Dushanbe Forum of Mountain Countries -2015:
Water and Mountains

Organizers:

Правительство Республики Таджикистан

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation
Конфедератсияи Швейтсария

UCA UNIVERSITY OF CENTRAL ASIA

CENTRAL ASIA MOUNTAIN HUB

Partners:

Mountain Partnership

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ИСУР

Dushanbe Forum of Mountain Countries - 2015:

Water and Mountains

AGRICULTURE & FOOD SECURITY UNDER CHANGING CLIMATE IN CENTRAL ASIAN MOUNTAINS:

Integrated Watershed Management as a viable solution for coping with and adapting to changes

Content

Abbreviations

AKDN	Aga Khan Development Network
SDC	Swiss Development Cooperation
CAMH	Central Asia Mountain Hub (Mountain Partnership Central Asia Hub)
SDG	Sustainable Development Goals
UN	United Nations
UN OCHA	United Nations Office for the Coordination of Humanitarian Affairs
WWC	World Water Council

PART 1

The Dushanbe Forum of Mountain Countries - 2015

Dear Participants, Contributors, Co-organizers, Supporters and Friends of the Dushanbe Forum of Mountain Countries 2015: Water and Mountains,

With the successful completion of the Dushanbe Forum of Mountain Countries 2015: Water and Mountains co-organized and hosted by the State Committee of Environmental Protection, Government of Tajikistan, we at the Mountain Partnership Central Asia Hub would like to thank all of you for your interest, active participation and support to this event, the first in its kind taking place in Central Asia. Taking this opportunity, we would like to thank the Government of Tajikistan for hosting the event on Tajik land and making it possible to raise mountain people's concerns. We thank Mr. Hairullo Ibodzoda, Head of the State Committee on Environmental Protection for his leadership and guidance and Mr. Makhmud Zafarov, the government Focal Point for his constant support for making the event successful.

We also thank the Secretariat of the UN High level Conference "Water for life" where 1900 participants from 120 countries took part, for their welcoming us: the mountain group to co-organize a series of events with the mountain focus, including our Forum as a pre-conference event, the High Level Session # 3 (1 of 6 parallel sessions) discussing the global challenges from the water perspectives and parallel knowledge fairs and exhibitions on SMD good practices in both venues of the Conference, in the National Library as well as in Kohi Somoni, the UN High Level Conference venue. We thank colleagues from the UN OCHA Tajikistan and Central Asia and Europe offices for their joint planning and successful organization of the aforementioned High level session. The summary of the session results has been presented at the Final Plenary session of the UN High Level Conference "Water for Life" on June 10, 2015.

We at the Central Asia Mountain Hub hosted by UCA would like to thank all our content contributors and presenters for 8 sessions, the work of the session co-chairs and minute-takers, our guest speakers from Swiss National Delegation, Italian National Delegation to Alpine Convention and the United States of America. The contributions represented a wide array of stakeholders including the national governments, development partners, bilateral programs, academia and research, NGOs, grassroots organizations and local communities, members of the Mountain Partnership from Africa and Asia Pacific.

We appreciate that the Mountain Partnership members from Asia Pacific and Africa, and the majority of our regional stakeholders made it to Dushanbe despite their busy schedules. We thank all the members of the Organizing Committee for their time. Our special gratitude goes to Dr. Bettina Wolfgramm at the CDE/University of Bern, Switzerland for her academic advice and support given to our Hub on the content development for the Forum.

The Forum which we enjoyed came possible with the funding support from SDC (Switzerland) whose continued support over the years to the Mountain Partnership Central Asia Hub remains instrumental and leading for consolidating the regional stakeholder efforts for promoting the mountain agenda. We thank the Christensen Fund for their full-funding of some of our regional participants from Kyrgyzstan and Tajikistan.

We would like to thank the Administrative and finance units of both: Bishkek and Dushanbe offices of the University of Central Asia who hosts our regional mountain hub for their 24/7 support and their excellent work they have been rendering us for this event and for all the years. We appreciate very much the immediate support given by our Tajikistan-based stakeholders Roziya Alieva from CAMP Kuhiston and Svetlana Jumaeva

of the Center for Climate Change and Disaster Risk on coordination work with the Tajik government and the country based stakeholders and partners.

We would like to thank Mr. Pesnani, Head and Representative of the AKDN Tajikistan and Dr. Bohdan Krawchenko, University of Central Asia Director for their leadership and guidance on making these high profile international events of success.

Last, but not the least, I thank our team-members: Alma Uzbekova, Hub Communication Officer and Sally Daultrey, Consultant for their hard work and many days of late nights.

Once again, we deeply thank all of you for your collaboration and support to these events and we look forward to working with you again for advancing the mountain agenda, where we thank others for advancing the mountain agenda.

Mountainously yours,

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Executive Summary

More than 120 representatives of organizations from across Central Asia and from around the world whose work is dedicated to the concerns of mountain societies and environments, gathered in Dushanbe for the first ever Forum of Mountain Countries taking place in Central Asia, to share perspectives and best practices on sustainable mountain development.

Co-organized by the Mountain Partnership Central Asia Hub in partnership with the State Committee on Environmental Protection, Government of Tajikistan and supported with funding from SDC (Switzerland), a day-long Forum work has been kicked off with the Knowledge Fair launching where Sustainable Development Good Practices by some 20 organizations have been show-cased.

The photo exhibition which attracted much of interest featured works of 2 photographers on mountain glaciers, snow and ice in high Alps by Maralgua (Mongolia) and Laurence Piaget (Switzerland) under the Sustainable Mountain Art (SMArt) program implemented by the Foundation on Sustainable Development of Swiss Valais and the photos provided by the forum partner organizations: Oxfam Tajikistan, ACTED Tajikistan, CAMP Kuhiston (Tajikistan) and photo reportage by Alma Uzbekova, the Hub's communication officer during her field trips throughout Kyrgyzstan.

The opening remarks highlighting importance of mountain ecosystems and dialogue enabling multistakeholder cooperation have been delivered by H.E. Mr. Azim Ibrohim, Deputy Prime Minister, Republic of Tajikistan followed by Mr. Akbar Pesnani, AKDN Resident Representative to Tajik Republic, Ms.Regina Gujan, Program Coordinator, Swiss Cooperation Office, Tajikistan, Mr. Olimjon Boboev, Chairman, Ecological Commission, Lower House, Parliament of Tajik Republic and Ms. Sara Manuelli, Mountain Partnership Secretariat, FAO Rome.

The forum brought together government representatives at various levels, civil society groups, development agencies and researchers to explore the links between mountains and water and the contextual issues for sustainable mountain development including: climate change and its impacts on mountain agriculture, nutrition and health, the role of women in mountain ecosystem stewardship, integrated watershed management and disaster risk mitigation.

Illuminating examples from across the region and around the world, eight sessions with 44 presentations and group discussions moderated by subject-matter experts from the global mountain community offered multiple perspectives on the challenges facing mountain communities.

Issues explored included food security and creating conditions for entrepreneurship and better livelihoods, particularly among women; methods for conflict-resolution about pasture management, water and access to resources including frameworks for encouraging proactive participation by communities in the design of solutions; sustainable land management practices and the necessary governance mechanisms for achieving sustainable land management; land-use management practices and the need for integrating disaster risk mitigation into these systems; design and delivery of knowledge management solutions about water and mountains that offers not only technical solutions and platforms, but the capabilities to help transform information into action on the ground, designed by and for the communities it is intended to benefit; multidisciplinary and cross-cutting approaches to research problem formulation and project delivery and the requirement to strengthen communication between research and policy.

The conference concluded that priority actions should be to:

- Diversify food systems by supporting mountain farmers and encouraging climate-smart agriculture;
- Promote participatory governance of natural resources in watersheds;
- Upscale sustainable land management practices, including community-based climate risk mitigation plans;
- Introduce equitable benefit sharing and compensation mechanisms to properly reflect the services provided by mountains for all;
- Enable better knowledge exchange between practitioners, communities and researchers;
- Invest in decision-support tools and programs that integrate the concerns of mountain communities by working directly with them;
- Place sustainable mountain development concerns in development plans and use international meetings and conventions to emplace mountain issues in sustainable development goals and actions.

Knowledge Fair "Mountains and water"

The Mountain Partnership Central Asia Hub organized two exhibitions as side events for the Dushanbe Forum of Mountain Countries and the High Level International Conference on the "Water for Life".

The fist event titled as 'Knowledge Fair', took place on June 8, 2015 at the National Library during the Dushanbe Forum of Mountain Countries. 20 representatives of NGO, research institutions and development agencies participated in the event, which had on-going format with time slots for thematic sessions, focusing on water issues in Central Asia mountain regions, exchange of information, best practices and inspirational stories of mountain communities, related to the main topic.

The Knowledge Fair had also included a photo exhibition. It featured works of two photographers on mountain glaciers, snow and ice in high Alps by Maralgua (Mongolia) and Laurence Piaget (Switzerland) under the Sustainable Mountain Art (SMArt) program implemented by the Foundation on Sustainable Development of Mountain Regions (Switzerland) and the photos provided by the forum partner organizations: Oxfam Tajikistan, ACTED Tajikistan, CAMP Kuhiston (Tajikistan) and photo reportage by Alma Uzbekova, the Hub's communication officer during her field trips throughout Kyrgyzstan.






Two exhibition booths of Mountain Partnership Central Asia Hub and the University of Central Asia were set up for highlighting mountain issues during Conference's International Exhibition "Water for life" at "Kokhi Somon" venue on June 9-10, 2015. The exhibition materials featured the activities and best practices of mountain stakeholders in Central Asia and the programmes, implemented by the University of Central Asia in the region.

PROGRAMME
Dushanbe Forum of Mountain Countries – 2015: Water and Mountains (Central Asia Regional Mountain Forum – 2015)

Venue: *National Library, Dushanbe, Tajikistan*

Date: *June 08, 2015*

SUB-TITLE: **Agriculture & Food Security under Changing Climate in Central Asian Mountains: Integrated Watershed Management as a viable solution for coping with and adapting to changes**

TIME	SESSIONS
08:00-09:00 ***Morning part***	***Registration*** ***Knowledge Fair Launching Ceremony & Opening Remarks:*** *Master of Ceremony: Khairullo Ibodzoda, Head, State Committee on Environmental Protection, Government of Republic of Tajikistan, Co-organizer* *Co-chair: Elbegzaya Batjargal, Regional Program Officer, Central Asia Mountain Hub hosted by University of Central Asia* ***Knowledge Fair Launching Ceremony:*** *Launching remark by: H. Ibodzoda, Head, State Committee on Environmental Protection, Government of Tajikistan* 1. *Poster Session on Good practices by mountain stakeholders;* 2. *Exhibitions (Photo exhibition; Multimedia Centre for launching a new documentary by CDE/University of Bern)* 3. *Launching of New Publications: Policy Briefs on Integrated Watershed Management, the Swiss Initiative and Farmer Manual on Affordable water and soil conservation technologies by CAMP Kuhiston* 4. *Knowledge Management in Action – Take a Tour on K-Link by Gianluca Colombo, Project Manager and Cholpon Dordoyeva, Consultant, Siris Academic S.L.* ***Opening Remarks:*** 1. Opening remark by H.E. Mr. Azim Ibrohim, Deputy Prime Minister, Republic of Tajikistan 2. Regina Gujan, Program Coordinator, Swiss Cooperation Office, Tajikistan 3. Akbar Pesnani, AKDN Resident Representative to Tajik Republic 4. Olimjon Boboev, Chair, Standing Committee on Agrarian, Land & Water resources policy, Parliament of Tajik Republic 5. Sara Manuelli, Mountain Partnership Secretariat, FAO Rome

TIME	SESSIONS	
09:00-10:00 ***Plenary Session***	***Policy Platform: SMD integration into policy-making*** *(Integrating Mountain Concerns into policy & development processes at multiple levels)* *Session Moderators: Svetlana Jumaeva, CCDR Tajikistan /Christian Hergarten, Mountain Societies Research Institute, University of Central Asia* *Rapporteur: Christian Hergarten* *Minute Taker: Sally Daultrey* P1. Policy Dialogues and consultation process for backing the Tajik Law on Mountains by Olimjon Safarov, Parliament Member, Tajik Parliament Standing Committee on Agrarian and Environmental Policy P2. Water strategy of Canton Valais by Eric Nanchen, Director, Foundation for Sustainable Development in Mountain Regions, Switzerland P3. Altai experience on Assessment of Mountain Specificities and mountainness by Svetlana Buydisheva, First Deputy Minister for Economic Development and Tourism, Government of Altai Republic, Russian Federation P4. Water impact on future humanitarian action by Marcel Vaessen, Head of UNOCHA Regional Office for Caucasus, Central Asia and Ukraine, Co-organizer of the High Level Round Table Session "Global challenges from Water perspectives", UN Conference "Water for Life", June 09-11, 2015 P5. Cooperation of up & downstream countries by Prof. A. Kayumov, Director, CAREC Tajikistan office	
10:00-11:20 ***Parallel sessions***	***MS1: Food Security & Resilient Food Systems in high altitudes under Changing climate: Maintaining Diversity*** *(What goes different in high altitudes?)* *Session Chairs: Jan Helsen, CARITAS Tajikistan* *Rapporteur: Jan Helsen* *Minute Taker: Perizat Kurbanova, Aigine CRC* **A.Keynote presentations (50')** P1. Agriculture, Food Security and Nutritional Outcomes in Mountainous Regions by Kamiljon T. Akramov (IFPRI/USA) P2. Climate change impacts on community level food security: Kyrgyz Case on Maintaining Farming and crop variety: Seed Bank project by Chinara Bilyaeva (ADI/Kyrgyzstan) P3. Characterization of small-scale farming systems in Tien Shan mountains by Azamat Azarov (MSRI/University of Central Asia) P4. Vertically integrated producer organizations and Participatory Guarantee System as a peer review	***MS2: Governance of natural resources in watersheds: reducing conflicts among multiple stakeholders*** *Session Chairs: Rano Mansurova, ACTED Tajikistan* *Chagat Almashev, FSDA, Russian Federation* *Rapporteur: Chagat Almashev* *Minute Taker: Farida Kiyazova, Aiyl Demi Newspaper* **A. Keynote presentations (50')** P1. Conflicts over Watershed Pasture Resources and Ways Forward by Alia Ibraimova (CAMP Alatoo/Kyrgyzstan) P2. Trans-boundary aspects of Watershed Management by Ekaterina Strikeleva, CAREC's Water Initiative Support Program P3. Collective Security: A village eye view by Benedicto Q. Sanchez (BIND, Philippines) P4. Presentation on work in Central Tien Shan Biodiversity under changing climate by Farida Balbakoba (WWF Kyrgyzstan) P5. Work with Water Authority in Naryn region by MSDSP AKF by Iskenderbek Amanbaev (MSDSP/AKF Kyrgyzstan)

TIME	SESSIONS	
	process for certification of organic produces by Anita Paul, (PHGF, India) P5. Mountain Livestock: Sector development & Adaptation technologies to climate change by Askarbek Tulobaev (Muras Bashaty, Kyrgyzstan) **B. Panel Discussion/Moderator:** *Taalaigul Saberbekova* **Panelists (25'):** 1. Mr. Kamiljon T. Akramov, Research Fellow/ Leader of the Central Asia Program, IFPRI/USA 2. Chinara Bilyaeva, Advisor to ADI, Kyrgyzstan 3. Kyzaim Ergeshova , Seed Bank Project, ADI, Kyrgyzstan 4. Anita Paul, Director- Community Initiatives, PHGF, India 5. Askarbek Tulobaev, Chairman, Muras Bashaty, Kyrgyzstan 6. Azamat Azarov, Research Fellow, MSRI/UCA **Panel questions (1):** 1. What are policy responses to this and what is the mountain communities' role in it? **C. Q&A (10')**	Launching of the Regional Network of Climate Resilient Mountain Villages by AGOCA (Alliance of Central Asian Mountain Villages) **B. Panel Discussion/Moderator:** *Rano Mansurova* **Panelists (25')** 1. Aliya Ibraimova, Climate specialist, CAMP Alatoo, Kyrgyzstan 2. Ekaterina Strikeleva, Program Manager of CAREC's Water Initiative Support Program 3. Benedicto Q.Sanchez, Program Coordinator, Broad Initiatives for Negros Development, Philippines BIND Philippines 4. Farida Balbakova, National Project Coordinator, WWF Kyrgyzstan 5. Iskenderbek Amanbaev, NRM Program Manager, MSDSP/AKF Kyrgyzstan **Panel question (1):** 1. What are policy responses to this and what is the mountain communities' role in it? **C. Q & A (10')**
11:20-11:40	**COFFEE BREAK**	
11:40-13:00	***MS3:* Productive protection in watersheds: increasing productivity and reducing disaster risks through sustainable land management** *(Mitigating floods and droughts; healthy soils; on-site and off-site benefits; multiple benefits of land management)* *Session Chairs: Svetlana Jumaeva, CCDR, Tajikistan* *Dr. Bettina Wolfgramm, CDE University of Bern* *Rapporteur: Svetlana Jumaeva, CCDR, Tajikistan* *Minute Taker: Akylbek Rakhmanberdi, AGOCA Secretary*	***MS4:* Session on Economics of good land management organized by CACILM II/ ICARDA** *Session Chairs: Dr. Shinan Kassam, Socio-economic &Policy Research Program, ICARDA, Jordan* *Rapporteur: CACILM II/ICARDA* *Minute taker: Alia Burkitova, MSDSP/AKF Kg*

