

Upper Indus Basin Field Visit

25-30 June 2018

FOR MOUNTAINS AND PEOPLE



About ICIMOD

The International Centre for Integrated Mountain Development, ICIMOD, is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalaya – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. Globalisation and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. We support regional transboundary programmes through partnership with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now, and for the future.



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Field Visit Report

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1. Background

The International Centre for Integrated Mountain Development (ICIMOD), under the Sustainable Development Investment Portfolio (SDIP) and with the support of the Department of Foreign Affairs and Trade (DFAT), Government of Australia, is implementing a programme related to Agricultural Water, Energy, and Hazard Management in the Upper Indus Basin for Improved Livelihood. This programme focuses on the vulnerability of local communities in Gojal and their livelihood improvement through agricultural water management and water-induced hazard management. It is being successfully implemented through a strong consortium of national partners, including local communities. The consortium partners include World Wide Fund for Nature (WWF), Pakistan Council of Research in Water Resources (PCRWR), Gilgit Baltistan Disaster Management Authority (GB-DMA), Gilgit Baltistan Forest Wildlife & Environmental Department (GB-FWED), Mountain Agriculture Research Centre (MARC), Karakorum International University (KIU), and Aga Khan Agency for Habitat (AKAH).

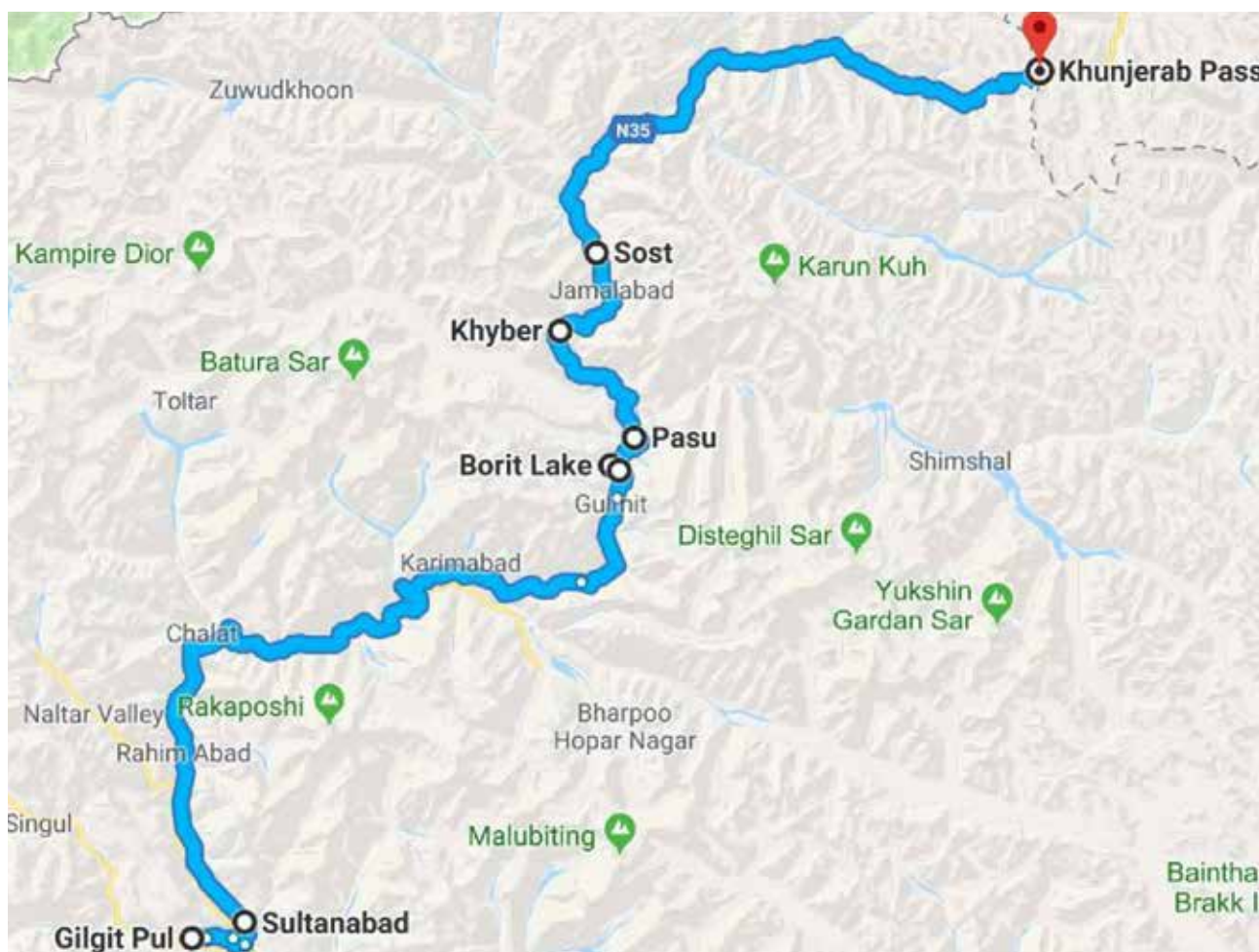
A field mission comprising participants from the Federal Government, Provincial Government, Australian High Commission, and other development organizations (Annexure 01) visited the intervention sites from 25-30 June 2018. The participants reviewed the progress through an on-site visit, interacted with collaborating partners and local communities, and explored possible opportunities for integrating the learnings into relevant policies through a policy-level roundtable for scaling up.



