordinator and co-coordinator) and one advisor from each member country, along with one member and one advisor from any relevant international organization, as well as two members from the International Centre for Integrated Mountain Development (ICIMOD). As per the UIBN

governance framework, the RSC meets biannually to discuss the progress of the network, strategize on effective collaboration, and to provide guidance to the country chapters.

The second UIBN-RSC meeting was held at ICIMOD, Kathmandu, on 26–27 August 2019. It was attended by the 11 RSC members from the four riparian countries and other key relevant stakeholders (Annex 1). This meeting was set with an objective of sharing the recent research findings in the region, reviewing the progress and formation of the country chapters, refining the UIBN's strategic direction through the Theory of Change (ToC) model, and deciding on the outline and date for the next RUAM (Annex 2).

David Molden (Director General, ICIMOD), in his welcome remarks, stated that the key driver behind the formation of the UIBN was the recognition of the inadequacy of climate-specific mountain knowledge among the riparian countries. He said that as there was a communal need for bridging the knowledge gaps, and for sharing information and expertise, the UIBN took shape as a research and knowledge platform for scientists, academicians, researchers, and policymakers working in the region. In his remarks, Nisar Memon, speaking on behalf of the RSC Chairperson Khalid Mohtadullah, highlighted the importance of governmental institutions' participation and ownership of the network for its sustainability. The role of the UIBN as a knowledge generation and sharing platform was further emphasized by H.E. Peter Budd, the Australian Ambassador to Nepal, who said that such efforts would lead to a resilient and empowered Upper Indus Basin.



SECTION 2

Upper Indus Basin Network (UIBN)

Fostering science-based regional cooperation

After the opening remarks, the RSC meeting dedicated its first session to the theme of scientific knowledge sharing. In many regions across the world, historical records of the relevant climate variables are often not available (Field 2014). Moreover, in the Hindu Kush Himalayan (HKH) region, surveys are difficult to carry out and there's also a deficit in research data regarding sustainable development and beneficial ecosystem services (Shang et al., 2019). Therefore, with an aim to provide a comprehensive environmental and socio-economic assessment in the HKH region, The Hindu Kush Himalaya Assessment Report was prepared in response to the requests from the governments in the region. Philippus Wester (ICIMOD), sharing the key findings from the report, mentioned, "In a 1.5-degree world, glaciers in the HKH will lose one-third of their volume by 2100." He also talked about how the global rise in temperature would affect the local communities by way of loss of water sources and loss of storage in the form of ice. A similar impact assessment was presented by A.P. Dhimri (Jawaharlal Nehru University, India) in his presentation titled "Climate change study over Indus River Basin at 1.5-, 2- and 4-degree specific warming levels (SWLs) using a regional climate model"; he said that the study results indicated that the rise in temperature could cause decline in rainfall over the southern plains in the Indus River Basin, thereby affecting

agricultural activities in the region. Lide Tian of the Institute of International Rivers and Eco-Security (Yunnan University, China), in his presentation about the recent progress in glacier studies in west Tibet, shared similar findings about the Anglong glaciers losing their thickness, and called for further glacier age dating measurements.

One of the key components of combating climate risks is a good knowledge of past and current climate trends and their likelihood in the future (Field 2014). Zia-ur-Rehman Hashmi (Global Change Impact Studies Centre, Pakistan) made a skype presentation about the river regime scenarios in the near future (2020s) and the far future (2040s); he also touched upon aspects like annual maximum discharge and the projected changes in the periods and magnitude of flood events in the transboundary Kabul River Basin. Tayib Bromand (Ministry of Energy and Water, Afghanistan), in his presentation about water availability assessment under climate change scenarios in the Ghorband sub-basin (Afghanistan), shared results on the sub-basin's water balance and run-off components. Shariar Wahid (Sustainable Development Investment Portfolio, SDIP, Australia) dwelt on the SDIP's work in hydrological data management, crop production trend analysis, and crop production analysis in Pakistan, as well as water reform activities in Afghanistan.

The RSC members felt that such exchanges of research within the region not only help in the careful analysis of the future implications of various climate variables, but also provide necessary guidelines to policymakers for framing climate-friendly policies. They also stated that this exercise helps the RSC to determine the high-priority action areas and make recommendations to equip the region with resilient practices for better preparedness.