TIME	SESSIONS	
	A. Keynote presentations (50') P1. "IWSM – harnessing successful models within a complex institutional environment" by Sady Odinashoev (CARITAS Tajikstan) P2. "IWSM – harnessing successful models within a complex institutional environment" by Jan Helsen (CARITAS Tajikistan) P3. Himalayan experience: The Grassroots Foundation India on their watershed work in high Himalayas by Kalyan Paul (PHGF, India) P4. Reducing Disaster Risks through Integrated Watershed Management by Ilhom Gulomjanov (ACTED on behalf of Consortium implementing National Water Resource Management Project) P5. Soil conserving and resource efficient agrotechnologies by Kayirkul Kazylaeva (AGRO LEAD, Kyrgyzstan)	**A. Keynote presentations (50')** P1. Economics of Land Degradation in Central Asia: Approaches, tools and achievement for policy making by Representative, Tajik Branch (ELD Secretariat for Central Asia) P2. Current practice of land management in Aksu Watershed and practical recommendations for improving the economics of good land management by Marian Szymanowicz (Helvetas) P3. Regional Program for Sustainable Agricultural Development in Central Asia and the Caucasus, Jozef Turok, Head Program Facilitation Unit c/o ICARDA by Nariman Nishanov (ICARDA) P4. Knowledge Management in CACILM phase II Sustainable Land Management (SLM) Technologies in Mountain Agro-ecosystem by Timur Ibragimov (CACILM II/ICARDA) P5. Launching of the Farmer's Manual on Affordable Water and Soil Conservation technologies by Roziya Alieva (CAMP Kuhiston)
	B. Panel Discussion/Moderator: *Dr. Bettina Wolfgramm* **Panelists (20')** 1. Sady Odinashoev, Project Manager, CARITAS Tajikistan 2. Kalyan Paul, Executive Director, Pan Himalayan Grassroots Foundation 3. Jan Helsen, NRM Team Leader, CARITAS Tajikistan 4. Ilhom Gulomjanov, Project Manager, ACTED Tajikistan 5. Kayirkul Mukanmedieva, IPM Head, AGRO LEAD, Kyrgyzstan **Panel question (1):** 1. What are policy responses to this and what is the mountain communities' role in it? **C. Q & A (10')**	**B. Panel Discussion/ Moderator:** *Simon Charre* **Panelists (20')** 1. Representative, Tajik office, ELD Secretariat for Central Asia. 2. Nariman Nishanov, ICARDA, Uzbekistan 3. Marian Szymanowicz, Project Manager, National Water Resource Management Project/Helvetas Tajikistan 4. Timur Ibragimov, CACILM II/ICARDA **Panel questions (1):** 1. What are policy responses to this and what is the mountain communities' role in it? **C. Q&A (10')**
13:00-13:40	**LUNCH**	

TIME	SESSIONS	
13:40-15:00 *Afternoon part*	***AS1: Exchange platforms for knowledge management on NRM in mountains*** *Session Chairs: Eric Nanchen, FSDDR, Switzerland* *Iskenderbek Amanbaev, NRM Program Manager, MSDSP/AKF Kyrgyzstan* *Rapporteur: Iskenderbek Amanbaev* *Minute Taker: Elena Shilonosova, Yrystan, Kyrgyzstan* **A.Keynote presentations (50')** P1. Knowledge Management in Central Asian Countries Initiative for Land Management II by Dr. Akmal Akramkhanov, Project coordinator, KM in CACILM II P2. Platform K-LINK by Gianluca Colombo, Project Manager, Siris Academic S.L. P3. Pasture management network in Tajikistan by Umed Vakhbov, National Coordinator, Regional Project Forest and Biodiversity Governance FLERMONECA EU/GIZ P4. Glaciers melting in Central Asia – time for action: collaborative effort by UNRCCA and UNESCO by Mr. Alfred Diebold, Consultant, UNRCCA P5. Central Asia Mountain Hub: Networking & working together (use as reporting) by Elbegzaya Batjargal, Program Officer, Central Asia Mountain Hub	***AS2: Session on research-action interface*** *(Decision support system; climate models; access to weather info; science interaction and popularization of data; adaptation measures at high altitudes)* *Session Chairs: Chris Hergarten, MSRI/UCA CAIAG Representative* *Rapporteur: CAIAG* *Minute Taker: Zuura Mamadalieva, ESPA, MSRI/UCA* **A. Keynote presentations (60')** P1. The applied scientific research on climate change and water resources by Ryskul Usubaliev, Researcher, Central Asia Institute of Applied Geosciences-CAIAG, Kyrgyzstan P2. The research-action interface in sustainable land management in Kyrgyzstan and Tajikistan: challenges and recommendations by Dr. Bettina Wolfgramm, Senior Research Scientist, CDE/ University of Bern, Switzerland P3. ESPA-MEVO enabling participatory decision support systems in Naryn Kyrgyzstan by Zuura Mamadalieva, Research Fellow, (MSRI/UCA Kyrgyzstan P4. Altai experience on Assessment of Mountain Specificities and mountainness for decision support by Chagat Almashev, Director, Foundation for Sustainable Development of Altai, Russian Federation P5. Research and policy advise for climate change impact in mountains: UNESCO's International Hydrological programme by Dr. Kristine Tovmasyan, Programme Specialist for Natural Sciences, UNESCO Almaty office P6. Launching of the Central Asian Network of Women Scientists by Svetlana Jumaeva, Director, Centre for Climate Change and Disaster Reduction , Tajikistan

TIME	SESSIONS	
	B.Round Table (25') **Moderator:** *Eric Nanchen* **Question to table (1):** Knowledge: What needs to be done to make sure that the knowledge reaches the intended groups?	**B. Round Table (15')** **Moderator:** *CAIAG* **Question to table (1):** 1. Role of research/decision support tools in policy making: research and science: how they support decision makers?
15:00-16:00 ***Plenary Session***	***Development Partners' Platform: SMD integration into development partner programs*** *(Joint initiatives on Watershed management and coverage of mountainous regions: the mountain aspects and their integration in programs & projects, expected outcomes)* *Session Moderators: Alia Burkitova, AKF Kyrgyzstan/Laila Zulkaphil, University of Central Asia* *Rapporteur: Laila Zulkaphil* *Minute Taker: Akylbek Rakhmanberdi, AGOCA Secretary* P1. CACILM II P2. CARITAS P3. ACTED P4. HELVETAS P5. GIZ NRM/Climate Change Program P6. MPS/FAO P7. PPCR/SLM Component Guest Speaker: Vernon Masayesva on Black Mesa water saving efforts (USA)	
16:00-16:20	**COFFEE BREAK**	
16:20-17:20 ***Plenary Session***	***Session results & the Forum Outcome document*** *Session Chairs: Khairullo Ibodzoda, Head, State Committee on Environmental Protection, Government of Republic of Tajikistan* *Co-chair: Elbegzaya Batjargal, Regional Program Officer, Central Asia Mountain Hub hosted by University of Central Asia* **Minute Taker: Sally Daultrey, Consultant** 1. Rapporteurs reporting on the Sessions (8 sessions + CAMP Forum 2015 Parallel Session outcomes) 2. The Forum Outcome Document	
17:20-17:30 **Plenary Session**	***Closing Ceremony:*** *Khairullo Ibodzoda, Head, State Committee on Environmental Protection, Government of Republic of Tajikistan* *Akbar Pesnani, AKDN Resident Representative to Tajik Republic*	
18:00-20:00	**Cultural Program organized by the Tajik Government, National Organizing Committee for the UN High Level Conference "Water for Life" in City Botanic Garden.**	

Dialogue platform/Stock-taking and reviewing work progress/Show-casing practical solutions and launching new initiatives:

1) Regional Network of Women Scientists of CA (CCDR);
2) Farmers Manual (CAMP Kuhiston);
3) Regional Network of Climate Resilient Mountain Villages of CA (AGOCA)/A milestone marking the achievements on prep. to the World Mountain Forum 2018 in Central Asia.

Sub-topics:

1) Food security and Agriculture under changing climate (agriculture, food security, integration of mountain concerns into development processes and plannings, watershed as the linking unit for mountains and water, economics of good land management, high and low land interactions; research and action interface);
2) Integrated Watershed management for adapting to and coping with climate change impacts (Mountain Water for securing adequate food).

Opening speech by Mr. Akbar Ali Pesnani, AKDN Resident Representative to Tajik Republic

Dear Honorary Deputy Prime Minister and representatives of Government of Tajikistan. Thank you for your promising participation and a heartfelt thank you for the Government of Tajikistan for organizing this interactive conference. It is my pleasure to witness as many as seventy two different countries partaking in the event and sharing their knowledge and wisdom on issues pertinent to inhabitants of mountain societies and the wider range of institutions working towards achieving sustainable mountain development around the world. AKDN is very grateful and pleased to able to contribute to today's Forum as well as the larger socio-economic growth and development of Tajikistan.

The Aga Khan Development Network (AKDN), of which University of Central Asia is a central keystone project, is a network of private, international, non-denominational organizations working towards improving welfare and prospects of people living across 30 countries in the world, particularly in Asia and Africa. Operating in Tajikistan since 1992, with year 2015 marking the 20th anniversary of the signing of Agreement of Cooperation with the Government of Tajikistan, AKDN maintains a strong presence in the country with more than 3,500 people employed, primarily Tajik nationals, and working through eight agencies across a broad spectrum of themes ranging from economic development, education, rural development to health care, disaster management, and cultural revitalization. Working through individual agencies, the Network aims to build institutions and programmes that can collectively respond to contemporary challenges and opportunities of social, economic and cultural growth in Tajikistan.

The University of Central Asia (UCA), founded in 2000, through an *International Treaty and Charter* signed by the Presidents of Tajikistan, the Kyrgyz Republic, and Kazakhstan, and His Highness the Aga Khan, offers an internationally recognized high quality education, accessible to people and communities in mountainous areas of Central Asia. UCA is the first internationally chartered university in the world; ratified by the parliaments of three founding states and registered with the United Nations. With campuses planned to operationalize in three different locations: Naryn (Kyrgyzstan) by September 2016, Khorog (Tajikistan) by September 2018 and Tekeli (Kazakhstan) by fall 2020, the University aims to prepare graduates to contribute leadership, ideas and innovation to the economies and communities of the region. The Khorog campus, with construction expected to start in full speed in this summer, will offer specialization in Earth and Environmental Sciences, Economics, and minor in Development Studies. UCA's mission is not only to foster the socio-economic development of the people of the region, preserving and drawing upon their rich cultural heritages as assets for the future, but also to work together with students, lecturers, and researchers from further afield in Asia and globally, to address and help define important fields of inquiry that are directly relevant to mountain economies and to the *global mountain development agenda.*

Today's convention termed "Dushanbe Forum of Mountain Countries 2015: Water and Mountains" has been organized by UCA and AKDN, through the Central Asia Mountain Hub hosted by UCA, in collaboration with the State Committee on Environmental Protection, the Government of Republic of Tajikistan, with support from Swiss Agency for Development and Cooperation (SDC). Today's meeting is the first in a series of forums taking place across Central Asia, organized through the Central Asia Mountain Hub and is taking place in parallel with United Nations High Level Water Conference "Water for Life", being held in Dushanbe from June 9 - 11, 2015. The forum anticipates an in-depth, multi-stakeholder discussion of issues of shared concern on food security and agriculture, climate change, ecosystems and watershed level management, disaster risk management and preparedness, as well as strategic coping mechanisms through which communities and governments alike can respond constructively to rapidly changing social and natural environments in Central Asia.

AKDN will be co-chairing together with UN Office for the Coordination of Humanitarian Affairs (OCHA) High-Level Round Table III: Water Beyond 2015: Global Challenges from a Water Perspective, within the fames of upcoming Water Conference on 10 June. This round table is co-organized by OCHA and Central Asia Mountain Hub and is aimed to further link prospective outcomes of today's convention on water and mountain challenges and find linkages with climate change, disaster risk reduction and humanitarian action.

In addition, as most of you know, the Government of Tajikistan with support of AKDN and UNOCHA will host World Humanitarian Summit South and Central Asian regional consultations on 28-30 July in Dushanbe. These consultations will bring together different stakeholders from 16 countries to discuss and propose regional perspectives on humanitarian action to the upcoming World Humanitarian Summit in Istanbul in 2016. Constructive outcomes of discussions we will have today and over the course of next three days in frames of the Water Conference will be cornerstone for shaping disaster risk management and humanitarian response in volatile humanitarian environment in the world we live today.

AKDN, as an institution in Tajikistan, has a history of bringing together multi-stakeholder dialogue platforms where decision makers of various levels, practitioners, researchers, local communities and civil society groups actively advocate sustainable mountain development initiatives at the global, regional and national level. Since 1997, AKDN through FOCUS Humanitarian Assistance, has been endevouring to foster disaster resiliency amongst at-risk communities through initiatives in information management, capacity building, community-based risk reduction and scientific knowledge generation. Additionally, AKDN's rural development arm, Mountain Societies Development Program (MSDSP), a project of Aga Khan Foundation, has been organizing and supporting local community-based organizations across Tajikistan since 1993. The organization focuses on areas of local governance, development of agriculture, natural resource management, and habitat and rural infrastructure, market-based approaches to micro and small enterprise development, facilitating access to capital and business development services and promoting cross-border trade. Moreover, within UCA as well, School of Professional and Continuing Education (SPCE) has provided vocational training and new business opportunities for over 76,000 students in the region, including Afghanistan and Mountain Societies Research Institute (MSRI), which Central Asia Mountain Hub is a part of, has developed an interdisciplinary research programme that seeks to address both the challenges and the opportunities in Central Asian mountain communities and environments, with the far-reaching goal to support and enhance the resilience and quality of life of mountain societies through generation and application of sound research. Therefore, I take great pride and pleasure in welcoming here today our many distinguished guests, and it is with renewed expectancy and hope for the future that we, UCA and AKDN, support and participate in the present forum with its focus on critical development topics and processes and hold hands in our common journey towards greater prosperity and sustainability in this part of the world, clearly one of the most extraordinary mountain regions of undisputed global significance.

Thank you.

FORUM SESSIONS SUMMARIES:

with examples from across the region and around the world, eight sessions with 44 presentations and group discussions moderated by subject-matter experts from the global mountain community offered multiple perspectives on the challenges facing mountain communities

Plenary Session 01 gave case studies of decision-making and planning about water in mountains and mountain community concerns were given from Tajikistan, Switzerland, Altai and UN OCHA.

Olimjon Safarov described provisions of the six laws that Tajikistan has introduced which address mountain concerns.

Eric Nanchen outlined the process whereby Switzerland developed a strategy for water use and water users.

Svetlana Buydisheva gave an account of the Altai experience of identifying indicators for sustainable mountain development, working with researchers in Moscow.

Marcel Vaessen from UNOCHA summarised the context for his organization and its programs mitigating future humanitarian crises catalysed by water stress.

Abdulhamid Kayumov gave an account of Tajik-led expeditions to glaciers in the high Pamirs and in Antarctica, illustrating the role for science in regional collaboration.

In all cases, collaboration and inclusive participation in design and execution was seen as vital to the viability of the law, strategy or project.

