ICIMOD

SUMMARY REPORT

Strengthening Water Resources Management in Afghanistan

Lessons learnt and way forward

Background

Water resources management is an important issue in Afghanistan, with direct impacts on the country's development goals and its people's well-being. Water scarcity, floods, inequitable water distribution, and challenging access to water resources along with climate change impacts have created problems for Afghanistan's economic, agricultural, industrial, and energy sectors. The country needs proper water resources management mechanisms to ensure the centralization of water management activities in river basins. In addition, around 60% of the Afghan population is dependent upon agriculture for livelihoods. The efficient management of water resources is therefore essential for sustained development and to ensure that gaps in linked sectors like energy and industry are addressed.

Afghanistan's progress towards Sustainable Development Goals

The establishment of proper water resources management mechanisms is necessary to attain Afghanistan's Sustainable Development Goals (SDGs). The issue of water resources management is directly related with SDG 6 (ensuring access to water resources and sanitation for all) and SDG 17 (strengthening global partnership for sustainable development). An analysis of water resources management in Afghanistan has identified various barriers to achieving the SDGs, such as limited understanding of climate change impacts on water resources and the contribution of cryosphere to water resource availability. The Government of Afghanistan has strongly pledged to attain the SDGs through political action, promotion of inclusive working engagements and multi-stakeholder partnerships, and setting of national targets. These principles provide a strong cornerstone for the government's work towards achieving the SDGs and remain at the core of implementing integrated water resources management (IWRM).

SWaRMA

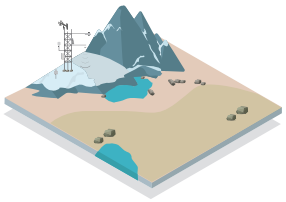
Afghanistan adopted IWRM in 2009 for the sustainable management and preservation of its water resources. The need to develop IWRM in policy making emerged in 2011 with the formulation of the National Water Sector Strategy in Afghanistan. The Strengthening Water Resources Management in Afghanistan (SWaRMA) project was accordingly implemented from 2018 to 2020 by the International Centre for Integrated Mountain Development (ICIMOD) and the Commonwealth Scientific and Research Organization (CSIRO), supported by the National Water Affairs Regulation Authority (NWARA, formerly the Ministry of Energy and Water) of the Government of Afghanistan and the Department of Foreign Affairs and Trade (DFAT) of the Government of Australia.

The project aimed to strengthen water resources management in Afghanistan by generating technical and institutional knowledge, developing a roadmap for a water information system, and increasing network and platforms for the increased participation of Afghan stakeholders (Figure 1). Operating at multiple levels, SWaRMA organized discussions platforms and supported the formation of networks at the regional level and focused on the Kabul River basin, implementing hydrological tools and assessments at national and basin scales (Figure 2). SWaRMA has defined three change pathways to achieve its objectives concerning water resources management and attainment of the SDGs: human capital development, access to information, and regional collaboration.

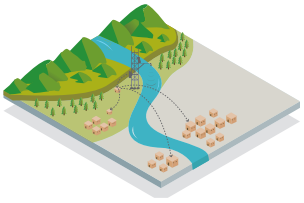
SWaRMA's multi-stakeholder partnership succeeded in strengthening regional cooperation, internalizing ownership among partners, creating higher quality development solutions, ensuring greater alignment of goals, and improving shared accountability among partners (Figure 3).