SECTION 3

Theory of change

Towards effective planning and evaluation of the UIBN

The RSC members felt the need to have a unified understanding of the future pathways of the network. In this regard, the Secretariat expressed the need for a ToC. Carol Weiss, in his early conceptualization of the TOC in 1995, had described it as “a theory of how and why an initiative works” (Stein 2012). Used as a planning and evaluation model for organizations to promote social change, TOC helps stakeholders to set clear outcomes and devise the required strategies to attain these outcomes taking into account the critical assumptions.

In the previous RSC-UIBN meeting, the participants had identified four key outcomes for sustainable water resource management: improving regional cooperation; strengthening upstream and downstream linkages; finding context-specific and gender-sensitive solutions; and enhancing the capacities of institutions.

In this RSC, the members explored the following questions within the ToC module from the standpoints of the RSC, the country chapters, and the thematic groups:

What are the key outputs required to attain these outcomes? What are the strategies required to achieve these outcomes? Who are the major actors and what are their expected roles?

Each group came up with the following key strategies for achieving the outcomes:

KEY STRATEGIES AT THE REGIONAL LEVEL

- Establishing diverse country teams composed of governmental representatives (from related ministries) and members from the academia, NGOs, and the local communities
- Establishing mechanisms for smoother regional data sharing wherein there's a more effective dissemination of information through the existing Indus Basin portal
- Facilitating frequent dialogues between the upstream and downstream stakeholders

KEY STRATEGIES AT THE COUNTRY LEVEL

- Analysing the capacity gaps and strengthening the identified gaps among institutions and individuals, including farmers, for addressing water issues
- Documenting and replicating traditional knowledge and practices through community-driven and community-managed networks
- Fostering higher coordination among the country chapters and establishing MoUs among various institutions within each country for an expanded scope of the work areas



KEY STRATEGIES AT THE THEMATIC LEVEL

- Conducting joint research projects with co-developed methodologies and approaches
- Establishing data and knowledge sharing channels within the region
- Ensuring high-quality scientific products
- Conducting more professional workshops and seminars for enhanced professional networking and interaction

The committee also identified the key outputs required for these strategies.



The ToC model not only allows for effective planning of strategies and outputs, but also includes identification of specific actors and their respective roles in carrying out these strategies. In addition, the strategies are grouped based on a time span of 10 years. Also, the groups identified the role of government ministries, academic and research institutions, environmental agencies, and the private sector in achieving the above-mentioned outputs. (The draft ToC is given in Annex 3.)

The workshop concluded with the following takeaways and recommendations:

- The committee members appreciated the workshop outcomes and agreed to take them forward.
- It was recommended that the results of the workshop should be discussed with each of the country chapters. The members also suggested that the ToC at the country level should be developed in alignment with the strategies and outcomes at the regional level.
- After inputs from all the country chapters, the ToC and impact pathway document should be finalized and endorsed in the next meeting of the RSC.



SECTION 4

The way forward

Key factors in securing better regional cooperation

The RSC members discussed some immediate actions to contribute to better cooperation in the UIBN; they lay emphasis on joint research activities, training and professional support, and stronger communication.

Collaborative and multidisciplinary research focused on thematic topics	Support to young scientists and young career professionals
Development of climate profile of the IB region using standard methods	Documentation and joint knowledge products
Strong communication between TWGs	Clear timeline and strategy for working group activities

(A more detailed discussion on the way forward is presented in Annex 4.)

Recognizing that the sharing of skills and knowledge is a key component of better regional cooperation, the members brainstormed on areas where they would be able to provide technical/academic support to other riparian countries and also on areas where they would like to seek support.