The example from Altai illustrated the role for research in helping to identify the indicators (geomorphic / landscape characteristics; socio-economic metrics) and issues (biodiversity conservation; reducing poverty in mountain communities) which would form the basis for Altai plan of action for sustainable mountain development.

The example from Switzerland illustrated the process of designing a strategy for managing water in mountains which has clear metrics, priorities and timeline. A role for all actors is clearly identified and while no single actor is responsible for delivery of the whole, an integrated design should ensure all actors are actively engaged.

Water stress will affect 47% of the global population by 2030. Coherent national programs can aid OCHA in its task of forward planning for humanitarian disaster and crisis mitigation in water-stressed areas.

The session noted that international platforms e.g. International Year of the Mountains (2002) and International Polar Year (2007-2009) can form a catalyst for national programs (example from Altai, which formed a steering committee for sustainable mountain development) and regional collaboration, particularly where engaging with the research community (an example was given from Tajikistan on glacier assessment, involving scientists from Tajikistan, Kyrgyzstan, Uzbekistan and Russia).

Thematic parallel session №1 on food security concluded that the session concluded that practitioners, communities and researchers must work together to develop the knowledge network to share the best practices among the countries; develop and support social entrepreneurship; encourage optimal usage / settlement of pastures for livestock; encourage and strengthen organic farming; involve women into the farming process and improve their capacity; and improve effective usage of pasture lands / croplands.

Thematic parallel session №2 on governance of natural resources concluded that the session concluded that vital to sustainable mountain development is to support and stimulate local communities as a key stakeholder and keeper of the mountain waters through capacity building projects in conflict management, involve them in consultative / participatory mechanisms e.g. basin councils, basin management plans and others (biodiversity conservation plans).

At the **thematic parallel session №3** on prod. prot. in watersheds, the participants discussed water issues on local and international level, noting in particular the status given to women in agriculture (with examples from India) and factors for effective water management including:

(1) evaluation of local population;
(2) training conduction;
(3) development plans on reducing disaster risks.

Thematic parallel session №4 on economics of land management the session concluded that agricultural policies need to be aligned with privately profitable and sustainable land use management paradigms which have sound environmental underpinnings and diversity in crop mix choices. In addition to supportive policies and public-private partnerships, an enabling environment requires:

(1) better coordination between agricultural research systems, academia, civil society and donors in order to enhance 'capacity to innovate' within local communities;
(2) promotion of gender equitable access to public and private resources which enhance social and economic opportunities;
(3) enhancement of social and environmental resilience through broad uptake of sustainable land use management practices which are able to mitigate the frequency and impact of natural and humanitarian disasters, improve farm incomes and reduce production risk.

Plenary session 02 reminded delegates that 'water is energy' and that effective adaptation to climate change requires that the needs of the population are identified. Different approaches can be combined to achieve a multi-sectoral approach, providing opportunity for development partners to bring experts in different areas to join efforts and share knowledge and communicate with partners to raise awareness.

Thematic session on **exchange platforms for knowledge management** recommended that facilitating improved knowledge exchange could be achieved via centres of excellence and competency in SMD advocacy, e.g. regional mountain hubs, their prototypes, programs and projects that are actively engaged with and owned by mountain nations enabling and consolidating coherent actions at all scales, supporting cross-learning and capacity enhancement for mountain communities.

Thematic parallel session on **research-action interface** concluded that to invest – the session concluded that to invest and improve knowledge base for mountainous countries it is necessary to create "science" extension service, making sure research findings will be translated into meaningful information for local communities. Empowerment through training of local communities was seen as vital, along with promotion of women in science.

The Dushanbe Forum of Mountain Countries was the first gathering of its kind in Central Asia. Similar events are happening around the world, such as the one from 2014 in Cusco, Peru and the upcoming World Mountain Forum in Uganda in 2016, where the outcomes of Dushanbe Forum of Mountain Countries will be shared.

Parallel Thematic Sessions: The Session Presentations[1]

"Legislation and Consultation Process for Implementation of the Law of the Republic of Tajikistan "On the Mountain Regions of the Republic of Tajikistan"

Olimjon Safarov,
Member of Parliament: Majlisi Namoyandagon Majlisi Oli of the Republic of Tajikistan

Tajikistan is the most mountainous country in Central Asia (CA). Ninety-three percent of its territory is surrounded by mountains, referring to the highest mountain systems of CA: Tien-Shan and the Pamirs. More than half of the territory is at an altitude of over 3,000 metres. The population of Tajikistan is 8.5 million. Around 5% live in mountain regions at an altitude of over 2,000 meters above sea level.

Key features of the mountain regions of the country include: relatively high population growth rates, relatively high level of rural poverty, limitations and irrational use of resources, including water resources, anthropogenic pressure on resources, harsh climatic conditions, complex and dissected topography and frequent disaster cases, remoteness and inaccessibility (transport and other communications) as well as low efficiency of economic activity that are resulting in low yields and productivity of agricultural activities, deterioration in the quality of life, aggravation of existing environmental challenges, increased sensitivity of mountain regions to the disasters and climate change and the emergence of cross-border issues.

Within the last years, the Tajik Parliament has adopted a series of laws and regulations to contribute and to promote sustainable mountain development in the Republic of Tajikistan (RT): Law of RT "On pastures", Law of RT "On Local Self-Government", Law of RT "On Dekhkan farms", Forest Code of RT, Law of RT "On Environmental Protection", etc. By adopting the National Law on Mountain Territories, the regulatory framework for addressing mountain specificities, the Government recognizes the importance of mountains for the country's development. Aiming to encourage participatory governance and enforcement mechanisms for the newly adopted Law at national and sub-national levels, a joint initiative has been developed between the Tajik Parliament standing committee on Environmental Protection and an active group of mountain stakeholders of Tajikistan. This partnership encourages consultation with local communities, allowing public concerns to be heard and capacities to be improved. The new initiative has been ongoing since 2014 and is supported by the Central Asian Mountain Hub under the Swiss Agency for Development and Cooperation funding. By using policy dialogue and consultation platforms, the initiative is undertaken in 2 tiers: national and sub-

1 *All forum presentations are available at DROPBOX : https://www.dropbox.com/sh/yp48y7yaiy84ec2/AAB-9ZIQMDZxW8BqC-WueyIIa?dl=0*

national levels, implemented by Tajikistan based mountain stakeholders as Centre for Climate Change and Disaster Reduction (CCDR) and CAMP Kuhiston . In 2014, the National Consultative meeting was held in Dushanbe and more than 20 representatives from various Ministries and state and non-government organisations participated: Members of Parliament of RT, Ministries – Ministry of Agriculture, Ministry of Economy and development, Committee of Environment of RT, Research Institutions - Soil Institute, Horticulture, University of Central Asia, from mountain districts – Rasht Valley, Sogd region, Gorno-Badakhshan Autonomous Region and Khatlon region, international - Aga Khan Foundation, Mountain Societies Development Support Programme (MSDSP), CCDR, UNFAO and public organisations participated. The meeting was chaired by the Chief of Agriculture and Ecology Department of Parliament. Through its members in Tajikistan, the MPHCA continues a series of Policy Dialogues on Integrating Mountain Concerns into the Country's Development in 2015.

Law coverage area

№	Administrative zones	Districts, with altitude level over 2000 м.
1	Khatlon Oblast	Khovaling district, Shurabad district, Baljuwon district
2	Sughd Oblast	Mastchoh district, Gonchi district, Shakhristan district
3	GBAO	All districts of GBAO
4	Districts of Republican Subordination	Jirgital district, Tavildara district Tajikabad district

Key Recommendations Elaborated during Consultation Processes

Key recommendations include: creating conditions for improving the level and quality of life of the mountain areas population, generating employment and provision of equal living conditions for the population of both mountainous and lowland regions of the country; preservation and protection of natural resources in mountain regions; developing a favorable investment climate and attraction of foreign investments for the development of mountain regions and the development of small and medium businesses in the mountainous regions of the country.

Planned activities

Planned activities include the development and implementation of regulations; further consultations and round tables in the regions in order to develop and implement regulations; development of implementation mechanism for the Law; strengthening

cooperation with the sectoral ministries; attracting external resources for investment programs; further study of international experiences and successful examples in other mountainous countries on mountain laws and mobilising resources of international financial funds on climate change adaptation to address the vulnerability of mountain regions.

Water strategy of Canton Valais, Switzerland[2]

Eric Nanchen,
Foundation for Sustainable Development in Mountain Regions, Switzerland

Water is an abundant resource in Valais, a region which shelters 80% of the Swiss glaciers, big mountain lakes, and numerous dams which allow to turbine water.

We consider water as an element with **three interrelated use**:

Firstly, we **use** it, for drinking water, irrigation, tourism, industry, and energy production (hydroelectricity). Secondly, we need to **protect** people, buildings, infrastructures and cultivable land from natural hazard caused by water, like floods and avalanches. Lastly, we need to **protect quality of superficial ground water**, and maintain lakes and rivers, which are vital spaces for biodiversity.

In order to have a **coordinated management** of this multifunctional resource, an **organisational and political framework is crucial**. It has to take into account the multiple interests in intensive use of water, as well as climate change, which will bring more and more exceptional situation in the future.

To face these challenges, Canton Valais developed a cantonal (regional) Water Strategy for **piloting** and **coordinating water management** as a **multifunctional resource** for the next 10 to 15 years. This strategy will help **apprehending major evolutions** that will be crucial in the next 20 to 30 years such as climate change, demography, economic development, energy production, environmental changes, economy and politics, evolution of chemical diversity. The strategy consists of 8 guidelines, and 39 measures. It is based on the principle that they will be **no sustainable management of water without good governance**. The implementation of this strategy needs the **participation** of all actors at all levels: national, regional and local political, economic, environmental, research centres and foundations.

Supervised by the framework, the eight guidelines aim at:

1) **coordinated management of water** *(5 measures)*;
2) **training and research** *(3 measures)*,
3) **supply drinking water** *(4 measures)*,
4) **ensure high water-quality** *(6 measures)*,
5) **protection against natural hazards** *(6 measures)*,
6) **energy supply** *(5 measures)*,
7) **economy supply** *(6 measures)*,
8) **biotopes conservation** *(4 measures)*.

2 *www.fddm.ch*

Some of the top priority measures are, for example, to create an information platform on water issues, to create a systematic global vision of drinking water supply, to operate the sanitation of old dumps, the start the optimisation and better maintenance of water catchments, and to implement the revised national law on water conservation.

In Switzerland, Valais is the first Canton to design and implement a Water Strategy. Challenges are numerous and **complex**, but the vision and the guidelines are now clear for all actors. The key words for its success are **good governance**, **trainings**, **R&D**, and an **integrated management** of water with a good political and organisational **framework. The active participation** from all actors is necessary to implement our measures, and guarantee the sustainability of this precious resource. Coordinating them is the role of FDDM.

Altai Experience of Assessment of Mountain Specificities and "Mountain-ness" [3]

Svetlana Buydisheva,
First Deputy Minister, Ministry of Economic Development and Tourism of Altai Republic

Chagat Almashev,
Director, Foundation for Sustainable Development of Altai (FSDA), Altai Republic of Russian Federation

Altai is a unique natural complex, one of the world's richest centres of biodiversity providing habitats for globally significant species (including snow leopard and Altai argali sheep), containing watersheds critical to Southern Siberia and unique spiritual and cultural monuments. The mountain ecosystems of this region include tundra, forest (about 25% of its territory), steppe, and desert biomes. In 1998, five separate clusters were recognized in the UNESCO World Natural Heritage list as the "Golden Mountains of Altai".

Administratively, Altai Republic[4] is a region in the Russian Federation of approximately 92.9 thousand square kilometres, adjoining Mongolia, China, and Kazakhstan and a population of about 211,000 people of diverse linguistic, ethnic, and religious origin.

3 *© Ministry of Economic Development and Investments of Altai Republic, 2014*
© Foundation for Sustainable Development of Altai (FSDA), 2014
4 *Until 1992 Altai Republic was a part of Altaiskiy Krai (region) as Gorno-Altaiskaya Autonomous Oblast (county).*

Average life expectancy in high mountain areas is 67 years. Population density is low (2.2 people per square kilometer) relative to other parts of Russia, due to its remoteness and inaccessibility. Its economy is underdeveloped and 70% of the Republic's annual budget relies on subsidies from the federal budget.

The economy is based on agriculture, mostly livestock rearing (cattle and red deer), crops and beekeeping. Tourism has been identified as significant for regional development. The Russian federal government created the "Altai Valley" Special Economic Zone based on the area's unique recreational capacity and natural importance. It is expected that this will facilitate development of Altai Republic's economic potential. Attention must also be devoted to the importance of preserving the Republic's historical and natural heritage, balanced social development, and sustainable use of natural resources.

In 2002, Moscow State University Faculty of Geography conducted a project supported by the Russian Finance Ministry to study the general condition of mountainous regions in Russia. Detailed further research is required to investigate: cost of living in mountain areas; characteristics of economic losses due to narrow specializations of mountain economies and limited productivity; relationship between socio-economic conditions in mountains and other parts of the country.

In 2002, Altai Republic established a Preparatory Committee for celebrating the *International Year of the Mountains*. At the related international conference, the "Altai Proposal" was developed to support sustainable development for Russia's mountainous areas. In 2003, with support from Russia's Ministry of Foreign Affairs, Altai Republic became a member of the Mountain Partnership.

At the federal level there is no systematic approach or specialized regulatory structure for issues of sustainable mountain development and the prospects for improving federal legislation for mountain issues are not clear. Russia's Republic of Northern Ossetia–Alania developed a regional law based on mountain specifics out of necessity (the *Act of Mountain Territories Development*, 1998).

In 2008, Altai Republic and Moscow State University collaborated on a project entitled '*Development of methodology for integral analysis of the impacts of 'mountain-ness' on human conditions and economy in Altai Republic*', aimed at selecting and analyzing indicators to assess the impact of "mountain-ness" on the economy and population of mountain regions in the Russian Federation. This case study will be used for further preparation of budget proposals to the Russian federal government for mountain regions of Russia. A similar approach to mountain specifics is needed for political and legislative issues for the Altai Republic.

The physical geography of the Russian Federation is primarily low-lying terrain. Mountain areas are located in the periphery, with particular socio-economic and

geopolitical challenges. Historically, mountain regions have been marginalized due to remoteness, conditions of 'modest' investment and weak infrastructure development. Post Soviet Union, rural production was shut down and marginalization of mountain regions intensified. In addition to geophysical challenges (remoteness, harsh climate, vulnerability to environmental degradation and natural disasters), mountain areas face specific, serious problems, which require urgent attention, including: high rate of unemployment; unregulated and unsustainable tourism which degrades environment and does not fully support local quality of life; limited market access for local agricultural products and traditional handicrafts; fragmentation of land and limited sustainable use of natural resources; poaching of endangered species; migration; and shortage of public funds to address these issues. Mountain conditions have a significant impact on the local population and on the effectiveness of economic activities, at the household level and across a narrow economic structure, with decreased budget revenues and increased annual costs. All these challenges require a solution within a framework of coherent and sustainable mountain development strategy that includes specific calculations to determine budgetary allocations to reduce the impacts of "mountain-ness" on the region's socio-economic complex. The government of the Altai Republic, represented by the Ministry of Economic Development and Investment, has been collaborating with Moscow State University (MSU) on such a framework.

Proposals for the Russian Federation government have been prepared for the use of an integrated estimation of "mountain-ness" when:

(1) calculating budget allocations for reducing the impact of "mountain-ness" on the economy and population of mountain regions of the Russian Federation;

(2) allocating federal funding for implementation of the Targeted Federal Programmes for reducing co-financing programmes by mountainous Russian regions;

(3) calculating subsidies for the reimbursement of costs to agricultural producers.

The experience of the Russian Academy of Science and the results of developing integrated an assessment method to zone and assess the scale of discomfort for human activity in Altai Republic with its specific mountainous and arid areas are also being taken into consideration. Using the modified method, two sets of indicators will be formed: physical-geographical (climate, hydrology, population density); and socio-economic (which are related to the physical issues).