FIGURE 1 **SEVEN THEMATIC AREAS OF INTERVENTION**

Water availability analysis: Co-create knowledge on water resources assessment in the Kabul river basin using hydrological models

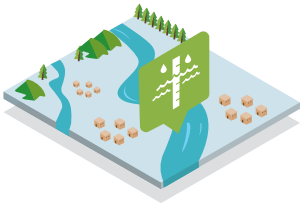


Cryosphere monitoring: Theoretical and field based co-learning opportunities for young Afghan professionals to monitor snow cover, glaciers, and hydro meteorology



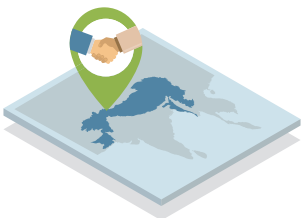
Flood monitoring and early warning Hands-on-training to generate flood information through community based flood early warning system (CBFEWS) and enable community preparedness

Integrated water resources management Capacity enhancement package to provide learning and knowledge sharing platform to implement integrated river basin management



Water resources assessment at basin scale Capacity enhancement on basin-level planning for decision making in complex time consuming and data limited environment

Water information system Co-produce online platform on water information system (prototype)



Regional cooperation Encourage science-based dialogue in Afghanistan to address water resource management at regional level and strategic engagement in regional dialogue

FIGURE 2 **GEOGRAPHIC AREA OF INTERVENTION**

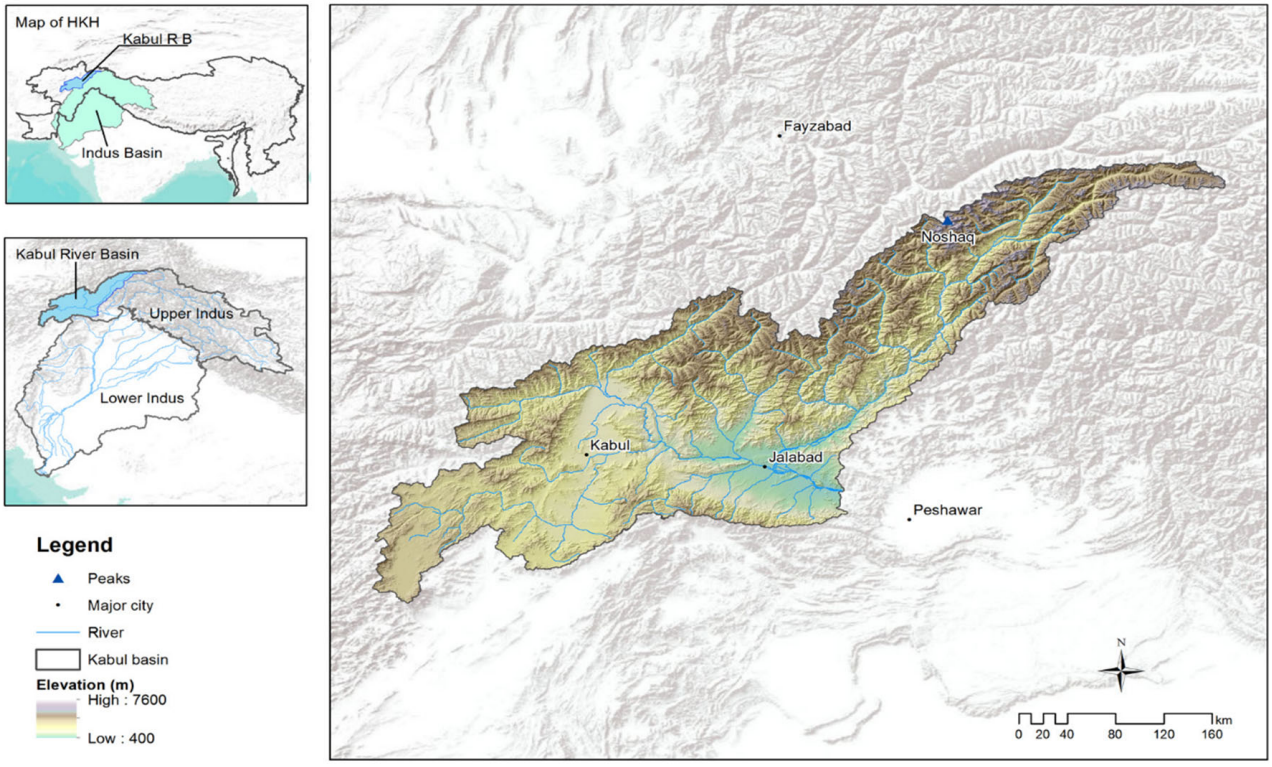
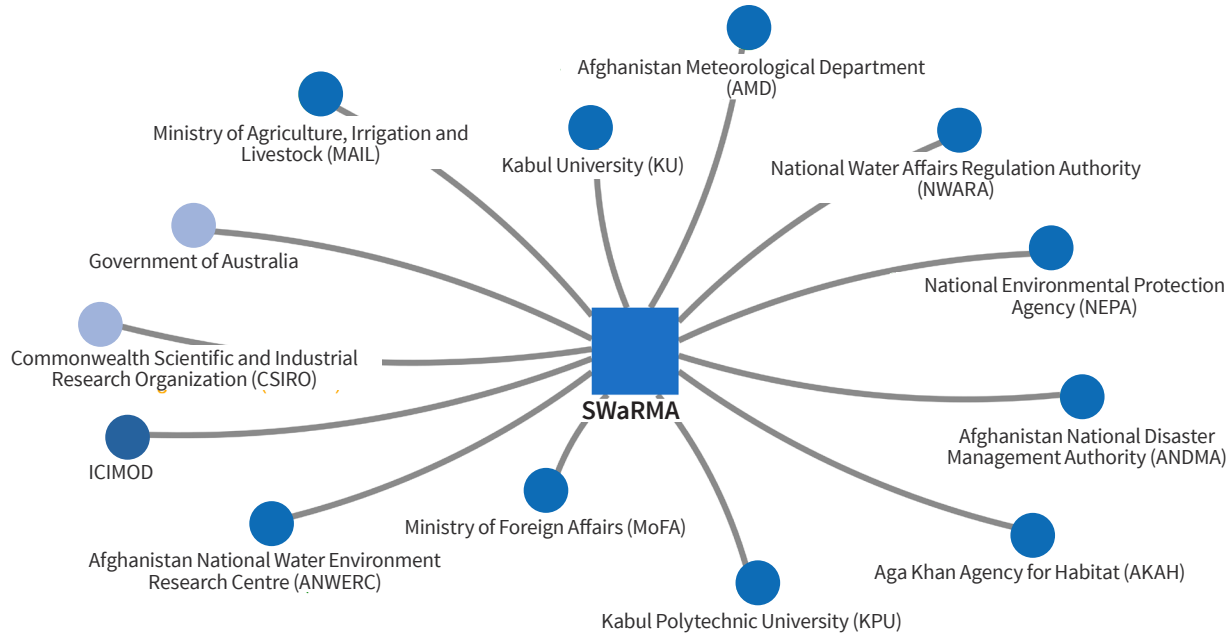