2. Highlights of the Field Visit

The UIB field visit comprised a policy roundtable and a visit to the project sites in Upper Gojal. The details of each activity are described below.

Figure 1: Route map of field visit



2.1 Day 1: Visit the water wheel pump; interaction with Sultanabad community

On the morning of 25 June 2018, the field mission visited a water wheel pump installed at Gilgit River. In the afternoon, the mission visited Sultanabad, next to Daynor, Gilgit and interacted with the Local Support Organization (LSO). The proceedings of these visits and discussions are given below.

i. Floating Hydroelectric Generator and Pump

It has been redesigned and piloted by a local engineer, Hayat Baig, at Gilgit River for irrigation and tap water supply, as well as off-grid power supply.

Figure 2: Floating hydroelectric generator and pump

“The water wheel harnesses the kinetic energy of water currents, which operates the generator. The produced electricity is used for water lifting through the electric pump and other household uses. The whole system is tethered to the anchors on the river bank and suited to minimum flow in winter and also shallow streams during summer”.

— Hayat Baig



ii. Interaction with Sultanabad LSO and Community

An interactive session with the Sultanabad community was organized with the aim to understand the climate change-induced challenges being faced in Gilgit Baltistan. The event started with a tableau performed by local students and a presentation by a community representative on the local agro-based livelihood of the community. Senator Nisar Memon highlighted the positive impacts of the China Pakistan Economic Corridor (CPEC) and discussed mitigation of the environmental pollution. Aesar Ali of AKRSP shared the outcomes of the Himalica project implemented in four union councils of Hunza.

Figure 3: Her Excellency Ms Margret Adamson addressing the mission



“The role of women’s involvement in the local economic activities is inevitable for enhanced prosperity. The unity of Sultanabad community for achieving common development goals is commendable”.

— Her Excellency Margaret Adamson,
Australian High Commission

2.2 Day 2: Policy roundtable on building climate resiliency in Gilgit Baltistan

On 26 June, 2018, the Indus Basin Initiative (IBI) of ICIMOD, in partnership with PCRWR, KIU, and WWF-GB, organized a high-level policy roundtable to present the successes and learning experiences of the pilot interventions of the IBI project to policymakers. The objective was to promote potential upscaling and out-scaling by exploring options for integrating the learnings into relevant policies in Gilgit Baltistan. The policy roundtable was organized at KIU, Gilgit and was attended by more than 65 participants, including Parliamentarians of the Gilgit Baltistan Legislative Assembly, Federal and Provincial Secretaries, the Australian High Commission Delegation, and representatives of government and non-government organizations.