Small scale farming practice in Kyrgyzstan

Azamat Azarov,
Research Fellow, MSRI\UCA

The first results of this study show, that the resource base of prevalent farming systems in the mountainous regions of northern and central Kyrgyzstan is poor. The area of cultivated land is five hectares per family or even less. Neglected or non-available irrigation facilities reduce the productive land area even more. According to the marginal conditions in the highlands, only a limited number of crops can be cultivated, so that farming systems depend mainly on livestock production. Crop production mainly serves as source of feed for livestock, the flocks consisting of some cattle, horses and sheep. In higher areas, yack and some goats are supplementary. According to cluster analysis, farming systems can be divided in two separate groups: farming systems in the higher altitudes with reduced pasture period, limited access to cultivated and irrigated land and long distances to markets (*Jailoo high* altitude farming systems), and farming systems in mid-level altitudes

with long pasture period and better access to arable land, product and labor markets (*Jailoo mid-level* altitude farming systems).

Gross margin analysis, comparing costs and benefits from crop and livestock production activities, reveals significant differences between the two groups: *Jailoo mid-level* achieves high gross margins for alfalfa fodder crop and potatoes, whereas marginal conditions in the case of *Jailoo high* permit only the cultivation of less productive sainfoin for fodder production, whereas the available area for highly productive potato production is small. Low productive cereal production is limited to barley production for fodder purposes, with some additional gross margin contributions from market crops like wheat and sugar beets in the case of *Jailoo mid-level*. Strikingly, livestock production is not much more productive than crop production. It is caused by expensive fodder provision from on- and off-farm resources due to harsh winter conditions and decreasing pasture availability. Hence, more productive fodder production is a key element for improving the situation. Yack and goat keeping provide additional margins, however limited by narrow markets and limited resources to access the highest mountain pastures. The low level of productive inputs (fertilizer and plant protection) prevents higher gross margins in crop production. In livestock production, a lack of medical treatment and the high costs for fodder provisioning prevent more efficient production methods, as pasture delivers not enough energy for increased milk and meat production. Income of farming systems derives mainly from the small farm revenues, however, a substantial part is generated by off-farm activities. Revenues from livestock production are the basic source of income in both farming systems groups, however, *Jailoo mid-level* generates a substantial income sum also from crop production. Because off-farm activities are limited, farming systems try to increase their flock sizes, however, low productivity and unsatisfying fodder availability prevents economic success. Added value production like processing of milk is currently providing not enough additional income. Hence, in regard to this issue, research should focus on improvement of fodder production, enhancement of fodder purchases (market access and price structures), and the exploration of additional processing activities to enhance on-farm income contributions, specifically in the case of *Jailoo high*. In the case of *Jailoo mid-level*, possibly increased availability of resources for already productive potato and alfalfa production could be a useful development pathway. However, provision of productive inputs and additional consultancy services would be needed to ensure success in this area. The market orientation of both farming systems is low, because the provision of subsistence needs through livestock fodder, and crop and meat production for home consumption leaves only a small amount of capacities unbound for cash crops as well as for market production of milk and meat. The increasing trend to labor-extensive horse/mare activities illustrates that family labor resources are at their limit. Hired labor is costly and therefore, under the current circumstance with low revenues and low cash income, it is not a valid option for both farming systems groups.

The current study needs to explore the questions in order to find solutions for improving the economic situation of farming systems:

- To what extent optimized irrigation management can increase crop productivity?
- How to differences in capital endowment (machinery, equipment) influence economic success, and what are the differences between farming systems groups?
- How do cash flow and liquidity influence timing of livestock sales and how could this be optimized?
- What are the limiting factors preventing increase of cashmere and yack production in the case of *Jailoo high*?

What effects could be expected if investment capital would be made available for improvement of barns and milking equipment to reduce pasture dependency?

Mountain Livestock Rearing: Adaptation and main directions of the sector under changing climate

Dr. Askarbek Tulobaev,

PF "Muras Bashaty"/ KTU "Manas"

The Kyrgyz Republic is located in the eastern part of Central Asia among the Tien Shan and Pamir mountain ranges. It borders with Kazakhstan, China, Tajikistan and Uzbekistan. The terrain is characterized by high mountains with alpine meadows, deserts and mountain steppe. 93% of its territory is at 1000 metres above sea level (maximum altitude, 7,439 m). The mountain ecosystems are highly vulnerable to climate change, which is already a reality for Kyrgyzstan where increased temperatures are recorded from 1885 to 2011.

Muras Bashaty PF with support from TCF undertakes research on traditional knowledge of nomadic livestock herding practices. Livestock rearing among mountain communities is an ethnic identity marker and the country has accumulated significant traditional knowledge on seasonal pasture use and the technology of rearing livestock and sustainable use of natural resources including mountain pastures. Locally adapted livestock animal breeds include cows (about 2,067 heads in 2013), locally specific cross-breeds of sheep (about 5,424 in 2013), goats and horses (about 400 in 2013). These animals are reared to encourage features (e.g. hooves adapted for high mountains) suitable for the climate and topography.

The future of Kyrgyzstan's livestock sector depends on how the common resources of pasture are managed. 5.8% of pastures are located at altitudes less than 1000 metres above sea level; 22.6 at 1,000 to 2,000 meters 30.2% at 2,000 to 3,000 metres; and the majority, 40.8%, at 3,000 metres or more above sea level. 56% of pastures are on slopes of 30 degrees or more. Free-ranging animals results in lower productivity and possible

overgrazing of pastures if rotation is not practiced. Good practices have been observed in the villages of Saba Aje and Shamshy, where pasture rotation is in practice and farmers have shifted their animals from winter to springtime births. Challenges for farmers include loss of productivity from the previous generations, disease treatment among young animals and difficulty in adapting new generations of animals to the environmental conditions.

Trans-boundary Water Cooperation in Central Asia: Challenges and Opportunities

Ekaterina Strikeleva,
Program Manager, CAREC (Central Asian Regional Environmental Centre)

Central Asia is home to 68 million people and is today one of world's political, social and economic 'hot spots'. Water security is a crucial element for future sustainability of the region. It is an important factor for food, energy and environmental sustainability and the multitude of water management issues across Central Asia are interlinked. Socio-political and economical transformations in the past two decades have contributed significantly to changes in the water sector. The countries of Central Asia are going through political, economic and social changes since their independence in 1991. The transition has had long-term impacts on the water sector, which was the second-largest user of state funds during Soviet times. Post independence, growing economic crisis and limited funding capacities of national states have reduced the inflow of finances to the water sector. This in turn has reduced the role and influence of water bureaucrats in national governance. Although these changes in the water sector have taken place at the national level, they have far reaching impact across the region. Regional approaches to water security are the outcome of national policies within the region. In recent years, issues of water management in Central Asia have become a political issue. The role of technocrat–water managers has reduced from active agenda setters to observers. After 1991, two out of five countries retained a Ministry of Water Resources as a separate organization within government; in one country it merged with agriculture but is still recognized as a separate department; in two countries the water management department is part of the Environment Agency. The limited capacities of water institutions, inefficient water management and lack of coordination result in competition and contestation for water at all scales (local to regional). Reforms in agriculture and other sectors of economy have further affected the water sector. New national agricultural policies and economic growth in other sectors of economy have produced new water policies in each country. Therefore, improvements in water management cannot be achieved by individual sectors or countries. This paper highlights the importance of an integrated approach to water sector reforms which will enhance the efficiency of water resources management and increase the likelihood of cooperation on water management among the countries of Central Asia.

Tropical watershed conflicts

Benedicto Q. Sanchez,
Program coordinator, BIND, Philippines

The BIND presentation represents a reflection of lessons learned implementing its various community forestry projects among forest-dependent communities in the protected areas of Mt. Kanlaon and Northern Negros Natural Parks. and engaging the State and approaches to resolving conflicts of land ownership and usufruct among residents of mountain communities, uplanders against lowlanders, State environmental regulatory bodies on natural resource use versus forest-resource users, land use conflicts between forests and agriculture, timber and non-timber forest product (NTFP) users, choice of exotic over endemic trees on reforestation projects, and the conflict between sustainable development workers and rebel armed groups.

From the start, BIND and State regulatory bodies opposed res nullius regimes on natural resource management. On the part of the State, it has designated forest lands as part of the public domain. But because of the ruggedness and remoteness of the terrain, State institutions are noted more for their absence. The only government entities that frequently visit these areas are government soldiers who are in hot pursuit of armed Maoist rebels who converted forest areas into their guerilla bases.

Driven by armed conflicts elsewhere or by landgrabbing in the lowland, landless upland farmers migrated to and cleared mountain forests for establishing subsistence farming or even sugarcane monocultures. With the increased unregulated (ab)use of forestlands, the Negrense forest cover has shrunk to four percent in 1989.

To address these issues and enhance civilian presence, the State partnered with civil society organizations to assist it in implementing community forestry programs. BIND was the pioneer in organizing two communities in Northern Negros Forest Reserve to attain a Community Based Forest Management Agreement to ensure qualified members of a people's organization of land tenure and usufruct over forest resources.

Forest resources, however, often imply timber resources. National State policy has banned the use of naturally-grown endemic species. With a total log ban, there was danger that the effect would be the exact opposite of the policy objective: the overharvesting of timber for commercial purposes. A major use is the conversion of timber into charcoal to be sold to lowland grilling industry of meat and fish.

Together with the Non-Timber Forest Product-Task Force, BIND promoted a value shift from timber to NTFPs. Weavers of grass, pandan palms, bamboo, and harvesters of wild honey were bought, delivered and sold to the green market of Bacolod City, Metro-Manila and even exported to Spain.

To diversify upland farm production, BIND as a leading member of the Organic na Negros! Producers and Retailers Association (ONOPRA), assisted mountain farmers to shift to organic farming. Upland vegetables, shade-grown trees, and heirloom rice varieties were sold during the Negros Island Organic Farming Festivals and weekend organic markets sponsored by malls. These activities were supported by the provincial government and the private sector.

To avoid confrontation with rebel armed groups, BIND partnered with the Philippine Army and the Department of the Environmental and Natural Resources (DENR) on various projects such as forest survey and inventories, and organized reforestation projects with various publics such as church-based groups, media, academia, local governments, and

environmental groups. That implied that government, civil society, the private sector made their presence felt in the Negrense hinterlands.

On its part, BIND and its partner communities assisted the DENR in enforcing State regulations against timber poaching. This has led to the arrest and litigation of the culprits.

BIND also worked with other forest conservation advocates among NGOs to promote rainforestation, that is, the rehabilitation of denuded forests by planting endemic dipterocarp species, or Philippine hardwoods.

Integrated Watershed Management Harnessing successful models within a complex institutional environment

Marian Szymancwicz,
Project Manager, HELVETAS

As a response to the trend of environmental degradation and climate change, Caritas Switzerland in Tajikistan started in September 2011 implementing the Swiss Development and Cooperation (SDC) funded Integrated Watershed Management (IWSM) project in Muminabad District. The project aims to contribute to reducing the natural disaster risk of the population of two selected pilot watersheds (Obishur and Chukurak) by sustaining the processes of integrated management of the watersheds. Within a participatory process involving all concerned stakeholders, two Watershed Action Plans (WAPs) were developed - one for each watershed. The WAPs determine sustainable land management (SLM) technologies to be implemented in order to restore and protect the land area and provide some processes towards IWSM. Selected SLM activities focus on pasture management, conservation agriculture, agroforestry, tree-planting, energy saving and mitigation infrastructure. The WAPs shall serve as the voluntary governance tool establishing an inclusive decision-making process, enhancing cooperation among all stakeholders, and supporting the creation and improvement of institutional structures. WAPs contribute thereby to strengthening ownership and to poverty & environmental mainstreaming while pursuing a gender sensitive approach.

In the two watersheds, 12 000 people of 19 villages currently benefit from the IWSM project. So far, 14% of the total watershed area (1 508 ha out of 11 200 ha of land) is under improved management (1 214 ha pasture land, 173 ha arable land, 121 ha tree-planted land). The implementation of SLM technologies has resulted for instance in planting fruit trees on over 100 ha of land (orchards, soil stabilisation) and leguminous fodder crops on over 200 ha (soil regeneration and stabilisation). Over 100 farmers have been introduced to the concept of conservation agriculture. 15 Pasture User Unions (PUU), benefiting more

than 2,035 households, have been established in terms of organising pasture rotation, developing watering points and regulating livestock numbers. Watershed management activities are effectively coordinated by the Civil Society Committee (CSC) constituted in each of the two watersheds and monitored by an IWSM Steering Committee, which brings together representatives of all stakeholders from public, private and civil society.

In order to contribute to the gradual reduction of the risk of natural disasters in the watersheds, to create a sense of ownership and to improve planning and budgetary capacities for poverty & environment mainstreaming, the project will support the revision of the WAPs as to make them the mechanism for good governance of land, water and forests and, to let them serve as a guide for other stakeholders in the country. The project will continue assisting the implementation of specific WAPs activities, providing technical expertise in SLM and building capacity of the stakeholders as well as creating synergies with other DRR and development initiatives. The project will also consolidate its integrated dimension through specific synergies with other approaches including M4P, value-chain development, pasture improvement, and gender mainstreaming.

Climate change adaptation and biodiversity conservation in Central Tien Shan

Farida Balbakova,
WWF Projects Coordinator, Kyrgyz Republic

The Central Tien Shan extend over a land area of about 13 thousand square kilometres and are the source of the Syrdarya and Tarim rivers, part of the 'water tower of Central Asia'. The Sary Zhaz river basin has about 1310 glaciers with a total coverage of 1977.9 km2 of ice, and the Akshyirak river basin there are 335 glaciers with a total of 328 km2 of ice. It is one of 200 Global Ecoregions and is home to Snow Leopard, Pallas' Cat, Argali, Ibis-bill, birds of prey listed in the IUCN Red List of Endangered Species, 31 species of endemic invertebrate and 11 species of endemic plants.

In the Central Tien Shan, biodiversity is increasingly coming into conflict with other natural resource users. Pastoralists are increasing their number of livestock, for example in Ak-Suu district (12 villages) which currently records about 208 thousand hectares of pasture with 1.8 livestock units per hectare; and Djety Oguz district (10 villages), which has 352 thousand hectares of pasture with about 1.6 livestock units per hectare. 25 hunting companies were recorded around the reserve in 2009 (decreased to 15 in 2014); poachers are known in Akshyirak, Enilchek and Karakolka villages. Livestock breeders are coming into conflict with snow leopard (two recorded cases in 2015), bear, wolf and jackals. Kumtor, a gold mining company, has begun exploration in the buffer zone of Sarychat Ertash reserve, where intensive melting of Petrov glacier (about 14 kilometres in length over an area of 70.6 square kilometres) is recorded.

WWF has established 'ECONET' as an action to preserve biodiversity and promote climate change adaptation in the Central Tien Shan. WWF has investigated cases of conflict with the activities of Kumtor, including marking the borders of the wildlife reserve, documenting and collecting facts about conflict with gold mining activities, analysis of problems in meetings of Parliament, press conference and distribution of information among mass media. WWF has worked on conflict among pasture users, including through holding workshops in Akshyrak, Enilchek and Karakolka villages, promoting anti-poaching activities with population and frontier soldiers, providing community support for alternative income generating activities development (felt processing); Marketing

support and encouragement in participating Regional Fair of handicrafts "Oimo"; promoting yak breeding as an alternative sustainable use of pastures which supports adaptation to Climate Change; and in two villages (Akshyirak and Enilchek) established Local Development Funds (LDF) with a project input of 10,000 USD and population input of 3,000 USD.

On analysis of climate change in the region and particularly in the Central Tien Shan, WWF has prepared two reports: (1) Climate Change vulnerability assessment in Central Tian Shan; (2) Climate change and water problems in Central Asia. WWF actively promotes renewable energy as an adaptation to Climate Change, installing wind turbines at two of the ranger stations in the Sarychat Eertash reserve.

In support of eco-education among the population, WWF has participated in ecological theater of Clubs of WWF Friends "Ak Ilbirs", producing: Ecological festival "The land of Snow Leopard", Eco-theater "The voice of animals"; Ecological Festival «Water – source of Life»; Ecological theater in Enilchek village «Tale of the Forest».«Forest – lungs of the nature»; and a Summer Eco-camp in 2014 on the shore of Lake Issyk Kul which featured the winners of children's ecological competitions from Akshyirak and Enilchek villages.