COUNTRY	SEEKING FOR	ABLE TO PROVIDE
Afghanistan	Science-based trainings/university scholarships	Government and institutional partnerships
China	Government partnerships	Training for young scientists
India	Government partnerships/ short-term University courses	<ul style="list-style-type: none"> - Climate data of the Afghanistan basin - Expertise in using technical tools - Research and lab fellowships
Pakistan	<ul style="list-style-type: none"> - Human and technical capacity in the areas of high-altitude hydrology and cryosphere-related science - Government partnerships 	<ul style="list-style-type: none"> - Joint research opportunities - Cryosphere monitoring and research training - Hosting university, research students

Joint research: Impact of climate change on water resources

With science-based collaboration as a key principal, the committee entrusted Ghulam Rasul, Programme Manager, ICIMOD, to develop a concept note for a joint research project on the impacts of climate change on water resources. Shahriar Wahid from the Commonwealth Scientific and Industrial Research Organization (CSIRO) offered to support the joint research concept note in terms of the framing and standardization of methodology. The concept note is to be presented at the RUAM in early 2020 for approval and further development of the proposal.

Country chapters' formation and progress

With the establishment of the first country chapter in Afghanistan in April 2018 and the most recent China chapter in July 2019, the process of formation of country chapters in the basin has been completed. Daming He (Yunnan University) mentioned in his presentation that the China chapter has plans to organize academic conferences and TWG meetings; draft annual reports; and make provisions for research scholarships. The TWG meetings in Afghanistan, India, and Pakistan have helped in reviewing progress and achieving better coordination among the various TWGs. As highlighted by Daoud Qazizada (Ministry of Energy and Water, Afghanistan), the UIBN country chapters have led to improved interdepartmental and inter-ministerial coordination within the countries and helped different institutions find areas of mutual interest. The basin countries expressed their commitment towards consistently holding TWG meetings and striving towards resolving the 10 crucial questions – set by the network in its preliminary phases – revolving around climatic change and cryosphere, ecosystems, water demand, and natural hazard hotspots.

Other Outcomes of the workshop

An “UIBN Book” is to be prepared by ICIMOD in order to consolidate the network’s vision, mission, and the key progress it has made thus far. An outline of book is to be presented at the RUAM in January 2020.

The advisors’ terms of reference are to be revised by ICIMOD by clearly defining the responsibilities as discussed at the RSC meeting.

The RUAM will be held in the second half of January 2020. The Ministry of Energy and Water, Government of Afghanistan, has agreed to host this RUAM in Kabul. Yunnan University, China, has agreed to be the first alternative host, while ICIMOD, Kathmandu, will be the second.

As per the UIBN governance framework, the network chair is to be transferred to Afghanistan at the RUAM.

An event brief is to be issued about the RSC-UIBN to inform the stakeholders about the network and its functioning and to invite relevant governments for their engagement.



SECTION 5

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Annexes

Annex 1: List of participants

S. No	Name	Country/Affiliation
1	Mohammad Tayib Bromand	Afghanistan
2	Mohammad Daoud Qazizada	Afghanistan
3	Mirwais Sohrabi	Afghanistan
4	Tian Lide	China
5	H E Daming	China
6	Ashok P Dimri	India
7	Farhet A Shaheen	India
8	Meeta Mehra	India
9	Nisar Memon	Pakistan
10	Abdul Wahid Jasra	Pakistan
11	Hina Lotia	Pakistan
12	Zia-ur-Rehman Hashmi (through Skype)	Pakistan
13	Shahriar Wahid	Australia
14	H E Peter Budd	Australia
15	Emma Stone	Australia
16	Matthias Winiger	Germany
17	Ajaz Ali	ICIMOD
18	Arun Bhakta Shrestha	ICIMOD
19	Ashmita Shakya	ICIMOD
20	Binu Maharjan	ICIMOD
21	David Molden	ICIMOD
22	Debabrat Sukla	ICIMOD
23	Farid Ahmad	ICIMOD
24	Kabi Raj Khatiwada	ICIMOD
25	Madhav Dhakal	ICIMOD
26	Milli Shrestha	ICIMOD
27	Philippus Wester	ICIMOD
28	Pradeep Dangol	ICIMOD
29	Sanita Dhaubanjari	ICIMOD
30	Saurav Pradhananga	ICIMOD
31	Sharmila Dhungana	ICIMOD
Members unable to attend		
32	Farhad Noorzai	Afghanistan
33	Mohammad Hassan Faizee	Afghanistan
34	Fazulhaq Bakhtari	Afghanistan
35	Mohammad Rafi Qazizada	Afghanistan
36	Anil Kulkarni	India
37	Khalid Mohtadullah	Pakistan
38	Muhammad Riaz	Pakistan
39	Neera Shrestha Pradhan	ICIMOD
40	Marian Neal	Australia

Annex 2: Concept note and agenda

Regional Strategic Committee Meeting Upper Indus Basin Network

26–27 August 2019 | Kathmandu

BACKGROUND

The Upper Indus Basin Network (UIBN) is a knowledge and research network of national and international institutions and researchers working on the basin. It is a voluntary and informal network that aims to foster coordination in research related to climate, cryosphere, water, hazards and vulnerability, and adaptation. The Indus River basin is shared by Afghanistan, China, India, and Pakistan. The impacts of climate change on water resources are a matter of equal concern for all the basin countries.

