

Technical Working Group (4)


(NAME OF THE TWG)

Surface and groundwater interaction

Second Regional Upper Indus Basin Network Annual Meeting (RUAM)

27 January 2021



An aerial photograph of a mountain valley. A river flows through the center, with a suspension bridge crossing it. The left bank is covered in dense, yellow-green trees and terraced fields. The right bank is rocky and sparsely vegetated. In the background, high mountains rise under a clear sky.

**Filling critical
knowledge
gaps in the
Indus basin**

Key knowledge gaps

GW status – Surface and GW interactions

Large scale modelling of water availability from time series climate data

Interaction of surface runoff with substrate to identify the landform which has potential to store water

Data generation on the GW quality and depth, annual time series

GW contamination – populated areas

Status semi-permafrost in High altitude areas

Water demand for various uses both Surface and groundwater

Climate change impact on GW

Filling the gaps

Increase monitoring infrastructure (hydro-met stations) and available for all countries (e.g. Research)

Role of academician should be enhanced

Local stakeholders need to be involved in monitoring (some are already doing)

Local capacity building activities (Training, PhD) to enhanced local capacity

Research consortium (national-regional and international)



Potential bilateral/regional collaborative interventions

Discussion question: What are potential bilateral/regional collaborative interventions the group should focus on during the coming years?

Scope of collaboration for the TWGs

Capacity building (joint PhD) in SW-GW

National fellowship – 5-year period

Dedicated trainings

Joint research – SW and GW

Snowpack dynamics, streamflow

Joint proposal development

Include any ongoing collaborations across individuals/institutions

SustalIndus: Water-Energy-Food nexus (drawback: not all countries involved)

Indo-French centre in GW – recharge models, sub-surface water modelling (NGRI)

Discussion question: What are potential bilateral/regional collaborative interventions the group should focus on during the coming years?

Strengthen local researcher by providing dedicated funding (UNESCO) **(1,3)**

Joint research studies **(1,2,3,4)**

Develop common methodological approach so that researchers from their respective countries can collect the data, but synthesis will be done based on the common approach **(1,2,3,4)**

Data sharing: Higher level require to promote to share open data society culture **(1,2,3,4)**

Which of these outcome(s) outlined in the ToC does the collaboration closely contribute to?

- 1. Improved regional cooperation in the Indus Basin*
- 2. Strengthened upstream and downstream linkages*
- 3. Improved capacities of institutes and individuals*
- 4. Uptake of context specific and gender sensitive solutions*



**Potential capacity enhancement
and offerings to other country
chapters**

Discussion question: What are the potential capacity enhancement and offerings to other country chapters?

Include key potential areas where TWGs could offer knowledge/skills to other country

Country chapter	Key potential support areas
Afghanistan	<ul style="list-style-type: none"> a) Highlighted 15-20 research topics, mainly long-term capacity building training (e.g. PhD, intern) b) Dedicated PhD fellowship for Afghanistan c) Climate change, water availability, surface and ground water, modelling (full list is shared with Indian colleagues)
China	
India	<p>NGRI offering some webinars in groundwaters, open to all</p> <p>Fellowships, (e.g. IIT has some grant for PhD)</p> <p>Bilateral and multilateral cooperation at the government level</p> <p>Training on satellite observation and modelling- registration required</p> <p>Skill building training on groundwater (every 3-4 months, based on academic calendar)</p> <p>Many trainings are periodic in nature</p>
Pakistan	



**Key TWG focus
areas in the
respective country
chapters**

Discussion question: What are the key focus areas for the TWG to consider in their respective country chapters plan?

Identify important areas of focus for the respective country chapter

Afghanistan- important questions

Water supply-demand under climate change scenarios

Homogenisation of data/experiment /methodological approach

Homogenisation of data working group, any progress?

Relevant questions for SW-GW from 10 questions

6) What will be the water demand scenario of the future?

7) How can the supply-demand gaps be addressed?



Thank you