Work with Water Authority Naryn Region (Kyrgyz Republic)

Iskanderbek Amanbaev,
Mountain Societies Development Support Programme (PF MSDSP KG /AKF)

Due to the lack of funding after 1991 current and repair works carried out in extremely limited quantities. More than 60% of -on farm irrigation systems cannot provide necessary volume of irrigation water for irrigated lands. In on-farming irrigation- drainage network is fully or partially destroyed up to 60% of regulatory structures.

Total area of Naryn oblast: 4,300 thousand ha, out of them 1,300 thousand ha are for agriculture, including 120thousand ha of arable land.

Poverty rate is 53% of the population. Poverty is heavily concentrated in rural areas where about three-quarters of the oblast's poor live.

However, difficult physical terrain, increasing land degradation, decaying agriculture infrastructure and lack of farm support services contribute to low yield as well as high poverty levels in these high mountain areas. The lack of efficient irrigation infrastructure pushes the farmers to delay their cropping seasons by 25-30 days in spring.

The specific problems population of Naryn region:

1) Limited access to irrigation water because of decaying irrigation canals (major-, minor-, inter-farm -and on-farm):

On-farm canals, inter-farm canals and drainage networks inherited from the Soviet period require significant funds for maintenance. However, due to lack of funding for maintenance and repair works, the irrigation infrastructure has deteriorated.

2) Low institutional capacity of the Water Users Associations:

While responsibility for maintenance and management of on-farm irrigation canals was transferred to WUAs by central government, the irrigation infrastructure targeted by the proposed project is not managed by such associations, but rather by independent informal village groups.

3) Use of inefficient irrigation practices by farmers

The Kyrgyzstan Mountain Societies Development Support Programme (MSDSP KG), an initiative of Aga Khan Foundation, is a locally registered public foundation which seeks to improve the livelihoods of select communities in Kyrgyzstan's mountain areas. To this end, MSDSP KG implements a range of integrated interventions in rural development, education, and health which converge in villages and are implemented in collaboration with and between community-based groups and local government authorities. Disaster risk reduction, enhancing local governance, and improving climate change resilience are cross-cutting themes across MSDSP KG's work. MSDSP KG's core programme area includes the mountainous districts of Alai, Chong-Alai, and Kara-Kulja in Osh oblast as well as Naryn and At-Bashy districts in Naryn oblast, covering a total population of more than 320,000 people. In Alai, Chong-Alai and Kara-Kulja districts, MSDSP KG has invested significant resources in rehabilitating irrigation infrastructure and in providing a wide range of advisory services to farmers. From 2004 to present, MSDSP KG rehabilitated 50 irrigation canals in Osh and Naryn oblasts.

About the Project

Donor: Secretary for State for Foreign and Commonwealth Affairs (UK). *Period of implementation:* 08/2013 - 03/2015. *Region:* Naryn and At-Bashy districts (Naryn Oblast)

The Specific Objectives were:

1) Physical rehabilitation of irrigation infrastructure in collaboration with local communities and local government authorities;
2) Support WUAs and District Water Departments in the development and implementation of conflict free operation and management plan of irrigation;
3) Improve skills of farmers in using water-efficient agricultural techniques.

Target group

Five WUAs, one District Water Department that are responsible for managing the irrigation infrastructure rehabilitated underthis project.

Final beneficiaries

At least 10 222 people living in Kara-Kuiun, Bash-Kaiyndy, Ak-Jar, Ak-Moiun, Sary-Oi, Chet-Nura, Jan-Bulak, Ortok villages/AOs in Naryn oblast.

Estimated results

1. Seven irrigation infrastructures rehabilitated providing access to irrigation water to 5,890 ha of land benefiting 2,217 Hhs.
2. 7 plans developed jointly by WUAs and DWD and approved by local government authorities.
3. More the 110 farmers reached through FFS approach.

Reducing Disaster Risks through Integrated Watershed Management

Ilhom Gulomjanov,
ACTED on behalf of Concortium implementing National Water Resource Management Project

Key message

Ecosystem based Environmental approach is key for effective Reduction of Disaster Risks

Brief description

Floods, mudflows, and landslides frequently affect the Syr Darya basin, with Ak-Suu and Khojabakirgan basins evaluated as being the most at risk.

While the disasters that affect the region are due to natural extreme events aggravated by climate change (e.g. extreme seasonal precipitation, increasingly rapid melting of snow), assessments have also shown that human activities are having a detrimental effect on the natural environment: Inadequate management of natural resources (e.g. overgrazing, excessive irrigation and lack of river/canal maintenance, deforestation) are causing severe degradation of land and riverbanks. As watershed populations grow and settle homes and livestock increasingly close to rivers and canals, the situation is worsening increasing the risks to human property and lives. This mismanagement of natural resources and lack of understanding of the interconnectedness of vulnerability between upstream and downstream areas aggravates the vulnerability of the region.

Major Challenges to be addressed in Ak-Suu Sub-basin include:

Current land use practices do not correspond well to existing land use potential/ constraint, including the over use of pastures and harvesting of wood for fuel sources- greatly contributing to the degradation of natural resources, such as soil degradation and deforestation leading to an overall decrease in land productivity and increase in local vulnerability to natural hazards.

Signs of advanced degradation can be observed basically all along the upper and middle sections of the watershed- which together contribute to more than 90% of the watershed area.

Poor community awareness of the interconnectivity of the watershed means that up to the present the local population is in most cases both the main driver and victim of the ongoing natural resource degradation processes.

Poor coordination between cross-border authorities and governance stakeholders means that village planning and development rarely takes into consideration the consequences for villages across the border or at different levels of the watershed.

Adaptation to Climate Change: "Development of the pocket manual for farmers on low-cost affordable technologies for saving water and soil resources in the highlands of Tajikistan"

Roziya Alieva,
Director of CAMP Kuhiston

Climate change and increasing frequency of climatic extremes is particularly affecting Tajikistan's mountainous and semi-arid environments, which are experiencing increased risk of natural hazards (e.g. droughts, landslides, flooding), requiring special efforts for better adaptation of land management and livelihood strategies. Land degradation is widespread, increasing the sensitivity of land to climate change impacts. Pastures, meadows, natural forests and areas along roads and water canals, indicate heavy degradation in over 60% of the area. Sustainable Land Management practices contribute to mitigation of climate change through building up carbon storages in the land and provide options for adaptation. It is therefore important to raise awareness of farmers and villagers about climate change and to facilitate the identification and use of water and soil conservation technologies among agricultural communities.

In 2014-15 with support from the Swiss Agency for Development and Environment (a grant of 12,000USD), CAMP Kuhiston implemented a project in in Faizabad district Tajikistan to produce a Farmer's Pocket Manual on selected, proven technologies for farmers in highlands of Tajikistan. The project utilized results from WOCAT (World Overview of Conservation and Approach of Technologies) and WSC (Water and Soil Conservation). The project produced fully compiled and processed content for publishing the Farmer's Pocket Manual, including field-testing and verification by the primary users (farmers and experts), ready for publishing in 2015.

Recommendations were developed on: methods of improving agricultural productivity and soil fertility for mountain brown soil type; measures to protect the soil from erosion, which ultimately contribute to improved food security in mountain regions and reduced vulnerability to climate change and increased adaptive capacity of communities; best practices (which were identified, documented and integrated into the Manual). The Manual contributes to wider adoption of soil and water conserving techniques and practices of SLM/SWU by sharing information and knowledge. Further dissemination of this Pocket Manual will increase mountain communities' awareness and knowledge on sustainable use of water and soil conservation technologies in agriculture in the highlands of Tajikistan.

* * *

The *Pocket Manual for Farmers* contributes to wider adoption of soil and water conserving techniques and practices of SLM/SWU by sharing information and knowledge among farmers in highlands of Tajikistan.

Faizabad is located in the central part of the country, 53 km from Dushanbe and 31 km from Vahdat district. It is a an irrigated area of forest-gardens and pastures, at altitudes of 1,500m to 2,700m. The total area of Faizabad district is approximately 87,411 hectares, with agricultural land of about 62,750 hecatres (including 5,178 hectares of irrigated land, 7,867 hectares of arable land (of which 3,648 hectares is irrigated), 50,619 hectares of pasture and 3,989 hectares of orchards, vineyards and mulberry plantations. Faizabad specializes in the production of fruit, grapes, vegetables, meat and poultry. Low yields due to the lack of proper care for plants, poor disease and pest control is common across the area.

Important challenges in Faizabad include: inefficient use of land (i.e. without observing erosion measures); deforestation and unsustainable harvest practices by uprooting shrubs; overgrazing; ploughing along the slopes; shortage of organic fertilizers (used for primary needs of heating); pasture degradation, invasion of exotic species (nonedible plants) and desertification; low yields of agricultural crops; lack of knowledge and skills of farmers in use of water and soil conservation technologies in agriculture.

The 'Pocket Manual for Farmers' project was designed to address these challenges.

Knowledge Management in Central Asian Countries Initiative for Land Management II[5]

Dr. Akmal Akramkhanov,
ICARDA-CAC, Uzbekistan

Knowledge Management in the Central Asian Countries Initiative for Land Management (CACILM)

Diverse and operational partnership to address Sustainable Land Management in Central Asia:

- Collaborative effort of ICARDACAC and GIZ to promote SLM in the region
- Developed into 3-year ICARDA project supported by IFAD
- Logical continuation of earlier SLM-research and other projects conducted within CACILM I

Project objectives

1. Enhance the CACILM knowledge management component for facilitating wide-spread dissemination of SLM
2. Improve agricultural systems for enhanced productivity and sustainability, and promote climate change adaptation approaches and technologies

5 *www.cacilm.org*

Approach and Components

Multidisciplinary approach to disseminate SLM at different levels through components on:

- Synthesis
- Socio-economic assessment
- Packaging and dissemination

Target groups

i. Key decision and policy making units responsible for SLM in each participating country

ii. NGOs and rural development agencies working in each country and at the regional level

iii. Extension agencies, farmers and farmers' organizations

iv. International community active in Central Asia

Inception and partners

- Inception workshop in Bishkek in June 2013
- Full involvement and support from NARS
  - Kazakhstan: Soil Research Institute
  - Kyrgyzstan: Ministry of Agriculture and Melioration
  - Tajikistan: Academy of Agricultural Sciences
  - Turkmenistan: Ministry of Water Resources
  - Uzbekistan: Soil Research Institute

Sources of information

Huge amount of information and ready technologies to tap for upscaling, including:

- CACILM I projects (15 identified)
- World Overview of Conservation Approaches and Technologies
- Partner initiatives (i.e. NARS, ELD)

Collected SLM

Countries	Approaches	Technologies	TOTAL
Kazakhstan	1	34	35
Kyrgyzstan	9	25	34
Tajikistan	5	31	36
Turkmenistan	0	20	20
Uzbekistan	14	40	54
Total	**29**	**150**	**179**

SLM description

- Short template based on WOCAT form
- Contains short definition and info about technology, reference to author, environment, impact etc.

Compiled 90 SLM (75 technologies and 15 approaches)

1. Increase of soil fertility
2. Improving methods of sowing/planting crops and soil tillage
3. Agroforestry-amelioration/agroforestry
4. Erosion prevention
5. Management of water demand
6. Improving rangeland/fodder production
7. Increasing capacity of land users/environmental education

Planned activities in Ferghana action site

Outputs 6 Months	Outputs 12 Months	Outcomes 12 Months	Gender Outputs 12 Months	CD Outputs and Outcomes 12 Months
- 20% contribution to a book compilation of promising SLM technologies; - 20% contribution web database of collected SLM; - Contribution to a series of training events - 3 specialists in GIS; - 2 for bias correction of downscaled CC models.	- Farmer field-days (2); - Video-infographics about selected SLM; - National level similarity/ suitability maps for selected SLM; - Policy briefs.	- Awareness in the region about SLM and web-based knowledge platform measured through number of attendees and web analytics tools, respectively.	- Potential proportion of female/male audience approximated from statistics.	- Trained national staff (5) in analytical tools and around 50 farmers/ producers.
- 20% contributed to a book compilation of promising SLM technologies; - 10% contributed web database of collected SLM; - Contribution to a series of training events - 3 specialists in GIS (July, September 2015); - 1 for bias correction of downscaled CC models (Osh Province)	- Farmers field days conducted in Osh Province (25 April 2015); - Video-infographics about selected SLM (July 2015); - National level similarity/ suitability maps for selected SLM (August-September 2015); - Policy briefs (October 2015).	- Awareness in the region about SLM and web-based knowledge platform measured through number of attendees and web analytics tools, respectively (in progress).	- Potential proportion of female/male audience approximated from statistics (in progress).	- Trained national staff (5) in analytical tools and around 50 farmers/ producers (in progress).

Implemented activities in Ferghana action site

- Drip irrigation on pistachio plantations was established (4 ha) and a field day was conducted on 26 April 2015 in Osh Province (Mountain agroecosystem).

- Fenced 2 ha of rangeland and planted *Isen*, *Eurotia* and *Aellenia* (perennial forage crops) in Karasu district, Osh Province.

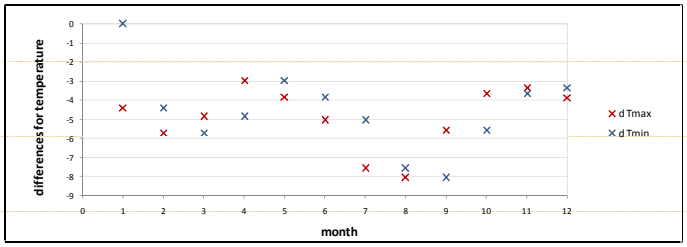
Planned to conduct a field day for local household/farmers in the second decade of July 2015.

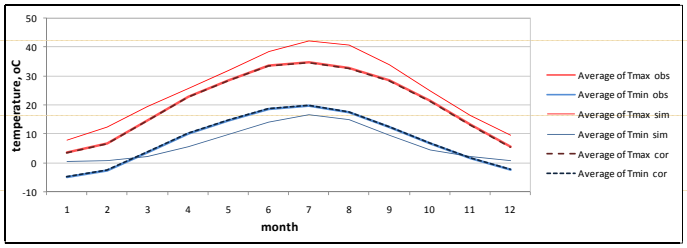
Calibration of downscaled climate models

- Collaboration with Texas A&M University on procedures for calibration of down-scaled Global Circulation Models to the regional or country level
- Tools to potentially assess climate change impact to NARS partners during training-consultation in June 16-20, 2014

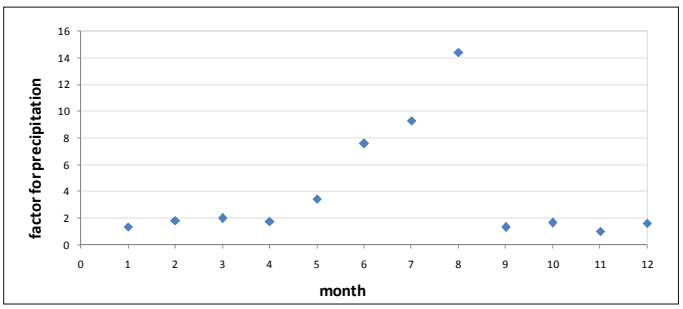
- Collaboration with Texas A&M University on procedures for calibration of down-scaled Global Circulation Models to the regional or country level
- Tools to potentially assess climate change impact to NARS partners during training-consultation in June 16-20, 2014

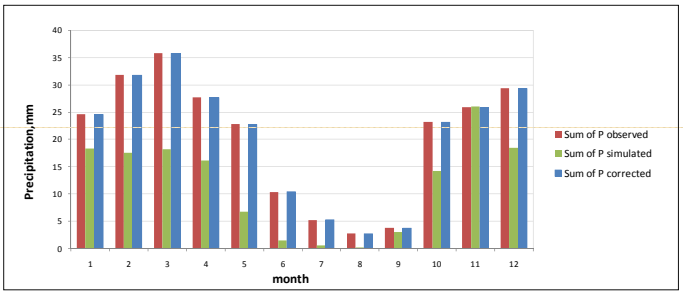
Fine-tuning the minimum and maximum temperature using bias correction tool, Uzbekistan, Andijan, 1961-2005.





Fine-tuning the precipitation using bias correction tool, Uzbekistan, Andijan, 1961-2005.