A neutral, science-based regional platform like the UIBN can play an important role in fostering coordination and collaboration among researchers working in the region, thereby enhancing capacities to effectively deal with climate change effects on water resources and strengthening upstream–downstream linkages.

The UIBN is governed through a Regional Strategic Committee (RSC) headed by a chairperson. The 11-member committee is constituted by two members (coordinator and co-coordinator) from each member country, along with one member from any relevant international organization and

two members from ICIMOD. Additionally, a group of advisors provide technical support to the RSC as and when needed. There is one advisor from each member country (in addition to the RSC member), one advisor from a relevant international organization, and one member from ICIMOD.

As per the UIBN governance framework, the RSC is supposed to meet biannually to assess the functioning of the network, provide strategic guidance to the UIBN country chapters, and discuss the course of action. During the UIBN annual meeting in Kathmandu on 18–19 January 2019, the members decided to hold the RSC meeting in mid-2019.

OBJECTIVES

The main objectives of the meeting are to:

- Share recent updates on scientific findings related to the Upper Indus basin
- Assess the formation of the remaining country chapters of the network and review their progress
- Refine the strategic direction of the network by defining a theory of change
- Decide on the regional UIBN annual meeting outline and date

AGENDA

Day 1 (August 26, 2019): UIBN-RSC meeting

Time	Detail	Moderator
09:00–09:30	Registration	
09:30–10:30	Introduction of participants Welcome remarks David Molden, Director General, ICIMOD Nisar A Memon (on behalf of UIBN Chair) Objectives of the meeting – Arun Bhakta Shrestha, Regional Programme Manager – River Basins and Cryosphere, ICIMOD Opening remarks – country representatives Opening remarks – H E Peter Budd, Australian Ambassador to Nepal	Arun Bhakta Shrestha (ICIMOD) Rapporteurs: Saurav Pradhananga and Debabrat Sukla
10:30–11:15	Sharing recent scientific findings related to the Upper Indus basin (8 + 2 min each) (Chair: David Molden) The Hindu Kush Himalaya Assessment report – Philippus Wester, Regional Programme Manager – Mountain Knowledge and Action Networks, ICIMOD Hydrological modelling and climate change scenario analysis in the Ghorband sub-basin, Kabul River basin, using the JAMS/J2000 model – Tayib Bromand, Ministry of Energy and Water, Afghanistan Recent progress on glacier studies in western Tibet, China – Lide Tian, ITPR – CAS, China	Ajaz Ali (ICIMOD) Rapporteurs: Saurav Pradhananga and Debabrat Sukla
11:15–11:45	Group photo and tea break	

11:45–12:30	(Continued) Sharing recent scientific findings related to the Upper Indus basin (8 + 2 min each) (Chair: David Molden) Climate change and water budget in 1.5°C and 2°C SWL (preliminary analysis) – A P Dimri, JNU Climate change in the Upper Indus basin and mid-century scenarios for Kabul River flood flows – Zia-ur-Rehman Hashmi, GCISC, Pakistan (via Skype) SDIP research in the Indus basin – Wahid Shahriar, CSIRO	Ajaz Ali (ICIMOD) Rapporteurs: Saurav Pradhananga and Debabrat Sukla
12:30–13:30	Lunch	
13:30–14:15	Progress on the formation of country chapters – Country chapter coordinators/co-coordinators Sharing of ToR with the UIBN advisors	UIBN Chair/Nisar A Memon Rapporteurs: Sanita Dhaubanjhar and Madhav Dhakal
14:15–15:15	Presentation of country chapter's progress by country coordinators/co-coordinators (10+5 minutes each) Afghanistan Country Chapter – Daud Qazizida, Ministry of Energy and Water, Afghanistan China Country Chapter – Daming He, Yunnan University India Country Chapter – A P Dimri, JNU Pakistan Country Chapter – Muhammad Riaz, PMD (via Skype)	UIBN Chair/ Nisar A Memon Rapporteurs: Sanita Dhaubanjhar and Madhav Dhakal
15:15–15:45	Tea break	
15:45–16:15	Discussion on way forward and next regional UIBN annual meeting	UIBN Chair/ Nisar A Memon
16:15–16:30	Outcomes and action points of the meeting Review of Day 1; briefing on agenda for Day 2	Arun Bhakta Shrestha (ICIMOD) Rapporteur: Debabrat Sukla
18:30	Reception dinner hosted by ICIMOD	