For complete report please visit

http://lib.icimod.org/record/34361/files/icimodPolicyRoundtableReport_Gilgit%20Pakistan.pdf.

2.3 Day 3: Visit to intervention sites at Ghulkin, Hussaini, Passu, and Khyber

i. Shahabad-Ghulkin

The day started with a visit to zero point of Passu glacier, where Deedar Karim of AKAH briefed participants about the glacier and hydro-metrological installations by PMD and WAPDA in collaboration with ICIMOD at this glacier.

Figure 4: Deedar highlighting the vulnerability of the Passu Community from expected GLOF events

“Under the IBI project Establishment of Community Based Glacier Monitoring and Early Warning System, AKAH has trained the community watch groups for monitoring, observing, and reporting the changes of Passu, Gulmit, Ghulkin, and Hussaini glaciers”.

— Deedar Karim



During the group interaction at Ghulkin, Faizan-ul-Hassan of PCRWR explained the process of rehabilitating the landslide-affected water supply system and the utilization of supplied water for seasonal and off-seasonal vegetable production, as well as for revival of abandoned fields, orchards, and agro-forestry.

Figure 5: A Ghulkin Village Organization representative sharing the benefits of ICIMOD's interventions



“Twelve women groups (each with 15 members) grow vegetable nurseries in tunnels and then transplant them at their fields for mass production. PCRWR has developed market linkages in Karachi and Islamabad where 560 kg vegetables and 1325 kg apples of female-owned fields were sold during 2016-17”.

– Passu community representative

ii. Zarabad/Hussaini Intervention Site

Faizan-ul-Hassan explained the issues of glacial-melt water unavailability and PCRWR interventions to solve the issues of water unavailability, as well as efficient utilization of water for higher density agricultural production through alley cropping under drip irrigation.

Figure 6: Faizan-ul-Hassan explaining the Zarabad interventions

“Water management interventions at Zarabad are under implementation. The intervention site is allocated to a women’s group that will own it and perform agricultural practices for earning their livelihood”.

— Faizan-ul-Hassan



iii. Passu Community-Based Flood Early Warning Systems (CBFEWS)

AKAH piloted a CBFEWS for GLOF at Passu Glacier during 2017. Deedar Karim of AKAH explained the composition and working mechanism of CBFEWS.

Figure 7: **Abdul Wahid Jasra sharing the impacts of CBFEWS installation**

“Similar CBFEWS also have been piloted in Sherqilla and Damas, district Ghizar, for flash floods and debris flow, respectively. On 2 August 2017, the Sherqilla CBFEWS alerted the sleeping community of a medium-level flood and saved precious human lives and their belongings”.

— Abdul Wahid Jasra



iv. Popdin/Passu Intervention Site

Faizan-ul-Hassan explained that PCRWR has implemented agricultural water management interventions including solar-powered river water lifting from the Shimshal River and a high-value apple and cherry orchard on six acres under a drip irrigation system.

Figure 8: **Faizan-ul-Hassan briefing the Popdin interventions**



“Solar-powered water pumping is downstream technology which initially faced issues during piloting in Popdin due to higher sedimentation in the Shimshal River. For this a special pump capable of working under higher conditions was imported. Thus, there is need for local customization for making new technologies sustainable”.

— Faizan-ul-Hassan

v. Khyber Intervention Site

PCRWR with MARC has established a demonstration site of zero energy river water lifting through a hydro-ram pump, as well as alley cropping and off-seasonal vegetable farming under gravity-fed drip irrigation. The working mechanism of the hydro-ram pump was explained by M. Ashraf of PCRWR.

Figure 9: **Ashraf explaining the working mechanism of a hydro-ram pump**

“Compared to traditional water pumping systems, the hydro-ram pump is cheap, energy- and maintenance-free, sustainable, and long lasting. It can work where a certain gradient is available, making it impracticable on low gradient channels or rivers. For such conditions, solar water lifting is a suitable mechanism”.