Knowledge dissemination

Initial project website located @ICARDA-CAC site with project materials for easy access and reference

Review and survey of extension services in Central Asia

- Identification of existing extension services system in countries completed
- Conducting survey of service providersreference

Cost-benefit analyses of selected SLM

- Brainstorming session during Almaty workshop
- Template prepared and input data identified
- Survey is being completed

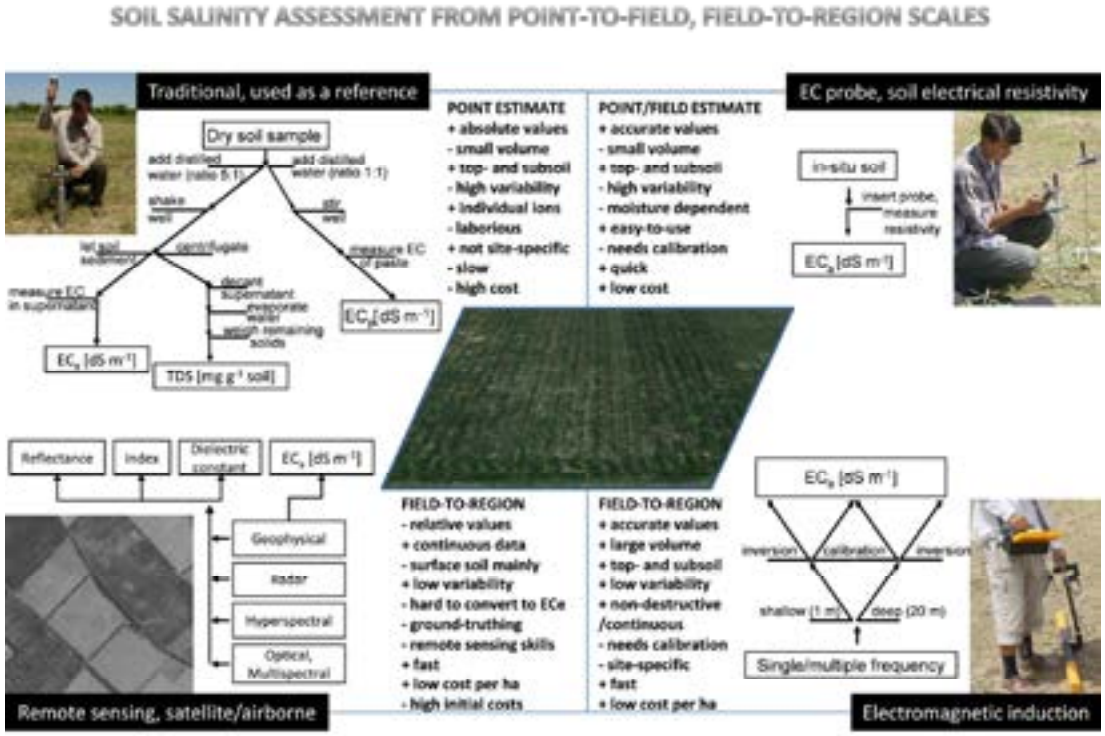
Monitoring of soil salinity by repeated EM surveys

Issues:

- Low irrigation and water use efficiency
- Shallow groundwater table
- Deteriorating drainage network
- Secondary soil salinity requiring leaching
- Inadequate soil salinity monitoring

Objectives

- To develop an efficient strategy for monitoring local soil salinity using electromagnetic induction measurements
- To apply and evaluate this strategy in a real-world case study in Uzbekistan



Study area

- Study site – 80 ha
- Soil salinity assessment – EM38 in vertical mode

Data

- EM survey – in October-November over 4 years (2008-2011)
- EM38 readings (EC_a) are calibrated on EC_e of soil samples at 142 locations

Predicted EC_e

- Only few areas with predicted EC_e above 6 dSm^{-1}
- The areas with high salinity were more pronounced in 2009-2010 and less so in 2008 and 2011

Location-specific trend in EC_e

- Slight positive time trend in EC_e of ~ 0.5 dSm^{-1} $year^{-1}$
- Negative time trend of up to 1.0 dSm^{-1} $year^{-1}$
- Location-specific time trends were statistically not significant at most places

Conclusions

- EM-surveys can be used to obtain local predictions of EC_e and temporal changes therein
- Proposed simulation procedure accounts for multiple sources of error/uncertainty: estimated regression parameters, residual error, interpolation error in covariate log(EM38)
- Temporal correlation of regression residuals is ignored; room for improvement

K-Link: New approach to Knowledge Management in Central Asia

Gianluca Colombo,
Project Manager, Siris Academic S.L

Effective search and information exchange in the field of sustainable use of land resources and adaptation to climate change.

Context

International development agencies, local non-governmental organizations, local authorities and research institutions all have a high interest in addressing Sustainable land management and climate resilience issues. However, the complex landscape of these stakeholders and different level of collection, processing, storage and exchange of information lead to major difficulties in locating existing knowledge and communicating this information to data users. Therefore identification of best partners and best experience for interaction is not a simple task. These significant deficiencies in the knowledge management process show how urgent is a creation of a more efficient approach enabling to simplify and speed up the exchange of information and sharing of knowledge between all parties involved.

Our objectives

The K-Link tool was created in the framework of the EU-FLERMONECA project, implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the GIZ Regional programme for sustainable use of natural resources in Central Asia, funded

by the German Ministry of Economic Cooperation and Development (BMZ) with the aim to facilitate the exchange of expertise, best approaches and technologies, and best experience among stakeholders working in the field of adaptation to climate change and sustainable land management. The tool unites stakeholders' websites without creation of a central hub, and orchestrates necessary information related to natural resources management accessible through various web-sites, while retaining their independent status and keeping control over personalized data bases.

Results and outlook

The contribution at the Forum of Mountain Countries will be focused on the presentation of the K-link pilot results and experience of use. It involves six partners: the Kyrgyz State Agency for Environmental Protection and Forestry, NGO Camp Alatoo, the Regional Environmental Centre for Central Asia (CAREC), the Mountain Society Research Institute of the University of Central Asia (UCA), the knowledge sharing platform of the Central Asian Countries Initiative on Land Management (CACILM 2) and the public foundation EcoMuseum in Karaganda. Through reporting feedback from end users of the pilot, the main features of the solution will be described, together with the correlated capacity building results gained by the initiative.

Pasture Management Networking Platform in Tajikistan

Umed Vahobov,
National Coordinator, Regional Project Forest and Biodiversity GovernanceIncluding Environmental Monitoring\FLERMONECA EU/GIZ, Tajik Pasture Management Network

Context

Degrading pastures are becoming an increasing threat to the rural livelihood, the economy of Tajikistan, and the globally important biodiversity and ecosystems, with restoration being nearly impossible and becoming more and more expensive. It is estimated that some level of land degradation currently affects almost all of the agricultural land in the country. Combating degradation processes and restoration of rangeland ecosystems are a priority for Tajikistan.

Government is paying an increasing attention to the problem of rangeland degradation. Still for the time being there is not enough clear vision of the rangeland sector's future and sustainable livestock management.

Many different projects and donor funded initiatives are continuously contributing to the identification of solutions and provide support. Up to date a number of pilot initiatives in Tajikistan have been able to show different locally-applicable approaches to sustainable natural resource use and pasture management. At the latest gathering of practitioners and experts devoted to pasture management, on Aug 28th, 2013 it was noted that there is weak and inconsistent organization of networking/ coordination and knowledge exchange among pasture related stakeholders, as well as lack of synergies in activities. Participants have expressed their interest and necessity to have an informal "Pasture Management Networking Platform".

Our objectives

The overall objective of the "Pasture Management Networking Platform" is to contribute to sustainable management of rangelands in Tajikistan that fosters rural economic development while restoring rangelands ecosystems.

The project "Forest and Biodiversity Governance Including Environmental Monitoring (FLERMONECA)" is one of the four components of the Regional Environment Programme of European union for Central Asia (EURECA 2009) and focuses on Forest Law Enforcement and Governance (FLEG), Ecological Restoration and Biodiversity Conservation (ERCA) and establishment of Monitoring Systems for Environmental Data in Central Asia (MONECA).

Our measures

The objective will be pursued through national dialogue and knowledge exchange based on practical and on-the-ground experiences of the pasture management network members. All activities are conducted in the framework of the EU funded Project FLERMONECA, which is implemented by the regional GIZ programme for sustainable use of natural resources in Central Asia.

Following the kick-off workshop in December 2013 and based on common efforts by the members of the network numerous activities have been launched. For example, joint visits to Kyrgyzstan and within Tajikistan to study the best practices in the field of pasture management have been organized; public hearings of draft by-laws in different districts of Tajikistan have been conducted; a Model Charter for Pasture User Unions and the roadmap for the registration process are being elaborated and also a visual map showing all passed and ongoing projects in the field of pasture management in Tajikistan. Members of Pasture Network participate in international conferences and presentations of best practices. More than 90 persons from 20 organizations have been directly involved in activities of the network. About 400 persons have received information relevant and useful to their work such a documentation of good practices, fact sheets and policy notes on important aspects of pasture management, calendar for herders on pasture use planning & monitoring, newsletter.

Results up to date

Due to networking and knowledge sharing network members are increasingly enabled to master their tasks towards sustainable pasture management, irrespective of their position and relation to pasture management. The network is widely known and well situated in Tajikistan. Decision makers are increasingly approaching the network for information sharing purposes and joint discussions prior to decision taking.

Thus the platform will provide for continued and consistent exchange of knowledge and experiences and joint learning; for systematic and standardized identification and documentation of good practices and promotes dissemination; contributes to the development and implementation of pasture management policy in Tajikistan.

Glaciers melting in Central Asia: Time for action

Alfred Diebold,
consultant for UNRCCA

All Central Asian countries including Afghanistan recognize that climate change and glaciers melting in the region are threats to sustainable development: There is a nexus between climate, water availability, energy and food production, which must not be neglected. National, bi-lateral, regional and international programs are necessary to cope with the challenges, which come with the climate change.

It is necessary to recognize the glaciers as resources to be shared by the countries in the Aral Sea basin. In this regard, governments in the region should take the responsibility to adapt to the impacts of climate change/melting glaciers in various ways such as reservoirs and more effective and efficient water management. Adapting to climate change requires changes in the legislation, educational programs, and the allocation of funds. To date there is a lack of coordination of national policies in the region. This is a major problem and it becomes an obstacle for better water and energy cooperation. The reason is that the countries seem to be considering the possibility of cooperation in the light of the policy of self-sufficiency in energy and water resources. Policy of non-cooperation, associated with minimal dependence on other countries, is costly to all countries. According to the UNDP, the economic benefits of cooperation in the field of water management in the region quantifiable factors each year could be around 5% of regional GDP.

The process of decision-making, public participation, access to information and education in the context of climate change/glaciers melting must not be underestimated. It is clear that knowledge of this important subject should be made available to the general public. Decision-making for adaptation and mitigation of climate change should take place in the framework of a participatory process. The public should be aware of the issues involved and to lobby for support of the government/NGOs for the implementation of project activities. Education is an effective way to change behaviour, increase public awareness of the necessity to adapt to climate change and the treatment of water as a scarce resource.

There is evidence that glaciers are shrinking in the high mountains of Central Asia. There is a lack of balance between environmental protection, hydropower generation and agricultural production. Adaptation to climate change is urgently needed and the international community has the responsibility to support the countries of CA. It was concluded that an in-depth stakeholder analysis is needed to get a complete overview of all stakeholders in CA and past and on-going activities/projects should be mapped. This analysis will be instrumental for better and transparent cooperation among stakeholders.

Four projects were identified for immediate implementation. In the context of the working group the following project will be presented:

Knowledge Management – Awareness Raising – Public Participation – Public Access to Information

Dr. Akmal Akramkhanov,
ICARDA-CAC, Uzbekistan

Development objective

The project is aimed at getting decision makers, journalists and the interested public familiarized with all aspects of climate change, glaciers melting and its effects on surface and groundwater in Central Asia. It also aims to educate the public to get involved in public decision-making in the context of climate change and encourage the Central Asia countries to work together to mitigate and adapt to climate change. The public has access to information.

Background:

- *Public Awareness*
  Many governments and non-governmental organizations (NGOs) have already launched major public awareness programmes. But there are so many people to reach, and so many behaviors and decisions to influence, that there remains an enormous unmet need for more outreach. Creating a successful outreach programmes that truly changes behavior is not easy to do. Effective programmes and strategies are needed.
- *Public Participation*
  Governments can better mobilize the energies of the general public by ensuring that people can participate actively in climate change decision-making. This will sometimes require profound changes in how political leaders and civil servants are accustomed to working.
- *Public Access to Information*
  Programmes to engage citizens and non-governmental organizations in addressing climate change can be improved by ensuring that information is more freely available. Information must be easily accessible to anyone who seeks it out in libraries, on the internet or from government offices

More specifically: The Central Asian countries want to participate more actively in international cooperation opportunities to address the challenges of mitigating climate change and adapting to the impact of climate change. The concept of creating a public awareness for the necessity of Nationally Appropriate Mitigation Actions (NAMAs) is proposed. It foresees developing NAMAs for Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Kazakhstan.

Changing public attitudes towards treating water as a scarce resource is also crucial. In this context it is of vital importance that the public and the leaders of all countries commit to the understanding that water is a common pool resources, which means that there should be private property rights associated with ground and surface water and that the water consumption will be organized in such a way that it will be used to the best of the societies. Water is recognized as a human right.

Involving the general public in saving water activities, keeping water sources clean and mitigating the consequences of the environmental crisis in the Aral Sea region would greatly help improve the situation.

Assistance in the development and implementation of public awareness would substantially contribute to expanding the scope of ongoing activities and to a more efficient use of water resources in general.

Beneficiaries

General public, decision makers, NGOs, media, agencies responsible for water resources and infrastructure management, environment.

Partner organizations

Media companies, radio and TV stations, newspapers, SIC ICSD, EC IFAS, Eco Forum (Uzbekistan), CAREC, Ministries of Environmental Protection, Agriculture and Water.

Outcomes:

- Public awareness about climate change/glacier melting/scarcity of water increased
- Water scarcity reduced
- Adaptation to environmental hazards
- Access to information
- Public decision making

Outputs:

- Awareness of civil society and decision makers increased;
- Greater public awareness of policies, programs, climate change, glacier melting and water issu;es
- Target groups identified;
- The demand for water decreased;
- Water quality in major sources maintained.

Activities:

- Development of a social marketing campaign;
- Identifying target groups;
- Development of messages, products for the successful implementation of the campaign;
- Conducting sociological surveys of target groups prior to awareness campaigns, during implementation and after the project completion;
- Establishing the effectiveness of information delivery channels;
- Developing the Regional and National Strategies for public and stakeholder awareness;
- Implementing Regional and National Strategies for public and stakeholder awareness;
- Disseminating information to the general public and stakeholders;
- Production of TV and radio programs, websites, articles;
- Acitivities of Social marketing: develop and integrate marketing concepts with other approaches to influence behaviors that benefit individuals and communities for the greater social good. It seeks to integrate research, best practice, theory, audience and partnership insight, to inform the delivery of competition sensitive and segmented social change programs that are effective, efficient, equitable and sustainable.

Performance indicators:

- Policies, strategies, and work programs developed, discussed, agreed;
- Awareness of civil society and decision-makers increased.

Applied researches of Central Asian Institute for Applied Geosciences in the field of climate and water resources

Ryskul Usubaliev,
Researcher, Central Asian Institute of Applied Geosciences (CAIAG)

The *Central Asian Institute for Applied Geosciences* (CAIAG, *www.caiag.kg*) is a multi-disciplinary institute with scientists from a range of disciplines including geology, climatology, hydrology, glaciology, hydrogeology, limnology, geophysics, geodesy and remote sensing. CAIAG owns and operates monitoring networks on seismology and geodesy, a network of hydro-meteorological stations and high mountainous glacier monitoring stations. Observations data are linked to information system data, including a geo-database and corresponding web interface for easy and open access.

The scientific activities of CAIAG began in 2004-2006. With the Ministry of Emergencies and GFZ (Potsdam), CAIAG conducted research projects using advanced land and remote investigation methods for obtaining high-precision data on catastrophic natural phenomena. In 2004-2005 and 2008-2012 CAIAG contributed to international expeditions to study the catastrophic breaks of Lake Merzbacher and degradation of Inylchek glacier and created the G. Merzbacher Geoscience Observatory. CAIAG uses field observations and remote sensing to monitor natural processes, establish causality for glacier lake breakouts and monitor glacier movement. This work is particularly essential for decisions about creating a cascade of hydropower plants on the Sary-Jaz River.