Day 2 (August 27, 2019): UIBN – Theory of change

Time	Details	Moderator
09:00–09:30	Why do we need a theory of change and participatory impact pathways for a programme/project/initiative?	Farid Ahmad (ICIMOD) Rapporteurs: Nisha Wagle and Kabi Raj Khatiwada
09:30–09:45	Discussion and clarifications	
09:45–10:15	Bringing clarity on outcome/objective hierarchies (plenary inputs)	
10:15–10:30	Discussion on change pathways (plenary discussion)	
10:30–10:45	Tea break	
10:45–12:30	Group work Actor/stakeholders mapping for each outcomes and defining their critical roles for the change pathways Actor-based outcome strategies	Farid Ahmad (ICIMOD) Rapporteur: Nisha Wagle and Kabi Raj Khatiwada
12:30–13:30	Lunch break	
13:30–15:00	Presentation and discussion on group work	Farid Ahmad (ICIMOD) Rapporteur: Binu Maharjan and Ajaz Ali
15:00–15:30	Tea break	
15:30–16:15	Discussion on ways to monitor and evaluate the network's performance (roles and responsibilities)	Farid Ahmad (ICIMOD) Rapporteur: Binu Maharjan and Ajaz Ali
16:15–16:45	Conclusion and way forward	Arun Bhakta Shrestha (ICIMOD) Rapporteur: Binu Maharjan and Ajaz Ali
16:45–16:50	Vote of thanks	Ajaz Ali (ICIMOD)

Annex 3: UIBN theory of change and impact pathways

1. Background

After the endorsement of the UIBN's regional governance structure, it was imperative to develop a strategic roadmap through a participatory theory of change and impact pathways analysis. In this regard, one-day workshop was organized on 27 August 2019 in Kathmandu with the Regional Strategic Committee (RSC) members and relevant ICIMOD professionals. ICIMOD's Strategic Planning, Monitoring, and Evaluation Unit facilitated the workshop.

The workshop clarified the UIBN's major objectives and vision at the regional level. The participants discussed and deliberated the key opportunities and challenges in the context of the Indus basin from the regional lens. The participants also discussed and agreed on the three major pathways of change, which also reflect the regional UIBN's mechanisms.

The group discussed and agreed on four major outcomes of the UIBN targeted at achieving the highest level of impacts in the region. After agreeing