— Muhammad Ashraf,
Director General, PCRWR



During interaction with the Khyber Community, Faizan-ul-Hassan explained the use of lifted water for alley cropping, as well as off-seasonal vegetable farming under gravity-fed drip irrigation.

Figure 10: **Ashraf answering the community queries**



The community shared their concern on the design of the tunnel (use of plastic sheet), which was addressed by M. Ashraf. “This tunnel has been carefully designed to keep it low tech and less costly. The plastic sheet is of excellent grade, which can last two to three seasons”.

— M. Ashraf of PCRWR

vi. Interaction with Passu Women Organization

An interaction of the UIB field mission with the Passu Women's Organization (PWO) was organized at Passu Village. A representative of the PWO briefed participants about activities being performed by women.

At the end of the day, Her Excellency Ms. Margret Adamson, Nisar Memon, Fazal Abbas Maken, MNFS&R, and Mirza Habib Ali, Chairman PCRWR, left for Gilgit.

Figure 11: **Representative of PWO sharing progress**

"The Passu Women Organization has planted 5,000 seabuckthorn saplings along the Hunza River bank to tame the agriculture base of Passu community. It is an innovative, cheap, and sustainable method to reduce soil erosion. Our organization is willing to upscale this intervention with our own resources and financial support from development agencies".

— PWO representative



2.4 Day 4: Visit Morkhun, Shimshal, and Khunjab National Park

i. Morkhun Intervention Site

PCRWR has implemented agricultural water management interventions in Morkhun, which includes solar-powered river water lifting from the Khunjab River and a high-value Funji apple orchard on six acres under gravity-fed drip irrigation. Faizan-ul-Hassan briefed the mission of piloted interventions.

Figure 12: **A Ghulkin community representative sharing the benefits of interventions**



"Through drip irrigation, a little quantity of water is irrigating 2,800 apple plants on more than six acres. This method is very efficient. The Morkhun community is upscaling the orchard and drip irrigation from own resources. Our boys are trained enough by PCRWR to install drip irrigation by themselves".

— Noor Ali, Ghulkin community representative

After the Morkhun site visit, the mission was divided into two groups: one visited the Shimshal Valley, while the other visited Khunjab National Park.

ii. Shimshal Field Visit

The field mission to Shimshal comprised Furrukh Bashir of PMD, Zaheer Uddin Babar of GBDMA, Deedar Karim of AKAH, Dave Preston and Hamza Khalid of the Australian High Commission, Amanullah Khan of UNDP, and Farid Ahmad and Abdul Wahid Jasra of ICIMOD. During this interaction, Masood, Secretary of Shimshal Natural Trust, briefed participants about the Shimshal Valley, its accessibility, population, socioeconomic activities, successful projects, and natural hazards. Furrukh Bashir of PMD discussed research on the Karakorum Anomaly, while Deedar Karim from AKAH presented his organization's activities in Shimshal valley.

“Shimshal Community is facing many problems, including unavailability of clean tap water and facilities for drying, cleaning, storing, packing, and selling the seabuckthorn berries and its products”.

— Representative of Shimshal women group

iii. Khunjab National Park Visit

The field mission to Khunjab National Park comprised Muhammad Ashraf, Faizan-ul-Hassan, and Ms Breerah Fatimah of PCRWR; Farid Alam of the Asia Foundation; Saeed Abbas, Munawar Hussain, and Fazal Karim of WWF; and Ajaz Ali, M. Mudassar Maqsood, and Haris Ayub of ICIMOD.

This mission first visited Forest Rest House at Dhee, where Jaffar Ali, District Forest Officer, briefed the participants about the activities undertaken by the GB-Forest Wildlife and Environment Department (GB-FWED) in collaboration with ICIMOD and other partners like WWF and EV-K2-CNR.

After the briefing, the UIB mission and the forest department team visited the Khunjab Pass. The mission witnessed the lumps of solid waste at the Khunjab Pass and decided to campaign for a cleanup of this important tourist spot. The purpose of this activity was awareness raising regarding environment preservation through solid waste management and ecotourism management.