A significant project achievement implemented by CAIAG in cooperation with GFZ and others is *Water in Central Asia* (CAWa). The aim of the project is to contribute to Central Asian countries in establishing a science-based and reliable regional database for the development of sustainable water management strategies. Special emphasis is on the following issues and areas:

- Hydro-meteorological monitoring network and geodata base;
- Regional water resources and climate modeling;
- Observation of glaciers mass balance;
- Regional management of water resources;
- Education and training.

Results to date and further expected outcomes include:

1. Developing a modern cross-border network of hydro-meteorological monitoring stations including automatic sensors and satellite data transmission in on-line mode;
2. Developing a regional hydrological model for assessment of water resources in Central Asian region;
3. Renewed monitoring of the mass balance of representative glaciers;
4. Provision of databases, climatological and hydrological models and recommendations for best practices in water management and irrigation;
5. Evaluation of scenarios for the impact of land and water use on regional hydrological processes and the hydrodynamic role of the Aral Sea.

CAIAG also offers training courses, preparation of educational materials, knowledge transfer activities including the presentation of scientific outcomes to communities and decision making persons.

ESPA/Mountain EVO Project: Developing and enabling participatory decision support systems in Naryn, Kyrgyzstan

Zuura Mamadalieva,
Research fellow, MSRI \ UCA

Blending cutting-edge concepts of adaptive governance with technological breakthroughs in citizen science and knowledge co-generation (with community partners), the project aims to solve the problem of limited and poor quality environmental data in remote mountain areas, with outcomes contributing to improved socio-economic development among farming communities.

The project explores how recent conceptual and technological innovations in environmental sensing, data processing, interactive visualization and participatory knowledge generation can be leveraged to implement local demand-driven, interactive and multi-directional approaches to knowledge generation about ecosystem services. The approach is based on the concept of the *Environmental Virtual Observatory* (EVO): decentralized and open technology platforms for knowledge generation and exchange that enable participation of marginalized and vulnerable communities who are otherwise bypassed by the traditional mechanisms.

Naryn Province is a rural, high altitude, remote region in the east of Kyrgyzstan, in the arid to semi-arid Tien Shan mountains. In the Soviet era, much of Naryn was used for livestock raising. Following the collapse of the Soviet Union and the restructuring of social, economic, and political systems, land degradation continued. The dejure and defacto establishment of new land use and management schemes established since independence has altered the drivers of land degradation. Current scientific knowledge of these new drivers and their impacts on land degradation and ESS is extremely limited. Research institutions and monitoring stations in contemporary Kyrgyzstan (government and non-government) are functioning at minimal levels and data sharing and links between research and/or monitoring to now localized land management decision making processes is extremely limited. In addition, governance arrangements at various levels have experienced numerous shocks (notably in 1991, 2005 and 2010). The prospects for improving the very poor data-sharing, limited monitoring and state of knowledge are aggravated by negative climate change impacts on water resources, agriculture, natural disaster occurrence, and health in the country.

Analyses based on the measurements done through the EVO will contribute directly into local climate change adaptation and sub-district-level planning processes. The project has four implementation phases:

(1) Situational analysis of the project area (Naryn);

(2) Participatory EVO design;

(3) Design of local monitoring systems and practices;

(4) Evaluation & sustainability.

Quarterly project meetings will be held with the sub-district working groups, farmers, civic groups, and other local government groups working on issues relevant to pasture management, forestry, natural disasters, and water management. The project will attempt to extrapolate comparable conditions and impacts from outside the study area to the situation in Naryn district.

Ecosystem-based Adaptation in high mountainous regions of Central Asia

Context

The ecosystems of the high mountain regions of Central Asia are biodiversity hotspots and provide essential services such as the regulation and provision of water resources for the population of the entire region. However, the high sensitivity of the ecosystems in combination with inappropriate land management practices result in a high vulnerability to climate change. Expected impacts, which are manifested mainly in melting glaciers and changes in water flow regimes, decrease their resilience and have already led to increasing ecosystem degradation and deterioration.

Ecosystem-based adaptation aims to increase the resilience of people reliant upon services provided by nature, by addressing the degradation of ecosystems and thereby reducing their vulnerability to climate change. So far, however, decision makers cannot make full use of the potential and opportunities of this concept, since regionally specific and tested experiences are lacking.

Objectives

The project plans to test innovative and cost-efficient approaches and strategies for ecosystem-based adaptation for high mountain regions of Central Asia, also addressing

institutional, economic, technical and informational barriers. With the experience thus gained, national and regional dialogues on ecosystem-based adaptation are triggered.

The pilot projects serve as a showcase, in order to support the policies and strategies in the region with experience-based measures for ecosystem-based adaptation as well as the programmes of international development partners and finance institutions, such as the World Bank.

Planned measures

The planned pilot project will concentrate on climate-informed management of ecosystems in order to maintain their services for the rural population, using the examples of two selected small watersheds. The measures are developed in collaboration with the local communities and project partners. At the same time, the project focuses on capacity building in order to enable national decision makers to conceptualize and implement ecosystem-based adaptation measures and integrate the concept in the policy dialogue at national, regional and international level.

Therefore, the project makes use of existing regional and international experiences of other BMUB funded activities, like UNEP and CAREC, GIZ programmes[6], and other relevant projects. For the multiplication of ecosystem-based adaptation approaches and their financing, recommendations will be developed and fed into the policy dialogue.

Expected Results

The upcoming project will enhance the adaptive capacity of the partner countries and directly contribute to climate change adaptation. The main advantage of the ecosystem-based adaptation lies in the various co-benefits generated, such as the contribution to sustainable development, biodiversity conservation, decreasing land degradation and climate change mitigation, as well as the cost-efficiency.

From contributions to poverty reduction and sustainable development both genders will benefit. Thus, the capacity make use of ecosystem-based adaptation for their international obligations under UNFCCC, UNCCD and UNCBD will be enhanced.

Risk and water management and adaptation to climate change in the Alpine context

Hanspeter Staffler,
General Director of the Autonomous Province of Bolzano, Italy

Key messages:

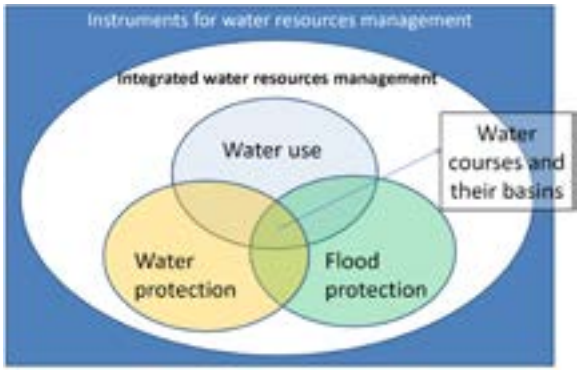
1. A holistic and integrated approach is needed in order to manage water resources and natural hazards and to implement suitable adaptation measures to climate change
2. Sharing experiences and identifying joint solutions at a regional transboundary level can lead to good practices which can be used to address similar problems and raise the awareness of policy makers
3. Local adaptation to climate change helps assessing territorial vulnerability factors & resilience capacity

6 *www.giz.de*

Brief description and major challenges to be addressed:

How to deal with the need of adapting the domains of risk and water management to climate change in a mountain environment?

First of all an integrated approach should be used, which takes into account the different water uses and their potential conflicts (agriculture, energy, human consumption, ecosystems protection, etc.), water quality and flood protection as different sides of the same coin.



The Integrated Water Resources Management (IWRM) concept is applied in the Alpine Countries mainly by implementing the European Directives 2000/60/EC and 2007/60/EC (slightly different but comparable rules are applied in Switzerland and Liechtenstein, being non-EU Countries).

The Water Framework Directive (2000/60/EC) mainly deals with water quality, ecosystem protection, water uses and monitoring programmes; the Flood Directive (2007/60/EC) introduces rules and measures dealing with flood management, mudflows and debris flows, including the emergency planning and preparedness.

Notwithstanding the prevailing perception, Italy is not only a Country of seas and historical cities, but also a genuinely mountainous Country (some 50% of the national territory is mountainous), and the application of the mentioned Directives for managing water and natural hazards in a mountain context is worth a significant attention.

In this line, the Alpine Convention - that is an international treaty on the sustainable development of the Alpine area signed in 1991 by 8 Countries and the EU, is a fruitful platform for promoting a sound international exchange of experiences aimed at finding common solutions to deal with similar problems also concerning water and risk management. A consistent application of the mentioned EU Directives has been at the centre of the debate over the last few years[7]. The Alpine transboundary region covers 190,000 km^2 and hosts almost 15 million inhabitants and counts around 450 million of tourist overnight stays per year, that increase the vulnerability of an already sensitive environment. In the Alps, phenomena as floods, flash floods, debris flows, landslides and avalanches can be severe threats if not adequately considered and managed.

Thus, in this context, land planning is a topic dealt with by some Protocols of the Alpine Convention (in particular: spatial planning and sustainable development - 1994; mountain farming - 1994; soil conservation - 1998), while water management is addressed by the Treaty as a cross-cutting issue.

The same integrated approach is needed for risk management, that is a circular effort including: response to an event, recovery and preparedness as different steps of a continuous process.

7 *http://www.alpconv.org/en/organization/groups/WGWater/Documents/FD_WFD.pdf*

A holistic strategy for disaster risk reduction that considers structural, non-structural, organizational measures and their best combination is the most appropriate approach for climate adaptation in this sector.

The overall goal of adaptation to climate change in the field of natural hazards is to limit existing risks to human health, material assets, economic activities and the environment to acceptable levels, and prevent the emergence of new unacceptable risks. In other words, the main target is to achieve and preserve adequate levels of safety in relation to natural hazards and sustainability principles.

The objectives for integrated climate-proof risk management in the Alpine region are:

1) being prepared for emergency intervention;
2) performing a review of the climate change fitness of existing structural protection measures;
3) setting up and optimising long-term monitoring and early-warning;
4) anticipating and dealing with new risks;
5) adapting hazard and risk mapping to a changing climate;
6) enhancing coordination between spatial planning and risk management;
7) establishing a "risk culture" and initiating a risk dialogue;
8) strengthening individual preparedness and precaution;
9) improving the knowledge-base and its transfer to practice;
10) maintaining and improving the functionality of protection forests.

At the same time, climate adaptation at the local level must integrate: i) considerations to enhance positive synergies with other cross-cutting aspects such as water management, biodiversity, air quality, and energy; ii) the principles of international and national/regional adaptation strategies with special regard to the CAP (Common Agricultural Policy); iii) the long-term economic and environmental sustainability of mountain farming practices, and iv) the involvement of local stakeholders in the process of definition and implementation of adaptation initiatives.

Adaptation requires higher soil resilience against both excess (intense rainfalls) and lack (extended droughts) of water. A key element to respond to both the problems is to enhance soil organic matter. In this sense adaptation objectives should be targeted to incentive good soil management practices to maintain its main functions.

Selecting more suitable crops to heat stress and droughts may reduce irrigation water demand. Other management low-cost techniques may be promoted to enhance water retention and minimize water evaporation during extreme events such as minimum tillage or mulching. Improvement of irrigation efficiency is in any case needed.

In the context of the Alpine Convention, on the initiative of the Italian in-turn Presidency of the Alpine Convention, along the way opened by the Declaration of Alpine Ministers in Alpbach (2006) and the Action Plan on Climate Change in the Alps (2009), the XIII Conference of the Parties (Turin, 2014) adopted the Guidelines for Climate Change Adaptation at the local level in the Alps[8], aiming to create a shared and accessible instrument targeted to sub-national and local decision makers and the business sector, to harmonise and promote local adaptation policies and measures in the Alps, and to help to assess vulnerability factors and increase local resilience.

These Guidelines have been presented also on the occasion of the 20th Conference of the Parties of the UNFCCC in Lima in December, 2014.

8 *http://www.minambiente.it/sites/default/files/archivio_immagini/Lima/Guidelines%20for%20Climate%20Change%20Adaptation%20at%20the%20local%20level%20in%20the%20Alps_.pdf*

Annex 1: RESOLUTION
Dushanbe Forum of Mountain Countries – 2015: Water and Mountains

We, more than 120 representatives of organizations working on mountain issues including representatives of national and local governments, parliaments, civil society, development partners and practitioners and local community representatives and researchers from around the world, having gathered in Dushanbe, Republic of Tajikistan on 8 June 2015 for the *Forum of Mountain Countries* to discuss water and mountain linkages in the context of mountain agriculture and food security under a changing global climate, focusing on the importance of maintaining watersheds as the ecological units best describing water and mountain interdependencies:

- **Extend our sincere gratitude** to the Government of Tajikistan and the people and our partners from Tajikistan for hosting the *Dushanbe Forum of Mountain Countries*: the first comprehensive forum of its kind in Central Asia;
- **Recognizing** the importance of mountain ranges in Central Asia as an integral part of the global mountain system forming the largest interlinked mountain sub-system with the Hindu Kush, Karakorum and Himalayas;
- **Recognize** the wealth of essential ecosystem goods and services provided by mountain regions to mountain people and to lowland populations worldwide, for example the water provisioning services of the 'Water Towers' of Central Asia which contain an estimated 4,000 glaciers that store and provide water for 68 million people in the region;
- **Note** Sustainable Development Goal 6.6 on water and sanitation for all, which calls for the protection and restoration of water-related ecosystems including mountains;
- **Emphasize** that global challenges including climate change, retreating glaciers, deforestation, rapid urbanization and growing demand for water and food affect profoundly the availability and quality of water for everyone; and that anthropogenic pressures on the water-food-energy nexus create complex challenges for present and future generations, warranting urgent action;
- **Acknowledge** the findings of the Fifth Assessment Report (AR5) of the United Nations Intergovernmental Panel on Climate Change (IPCC) and the four priority actions identified in the Sendai Framework for Disaster Risk Reduction (DRR) 2015-2030, adopted in 2015 at the Third United Nations World Conference on DRR;
- **Draw attention to** the role of mountain farmers and smallholders as stewards of fragile mountain ecosystems and healthy watersheds, on which local and regional agriculture and millions of people depend for their survival;
- **Note that** development policies are often designed for plains and lowland areas without adequate and due provisions for mountain specificities;

- **Accord** equal importance to the application of research for development and to practitioner knowledge for informing decision-making and policy formulations that are genuinely aligned with pathways to progress for mountain communities and support the principles of integrated watershed management;
- **and unanimously voice our concern** about the state of melting ice, depleting water resources, diminishing water quality and resource extraction patterns which threaten environment and food security throughout the region, such as in the Central Tien Shan and Altai-Sayan where 28% of total ice cover has disappeared over the past forty years;

We call upon local and national governments, communities and development organizations to endorse and implement SDG 6 on water and sanitation for all and (with reference SDG 6.6) to recognize the key role of mountains in achieving this goal; and to adopt and apply integrated watershed management practices as a viable, enduring solution for coping with and adapting to changes in the mountains, by recognizing the delicate interdependencies of water and mountains.

We propose and recommend the following actions to support and sustain practices which benefit people and their environments among mountain communities and the watersheds on which millions of people depend:

- **Diversify food systems** by *supporting mountain communities and family farmers, improving their access to agricultural inputs (e.g., agro-credits; seed varieties; land entitlements), making agriculture resilient to climate change impacts by promoting sustainable and organic agriculture based on application of integrated landscape approaches and maintaining agro-biodiversity of crops and livestock breeds in mountains*.
- **Promote participatory governance** of natural resources in watersheds, by *introducing systems for decision-making about water and mountains across every sector, coordinating planning, finance and long-term strategies (i.e., watershed action plans based on co-management principles for land and water resources) and strengthening public participation in decisions about common resources (water, pastures and forests);*
- **Scaling-up sustainable land management practices in watersheds** to deliver socio-economic and environmental benefits through improved resource use, protection of water resource and mitigation of natural hazards.
- **Ensure equitable benefit sharing and compensation mechanisms** that reflect the full value of mountain ecosystem goods and services (water, forests, land and biodiversity) safeguarded by mountain communities, including where possible by *internalizing the externalities of resource extraction in mountains*;
- **Facilitate improved knowledge exchange** through sustained support (technical and financial) to centres of excellence and competency on sustainable mountain development advocacy (e.g. regional mountain hubs, their prototypes, programs and projects that are actively engaged with and owned by mountain nations), enabling and consolidating coherent actions at all scales and supporting cross-learning and capacity enhancement for mountain communities;
- **Ensure research, data collection and sharing and policy interactions in partnership with mountain communities** by *investing into development of*

policy/decision support tools for water and land resources management that actively promote joint learning and are based on empirical, qualitative, quantitative and participatory research, with clearly articulated objectives, methods and strategies that define accountable roles for academic researchers, communities and practitioners;

- **Integrate sustainable mountain development concerns into local, national, regional and sectoral development** actions in-line with the timeframes set by Sustainable Development Goals, assuring on-going commitment of resources and equitable benefits, by *including provisions for protection and rehabilitation of water resources and conservation of mountain ecosystems, introducing ecosystem-based approaches that help people to identify and assess potential risks, promoting sustainable use and management of natural resources (water, land, forests and biodiversity), encouraging uptake of knowledge about the local effects of global climate change to strengthen local adaptation and mitigation capacity and promoting awareness of the vital role of mountains in the world's freshwater supplies*;
- **Use international fora and processes** including the UN Conventions on climate change, combating desertification, protecting biological diversity and the Sendai Framework to highlight the role of mountains and channel technical support and investment, which is urgently needed for enhancing resilience and adaptive capacities of mountain communities around the world.