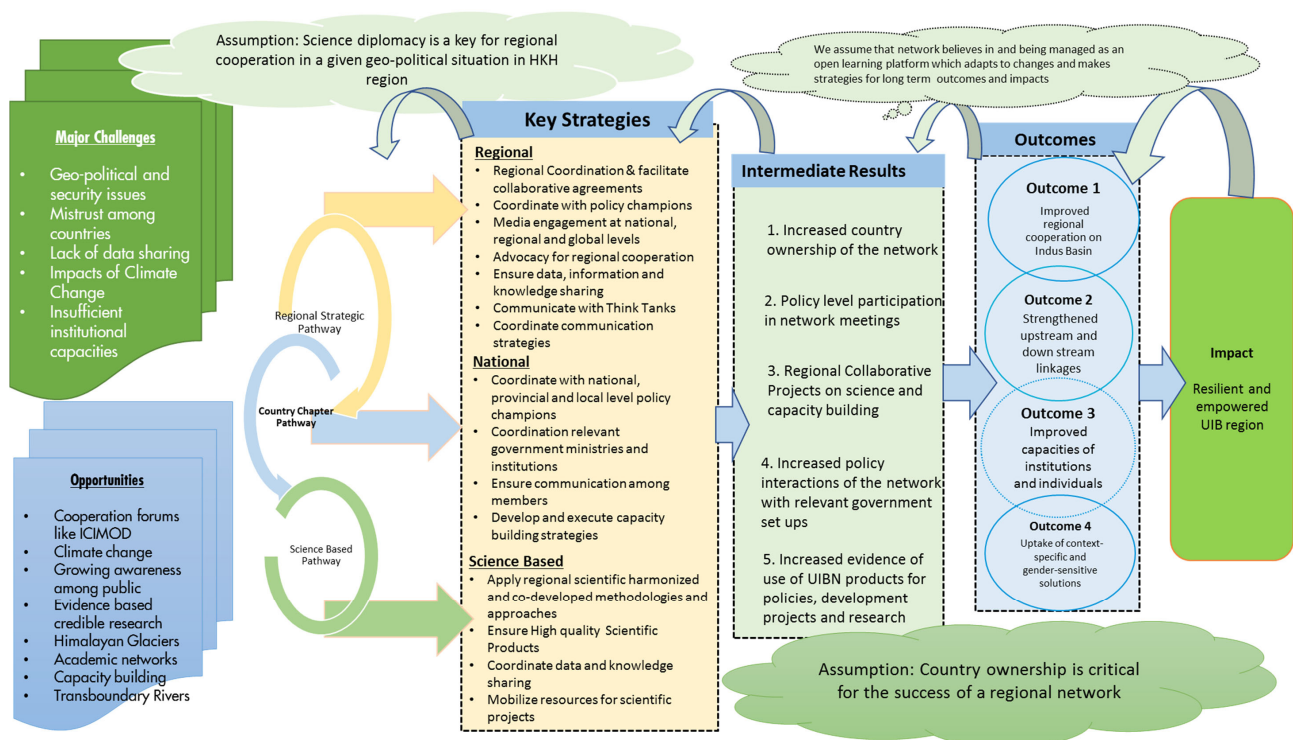
on the outcomes, the group came up with long-term engagement strategies, including communications for each outcome, which are presented in section 3 of this document.

The workshop concluded with the following recommendations:

- The committee members appreciated the workshop outcomes and agreed to take it forward.
- It was recommended that the results of the workshop be discussed with each country chapter.
- After inputs from each country chapter, the theory of change and impact pathway document should be finalized and endorsed in the Regional Strategic Committee's subsequent meetings.

This annex is the summary of all group works and discussions during the workshop. It includes the draft theory of change schema of regional UIBN, the summary narrative, and the key outcome strategies for each mechanism.

2. Theory of change schema for the UIBN



3. Summary of the regional UIBN's theory of change

Given the geopolitical challenges and opportunities in the HKH region, the UIBN has developed three major mechanisms to achieve its primary objective of achieving improved regional cooperation among four Indus riparian countries to address issues related to climate, cryosphere, water, hazards and vulnerability, and adaptation. The first mechanism is a well-coordinated and strategic regional coordination body which will foster coordination among the four member countries on regional strategic issues. The regional mechanism is planned to deliver policy inputs and provides an annual platform for knowledge sharing and co-development of regional projects on various thematic issues. It will foster cooperation through engagement with global, regional, and national actors like think tanks, research institutions, government departments, and the media to advocate for improved regional cooperation.

The UIBN will also deliver results through a national-level mechanism, which involves four country

chapters. The country chapters are expected to provide an enabling environment for research, knowledge sharing, exchange, and coordination among relevant agencies for improved understanding on upstream–downstream linkages which are critical at the national and regional levels. The country mechanism ensures ownership of UIBN member countries to cooperate at all levels. The mechanism works closely mainly with relevant national, provincial, and local bodies which are mandated to work on Indus basin issues. The mechanism will also develop a strategic road map for research topics with the consultation of thematic working groups.

The third mechanism is a science-based one, comprising six thematic groups of relevant institutions working on the Indus basin. The mechanism aims to achieve its results through professional networking; joint research; and capacity-building programmes on science and technology, social sciences, and policy for young researchers. It will ensure smooth data and information sharing among member countries.