FIGURE 3 **PARTNERSHIP LANDSCAPE**



Individual and institutional capacity enhancement

During the project period, more than 36 events were organized, involving 271 participants (~10% women). Tracer survey responses revealed remarkable success in terms of capacity building outcomes, with around 80% of the participants indicating that they feel confident in their ability to independently use the knowledge attained. Close to 95% of the participants reported that they acquired at least an intermediate level of knowledge of the subject introduced, and 40% reported that they acquired an advanced level of knowledge. Over 50% reported that their knowledge significantly increased in 25 out of the 35 areas rated. Around 46% regularly use the knowledge they have gained in the trainings, and more than 50% responded that they regularly use 11 sets of knowledge and skills they acquired (out of 24). The respondents have suggested follow-up trainings and more support for some modelling work and access to open data.

The findings of capacity self-assessments showed that the trainings have improved the knowledge, confidence, and practice in the majority of the thematic areas introduced by SWaRMA. Participants gained an intermediate to advanced level of knowledge and are putting the knowledge to practice. The results varied across organizations depending on the level of support they received from the project and learning opportunities provided to them, and there is room for improvement in some of the thematic areas.

For SWaRMA, it was important to break barriers and set new milestones by establishing women as role models in a technical field and in a country with low female literacy and limited women's participation in the public sphere.

Key achievements

- First benchmark glacier established in Afghanistan: Afghanistan established its first benchmark glacier in 2018 for long-term monitoring of cryosphere and started mass balance measurement on Pir-Yakh Glacier. An automatic weather station collecting meteorological data was installed at 4,528 masl.
- Hydrological modelling conducted in Afghanistan's river basins: The J2000 hydrological model was adopted by NWARA for water resources assessment in five river basins in Afghanistan and 16 sub-basins of the Kabul River basin. The project introduced eWater Source to model river systems and explore/assess the impact of development scenarios on water availability and demand using the Kabul basin.
- Science-based multi-stakeholder partnership and platform established: Using a multi-stakeholder partnership model, the Upper Indus Basin Network (UIBN) and its Afghanistan Chapter provided a common platform at the regional and national levels for experts from various government and non-governmental organizations to share science-based knowledge and to learn from other basin countries.
- Knowledge on Multi-scale Integrated River Basin Management enhanced: Multi-scale Integrated River Basin Management (IRBM) was conceptualized and tested for water resources management in the Himalaya, specifically in Afghanistan. An assessment of gender equality and social inclusion in water resources management policy, institutions and implementation was conducted using a gender-integrated approach.
- Roadmap for Water Information System implemented: A roadmap for Water Information System was prepared, including a long-term vision for Afghanistan, and is being implemented by NWARA.
- Technology transfer in flood monitoring: Telemetry-based flood monitoring was piloted in Pariyan and Peshghor districts in Panjshir Province and successfully tested in Pariyan.

Opportunities for future engagement in Afghanistan

IRBM encourages decentralization and stakeholders' participation by involving youth, women, and poor and vulnerable communities in decision making; promotes traditional and local knowledge; fosters coordination among researchers; and engages experts at various levels. Based on lessons learned from SWaRMA, the following are possible areas for future engagement in Afghanistan for partners and funding agencies working on similar projects:

- Water availability and demand: Outscale water assessment and climate change scenario tools in the basins and sub-basins of Afghanistan. Provide support to integrate these tools in university curricula for wider dissemination of knowledge and use in the future.
- Implementation of IRBM: Implement multi-scale IRBM through a gender perspective while engaging with water professionals and community members. Through these interactions, needs assessments can be carried out and sustainable practices can be tested and piloted. Capacity building across different user and influence groups, whether at the government or community level, can be carried out to test scalability of solutions.
- Engagement in science-based platforms: Share knowledge and information through various regional and national platforms like UIBN, UIBN–Afghanistan chapter, and Indus Basin Knowledge Platform and build capacity for transboundary dialogues.
- Water management and irrigation: Apply remote-sensing based methods to evaluate currently cultivable land and evaluate basin-level crop water use by applying remote sensing-based evapotranspiration data. Capture water supply scenarios through local data inventories and use of inter-comparison of current agriculture water supply, existing demand, and future potential demand for water resource planning and policies in the Kabul basin. Prioritize increased efficiency of irrigation, watershed management/biological measure, integrated landscape planning based on the ecosystem and climate smart solutions, and ecosystem-based approaches to disaster risk reduction.
- Disaster risk reduction and resilience: Develop tools and methods for risk analysis, including analysis of future uncertainty and extreme conditions for informed decision making at the national, provincial, and local levels. In addition, test and transfer early warning and other hazard monitoring tools and technologies for use by local governments and communities. Work with at-risk communities to design strategies at different scales and ensure sustainability of disaster risk reduction in the project area.
- Gender equality and social inclusion: Engage women professionals in capacity-building activities related to water resources management. Support the government in designing programme/project concepts and tools for gender analysis and comprehensive gender-responsive planning and decision making.

Australian Government

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https://www.icimod.org/initiative/swarma/

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