Figure 13: Ashraf addressing the tourists about environment preservation at Khunjab Pass



iv. Hussainabad Water Tunnel

The field mission also visited Hussainabad Water Tunnel, which is a wonder of human hardship, unity, and success. Fifty-nine members of the Village Organization of Sost dug this 1,300-foot-long tunnel with traditional tools. The purpose of the tunnel was to fetch water from a glacial melt stream across the mountain. The Hussainabad Water Tunnel project was started in 1982 with the financial support of Aga Khan Rural Support Program AKRSP and was completed in 1985.

Figure 14: **Hussainabad Water Tunnel, Sost**



2.5 Day 5: Travel Back to Gilgit

On 29 June 2018, the mission returned to Gilgit.

3. Commitments and Way Forward

The policymakers as well as heads of national and international organizations, committed to the upscaling and out-scaling of successful piloted interventions. These commitments and the corresponding required action are tabulated below.

| Sr. No | Commitments | Actions |
|--------|---|---|
| 1. | The Chief Minister of GB asked for a comprehensive report based on the way forward of the policy roundtable and a field visit to be used as a guiding tool in designing relevant policies. CM also requested technical support of the development organizations, including ICIMOD, to manage the river banks, particularly in Gilgit and Skardu cities, to turn the disaster (river bank erosion) into an opportunity (tourist attraction point/destination). | The report of the whole field visit and policy roundtable to be shared with GB Government |
| 2. | The Chief Minister of GB committed to upscale the Community-Based Flood Early Warning System with the technical backstopping of ICIMOD and its partners. | A series of meetings to be arranged with GB Government through GB-DMA |
| 3. | The Federal Secretary of MNFS&R committed to supporting the upscaling of these interventions throughout GB. | Pakistan Country Office to develop a concept note and discuss it with the office of Federal Secretary MNFS&R |
| 4. | The Programme Coordinator of ETI/IFAD committed to out-scale the agricultural water management interventions, particularly the High-Efficiency Irrigation System and river water lifting through solar and hydro-ram pumps. | Regular follow-up required |
| 5. | The Director of Programmes of the Asia Foundation committed to out-scale the agricultural water management interventions, particularly the High-Efficiency Irrigation System and river water lifting through solar and hydro-ram pumps. | Regular follow-up required |
| 6. | The Chairman of PCRWR committed to helping ICIMOD in developing a project (funded by the Pakistan Science Foundation or ICIMOD) for developing the indigenized capacity of manufacturing CBFWS in Pakistan. | A series of meetings to be organized for this process and based on the way forward and a proposal to be developed |
| 7. | The Assistant Country Director of UNDP committed to out-scaling the hydro-ramp pump for the uplift of spring water to Shimshal village. Moreover, he also committed to considering Shimshal Valley for constructing the disaster mitigation structures under GLOF phase-2. | Regular follow-up required |
| 8. | The Country Representative of ICIMOD offered the Government of GB help in drafting the ecotourism policy of GB, which was accepted by the Chief Minister of GB. | A series of meetings to be arranged with GB Government through GB-Forest and GB-Tourism Department |
| 9. | The UIB field mission recommended initiating a project for enterprise development of seabuckthorn berries in Shimshal Valley. | A concept note to be developed and shared with development partners for financial support |

Annex I: List of participants

Federal Government

Fazal Abbas Maken
Mirza Habib Ali
Muhammad Ashraf
Sher Ahmad
Faizan-ul-Hassan
Barrera Fatimah
Adil Altaf

Provincial Government

Ahsanullah Mir
Anisa Yusuf
Zaheer Uddin Babar
Jaffar Ali

Australian High Commission

Margaret Adamson
Dave Preston
Hamza Khalid Butt

Development Organizations

Amanullah Khan
Nisar A. Memon
Farid Alam
Ayesha Khan
Yasmeen Qalandar
Saima
Ibrahim
Amjad Karim
Saeed Abbas
Deedar Karim
Fazal Karim
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