4. Impact pathways: Outcomes and impact strategies

1.1 Regional mechanism

No.	Key strategies	1–3 years	3–6 years	6–10 years	Link to other mechanisms
Outcome 1: Improved regional cooperation through knowledge sharing, networks, and alliances					
1.	Form a strong, balanced country team composed of government bodies (related ministries), academia and scientific institutions, and local NGOs				Country chapter; thematic group; if they plan the key strategies Groups: From CC and TG
2.	Implement the developed acceptable mechanism for data and knowledge sharing				Link to CC, TG
3.	Take on board the Indus water commissioners of both countries (India and Pakistan) and a representative from the Kabul River				
Outcome 2: Strengthened upstream–downstream linkages					
1.	Immediately commission study to identify the advantages of upstream–downstream linkages				Both CC and TG
	Upstream research (joint study by their own experts in the provinces) to be shared with the Downstream within the countries				Both CC and TG
	Indus Basin Knowledge Forum				
2.	Upstream research (international professional conducting) to be shared with the downstream within the transboundary countries				Both CC and TG
3.	Develop a mechanism for sharing costs and benefits within countries and across borders upstream and downstream				Both CC and TG

Outcome 3: Uptake of context-specific and gender-sensitive solutions				
1.	Implement water quality and health programmes and social protection of households			Both CC and TG
2.	Implement community-based groundwater conservation			Both CC and TG
3.	Propose a strategy for clean drinking water for all			CC
Outcome 4: Improved capacities of institutions and individuals for sustainable water resource management				
1	Plan and implement capacity building for member countries			CC
2.	Education and awareness among youth			CC
3.	Consensus on minimum environmental flows for biodiversity and ecosystem			Both CC and TG

1.2. Country mechanism

No.	Key strategies	1–3 years	3–6 years	6–10 years	Link to other mechanisms
Outcome 1: Improved regional cooperation through knowledge sharing, networks, and alliances					
1.	Identify areas and measurement systems which are have already been worked on (to form policy briefs); exchange information, knowledge, research, measurement systems				M1 and M3
	Get countries to sign off on the proceedings, seek governments' concurrence				M3
	Better use of the existing portal (making it more relevant, as a means of generating interest)				M1 and M3
2	Come up with policy brief (consolidating and building upon existing evidence)				M1
3	Prepare MOUs among various institutions from different countries				M1
	Use policy brief to influence policy (implementation)				M3
Outcome 2: Strengthened upstream–downstream linkages					
1	Initiate discussion through formal and informal channels (e.g. UIBN) among institutions within countries				M3
2	Facilitate conversations between upstream and downstream stakeholders by including institutions and organizations from the downstream as part of the network/forum				
3	Produce synthesis papers based on research in different countries				M1
4	Bring more government membership to strengthen the country chapters				M1 and M3
5	Initiate joint projects (making forums more practical where joint projects can be planned and implemented)				M1 and M3
Outcome 3: Uptake of context-specific and gender-sensitive solutions					
1	Showcase best practices from different research findings so that countries can collaborate jointly				M1 and M3
2	Organize webinars/forums including speakers from different countries online and share their best practices				
3	Initiate joint projects (making forums more practical where joint projects can be planned and implemented)				M1 and M3
Outcome 4: Improved capacities of institutions and individuals for sustainable water resource management					
1	Implement skills that can be offered by different countries				M1 and M3
2	Identify collective gaps and approach institutions to organize need-based trainings				M1 and M3

1.3 Science-based mechanisms

No.	Key strategies	1–3 years	3–6 years	6–10 years	Link to other mechanisms
Outcome 1: Improved regional cooperation through knowledge sharing, networks, and alliances					
1.	Professional workshops/conferences/seminars for enhanced professional networking and interaction sharing				RSC, CC, TWG
2	Training programme on science and technology, social science, and policy for young researchers				RSC, CC, TWG
3	Produce joint research				RSC
4	Establish a knowledge-sharing live platform (e.g. cloud storage for sharing outputs)				RSC
Outcome 2: Strengthened upstream–downstream linkages					
1	Improved observation network establishment in the upstream region and early warning systems in the whole basin				CC and RSC
2	Establishment of smooth information-sharing channels and data sharing between nation to nation and region to region of a basin and for transmission				CC and RSC
3	Identification of adaptation and mitigation measures (new and ongoing)				CC and RSC, TWG
Outcome 3: Uptake of context-specific and gender-sensitive solutions					
1	Devise and document adaptation and mitigation strategies to deal with social, developmental, and economic impacts				RSC, TWG
2	Piloting these strategies and social inclusion through local communities				TWG
3	Translate strategies into implemental developmental policy				CC
4	Document and replicate indigenous, traditional knowledge and practices through community-driven and managed networks				RSC, CC, TWG
Outcome 4: Improved capacities of institutions and individuals for sustainable water resource management					
1	Identify and assess the existing capacity of key institutions and individuals working in water resource management				CC, TWG
2	Conduct capacity gap analysis along the federal, provincial, and local levels with social inclusion				CC, TWG
3	Conduct capacity building on the identified gaps of institutes and individuals, including local actors (e.g. farmers)				CC, TWG
4	Document and replicate indigenous, traditional knowledge and practices through community-driven and managed networks				RSC, CC, TWG

Annex 4: Recommendations on the way forward: Action agenda from the UIBN-RSC meeting, 26 August 2019

Q1: What is the most important factor that will contribute to better cooperation in the UIBN?

AFGHANISTAN

- Promotion of research capacity (emphasis on research and science)
- A mechanism that is designed across the country chapters to encourage joint research and cooperation
- The follow-up of activities is crucial for better results
- Extension of hydro-met stations in the upper regions of the basin
- To be practical in terms of timelines for each activity.

CHINA

- Provide opportunity for workshops that focus on research and which represent more scientists working in the Upper Indus Basin (emphasis on scientific research)
- Provide more opportunities to early career and young scientists working in these river basins
- Efforts should focus not just on scientists, but the community as well. The UIBN can participate in research wherein the participation of local government and the community is encouraged.

PAKISTAN

- In order to ensure a live network, collaborative research is essential (relevant to all country chapters)
- Inter and intra technical working group coordination/collaboration
- A focus on knowledge management and/or synthesis is essential
- These questions need to be asked: How does our research contribute to policy and/or decision-making? Where are the activities being carried out at the network level? Do they feed into international or regional processes? The next meeting should focus on the practical – there could be one session on preparing joint proposals for donor agencies through ICIMOD or other forums.
- The sustainability aspect is crucial – regular meetings need a lot of resources. Thus, resource identification is important.
- The coordinators in each country ought to identify skill development needs.

INDIA

- Work towards harmonization of deliverables (in the form of journal articles, case studies) and harmonization across the working groups in terms of broad timelines that give a sense of direction
- Engaging with professionals within the basin is essential; internal communication needs to be maintained
- Joint knowledge production among the country chapters – explore options on whether ICIMOD can facilitate this joint knowledge production
- A regional aspect can be brought into joint knowledge production – can we collectively think of developing alternative futures? Where is the region headed – does the pathway trigger optimism or pessimism?
- Collaborative research focusing on thematic topics, and identifying partners among the country chapters to work on this
- Brainstorm on a few ideas concerning regional activities/proposals – involving a group of few people with assigned responsibilities to come up with concepts that are low-hanging fruits. Coordinate online in order to help the group brainstorm further.

UNIVERSITY OF BONN, GERMANY

- Comparability among countries and approaches – how the approaches are managed; standardization of methods; manuals (e.g., on physical studies)
- Formal mechanisms for four country coordinators to interact – raising and discussion of issues. This could be linked to further knowledge exchange and collaboration.

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION (CSIRO)

- Joint policy briefs – e.g., drought management
- Extend hydro-climatic networks at high altitudes based on clear conditions and concepts in order to define the frame and focus
- Dreaming big needs funding – identify the donors and think of yearly interactions where donors can be brought in as observers

ICIMOD

- Maintain a balance between technical and non-technical aspects – encourage multidisciplinary research
- Develop a climate profile of the region by adopting a uniform method that includes present and future climate dynamics with a focus on socio-economic factors – perhaps ICIMOD could take a lead in this
- Start with small documentation (with contribution by all), followed by ambitious collaboration within and among countries
- Facilitation by ICIMOD versus leading by ICIMOD (need to be selective on this front)

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