We further propose the following additional and supporting recommendations from the *Parallel Session on Gender in Agriculture under Changing Climate* (organized by the Central Asian Mountain Partnership (CAMP) alongside the Dushanbe Forum) and their calls for action in mountain areas of Central Asia to:

- improve enforcement and implementation of national legislative acts and laws by granting equal rights of women for access to water, land and other resource entitlements;
- set up an Investment Fund under the Government of the Republic of Tajikistan, enabling support of women, engaged in agricultural development;
- create a more favorable investment climate to support rural women occupied in development of small and medium enterprises;
- raise awareness of rural women on new technologies leading to climate change adaptation; and
- Increase media coverage of women farmers' best practices addressing food security and adaptation to climate change.

We commend the findings of the civil society groups, local communities, researchers, development practitioners; government representatives of multiple levels presented here today and encourage their continued collaboration to ensure a sustainable future for mountain communities, ecosystems and watersheds.

PART 2

The UN High Level International Conference "Water for Life"

The UN High-Level International Conference "Water for Life": Participation by Dushanbe Mountain Forum 2015 delegates

About the High-level International Conference

Leaders and practitioners from more than 120 countries representing global and regional organisations dedicated to water issues reviewed the progress towards the UN Sustainable Development Goals, success-stories and lessons from the UN Decade on Water and shared case-studies in specific sectors where national interests and economies may vary, but very similar challenges remain.

Examples from around the world reminded delegates of the water and mountain linkages, about water as a source of peace and reconciliation and about our common and shared responsibilities towards future generations. Examples of successful trans-boundary cooperation and treaties on water sharing were shared from Angola, Namibia, Europe, South Africa and the southern Caucasus. Legal provisions and local and national governance structures that promote equity in access and gender equality were explored from across the globe – and the shortcomings in current coordination arrangements were analysed in detail. Situations in which access to water are compromised for example in humanitarian crises and areas of severe water stress were reviewed and the role of achieving gender balance in water access and management was emphasised. Hotspots on water and sanitation challenges were identified and solutions shared that can help individuals, communities and nations adapt to these challenges in the context of a changing global climate.

In response to these and many other challenges, delegates reviewed and shared methods for enabling cooperation agreements, integrated watershed management practices, decision-processes by local and regional councils and governments that are mindful of the unifying requirement for access to water and sanitation, financial support schemes for implementing the best available knowledge and technologies in the places that need it most, and techniques for communicating sustainable development in terms that are relevant to people in their communities and sub-national identities. Delegates broadly agreed on the need for unified action in frameworks that are adapted to local and regional priorities and that the time is now to translate a decade of learning and intention into real actions that deliver tangible benefits across all sectors of society.

***Day 1:* June 09, 2015**

Eight sessions with speakers from around the world reviewed the implementation of the UN Decade for Water and its proposed continuation into a second decade; the roles of regional institutions in promoting the UN Sustainable Development Goals and the concomitant governance structures suited to different locales; water and wastewater industry practices with perspectives from the Middle East and Central Asia; education initiatives for sustainable water management; and the tradition and culture of the people of Central Asia on their use of water.

***Day 2:* June 10, 2015**

Six round-tables and two plenary sessions reviewed: water and sanitation actions beyond 2015; links between world water, energy and food systems; global challenges such as disaster risk reduction from the perspective of water resources; financing and governance mechanisms for national and international water access, management and sharing; cooperation on water sharing as a catalyst for achieving Millennium Development Goals and the peaceful, sustainable common use of trans boundary water; and building integrated approaches for achieving Sustainable Development Goals.

Daily briefs

UN High Level International Conference "Water for Life" on implementation of the International Decade for Action on Water (2005-2015)

Day 1: 9 June 2015, Dushanbe, Republic of Tajikistan

The high-level international conference on the implementation of the International Decade for Action, "Water for Life", 2005-2015 started in Dushanbe, Tajikistan, with 1900 participants from 120 countries of the world, UN agencies, international and regional organizations.

Tajik President Emomali Rahmon in his inaugural speech called for a new International Decade of Action, which has to be eventually approved by the 193-member General Assembly.

The UN Secretary-General Ban Ki-moon delivered his statement and stressed out that *"the water's place in the SDGs go well beyond access – taking into account critical issues such as integrated water resources management, efficiency of use, water quality, trans-boundary cooperation, water-related ecosystems, and water-related disasters". "Water, like other areas of the post-2015 development agenda, is intricately interconnected with other challenges,"* he noted.

Some 80 participants of the Dushanbe Mountain Forum 2015 as one of four pre-conference events co-organized by the Mountain Partnership Central Asia Hub and State Committee on Environmental Protection, Government of Tajikistan on the eve of the the UN Conference on "Water for Life" took part in this conference at the invitation of the Tajik Government. They constituted the largest group of civil society organizations, government representatives of multiple levels, local communities and villagers from Central Asia and academia advocating for the mountains during the conference.

Following the Opening ceremony, eight sessions with speakers from around the world reviewed the implementation of the UN Decade for Water and its proposed continuation into a second decade; the roles of regional institutions in promoting the UN Sustainable Development Goals and the concomitant governance structures suited to different locales; water and wastewater industry practices with perspectives from the Middle East and Central Asia; education initiatives for sustainable water management; and the tradition and culture of the people of Central Asia on their use of water. Examples of successful trans boundary cooperation and treaties on water sharing were shared from Angola, Namibia, Europe, South Africa and the southern Caucasus. Legal provisions and local and national governance structures that promote equity in access and gender equality were explored from across the globe – and the shortcomings in current coordination arrangements were analysed in detail. Hotspots on water and sanitation challenges were identified and solutions shared that can help individuals, communities and nations adapt to these challenges in the context of a changing global climate.

Leaders and practitioners from a wide range of global and regional organisations dedicated to water issues reviewed the progress towards the UN Sustainable Development Goals, success-stories and lessons from the UN Decade on Water and shared case-studies in specific sectors where national interests and economies may vary, but very similar challenges remain.

Parallel Thematic session

Session №3
"WATER BEYOND 2015:
GLOBAL CHALLENGES FROM WATER PERSPECTIVES"
June 10, 2015

Co-organizers:

1. Mountain Partnership Central Asia Hub hosted by University of Central Asia
2. UNOCHA

Program/Date: June 10, 2015

Panel Discussion:

Co-chairs	*Moderator*	*Panelists*
Co-chair 1: Mr. Rashid Khalikov, Director, OCHA Geneva Co-chair 2: Mr. Akbar Pesnani, AKDN Representative to Tajik Republic	Panel Moderator: Mr. Jerome Delli Priscoli, Board of Governors and the Bureau of the World Water Council	**Svetlana Buidysheva** Deputy Minister for Economics, Altai Republic, Russian Federation **François Münger** Swiss Special Envoy for Water FDFA- Federal Department of Foreign Affairs SDC- Swiss Agency for Development and Cooperation **Svetlana Jumaeva** Director, CCDR Tajikistan **Hanspeter Staffler** General Director of the Autonomous Province of Bolzano, Italy

Background information and rationale

Across the post-2015 agendas, issues of water scarcity and water management coupled with climate change related disasters are emerging as a critical global challenge. Key themes of localizing preparedness and response and empowering communities to take action in managing these risks are being repeatedly voiced in the context of disaster risk reduction (Sendai, 2015), the Sustainable Development Goals, Climate change (COP21, 2015) and the

2016 World Humanitarian Summit. Failure to recognize and act on these issues could have widespread implications, particularly in regards to food security, energy shortages, conflict and the spread of disease. Unless governments, businesses and communities are empowered to take preventative actions and invest in the future sustainable water supply, the impacts of climate change on water availability could create a vicious cycle of food insecurity and conflicts over resource use in many of the most vulnerable parts of the world.

The management of water is intrinsically linked to mountains, storing the source of drinking water for over half the world. Unless we start protecting our headwaters and pay proper attention to the state of water in mountainous areas, we cannot guarantee adequate future water supply for the world's population. As to the diverse range of activities hosted by mountains, many of them are susceptible to natural hazards and disasters (e.g., roads, hydropower stations, tourism).

The interconnectedness of the Water-Food-Energy nexus and role of mountains needs to be recognized and considered in policies and institutions, investments, resources and technologies.

Questions that were discussed:

Focus 1: Water and Mountain linkages under changing climate: Ensuring integrated approach for addressing growing demand in water under changing climate. Role of mountains, its eco-system goods and services for providing water for the half of the world's population by storing headwaters as specified in the draft SDG 6.6 on need to protect the water related ecosystems

Focus 2: When ecosystem goods and services disrupted due to climate induced disasters and anthropogenic impacts such as intensive farming affecting both the quality and quantity of the water it leads to tensions and conflicts. How can effective headwater and basin management prevent conflict and disaster, and contribute to peace and security, and what role can regional organizations play in cooperative water management? What are new models of partnerships (institutional/investment/technologies) to be formed between governments, public and private sectors and local communities and how do you see the role of the humanitarian system in responding to acute water issues (e.g. urban water shortages)

The session chairs, Mr. **Rashid Khalikov** (*Director General, UN OCHA*) and Mr. **Akbar Pesnani** (*Representative of AKDN to Tajikistan*) opened the session, setting the global and regional context reminding delegates of the connection between water and mountains and the priority areas for concern in ensuring water for all in a warming climate.

The panelist discussion took place along the following lines:

Svetlana Buydisheva (*Deputy Minister for Economics of the Altai Republic, Russian Federation*) narrated the experiences of Altai in recovering from devastating floods in 1987, 1969 and 2014. In the most recent event, 47% of the population were displaced by flooding and vital infrastructure was lost. The Deputy Minister emphasised the role for science and research in Altai's experience of formulating its future disaster mitigation and recovery plans.

Francois Muenger (*Special Envoy for Water, Swiss Agency for Development and Cooperation SDC*) reminded delegates that more than half of humanity relies on freshwater that accumulates in mountains. With a growing global population and more people on the move than ever before, water stress exacerbates conflict-prone areas and issues. To help prevent conflict and humanitarian disaster regions and agencies must cut the silo between humanitarian aid and development. Case studies of the side-benefits of working together in a time of crisis are many, fr example in c.2000 the Red Cross were instrumental in temporary ceasing conflict in

Salvador for two days and the round-table on water that emerged from their work survived 13 years as a lasting example of integrated planning structures. Water can be a source of peace and reconciliation.

Svetlana Jumaeva (*Director of the Centre for Climate Change and Disaster Reduction, Tajikistan*) outlined the issues and concerns about water that are of greatest priority for Central Asia and pointed out that the new agreement at COP15 must build on past experiences, utilising those experiences to build e.g. Tajikistan's National Adaptation Strategy.

Hanspeter Staffler (*General Director of the Autonomous Province of Bolzano, Italy*) presented the challenges and frameworks for water resources management in the European Alps, which hold water for 55 million people and support a rich biodiversity. Adaptation is a fundamental task and priority of regional agreements in Europe. Reducing vulnerability is about increasing resilience. The Alpine Convention and various EU Directives establish multiple layers of Integrated Watershed Resources Management programs that involve all parts of governance and government across Europe.

Jerome Delli Priscolli (*Board Member, World Water Council)* as moderator of the session, invited discussion and questions from delegates. Practitioners and representatives of organisations across the globe, including from Central Asia, sub-Saharan Africa and Europe, shared their case-studies and perspectives. Discussed were about the potentials of the water being as a source of life for both: up and downstream, high and lowland population. Also discussed were about the potential of it becoming as a source of the tension and conflicts as illustrated in several conflicts around the world. It was widely agreed by the participants that the water can serve as a source of cooperation and reconciliation by providing a solid path for conflict resolution and peace. The themes included displacement and migration, distribution of costx and risks, harmonizing development planning and humanitarian crisis response practices, and the requirement for realism about legislative measures that are compatible with multiple claims on territory and complex networks of identity politics in trans-boundary watersheds.

The moderator and co-chairs thanked the panelists and delegates and closed the session with summary remarks about utilizing past experiences to guide future, integrated planning that incorporates all kinds of knowledge networks and communities.

Key messages:

1) Water has potentials of being as a source of life for up and downstream, high and lowland population. We also discussed about the potential of it becoming as a source of the tension and conflicts as illustrated in several conflicts around the world.
2) It was widely agreed by the participants that the water can serve as a source of cooperation and reconciliation by providing a solid path for conflict resolution and peace.
3) Global changes (socio economic, environmental) and its linkage to poverty, exacerbating the extent of the problem, specially hitting hard through the poor. The issue of distribution of wealth and benefits has been highlighted in context of mountain countries not getting the benefits they deserve and entitlements for their stewardship service over ecosystem goods and services they provide for downstream.

Below is the summary of Recommendations for Future Actions as voiced by Ms. Batjargalyn Elbegzaya, Program Officer, Mountain Partnership Central Asia Hub at the Closing Plenary of the UN High Level Conference "Water for Life", June 10, 2015.

Many participants of this high level session highlighted the need in capturing the full value of the ecosystem goods and services provided by the water related ecosystems including

the mountains (as defined in the SDG 6.6.), scaling up the schemes such as PES and other economic instruments for rewarding and compensating the poor and marginalized from uplands. Capacity building and cross-learning have been prioritized to this regard.

- In terms of increased vulnerability, there is a consensus on the need to improve the level of preparedness and short term immediate responses to these frequent emergencies. One of the key highlights the participants noted was to ensure inter-linkages of emergency preparedness and humanitarian response with the development processes.
- The participants also talked a lot about the need in development planning and regulatory frameworks to be multidisciplinary, employing holistic and integrated approaches for managing the resource base, take into account the specific needs of regions and solid understanding of the facts. For this, the importance of quality and accessible data has been emphasized for understanding disaster cycles in case of disasters, and the state of the resources when it concerns the resource management such as water. The participants of this round table noted to integrate water management issues as a strategy to avoid impeding conflicts and resolve existing ones.
- The participants also highlighted the importance of involving local communities, civil societies, private sector and relevant stakeholders in designing risk mitigation, preparedness and response activities, addressing development challenges in mountain regions by learning from their vast experience and localize climate adaptation, risk management and responses as well as development plans and strategies.






REPORT
on the parallel Thematic session №3, co-convened by MPCAH and UNOCHA

Water beyond 2015: Global challenges from water perspectives

Elbegzaya Batjargal,
Regional Coordinator of Mountain Partnership Central Asia Hub

Ladies and Gentleman,

We are pleased to report back on the work of the Parallel Session # 3 entitled "Global Challenges from a water perspective". Participation was diverse, with about 80 participants, who had a very rich discussion and much of interaction. We had both the questions and problems, and points and lessons learned were shared extensively.

We discussed about the potentials of the water being as a source of life for up and downstream, high and lowland population. We also discussed about the potential of it becoming as a source of the tension and conflicts as illustrated in several conflicts around the world. It was widely agreed by the participants that the water can serve as a source of cooperation and reconciliation by providing a solid path for conflict resolution and peace.

We are very pleased that the discussions resulted in generation of a lot of relevant ideas and here we have a handful of them highlighted:

1) Global changes (socio economic, environmental) and its linkage to poverty, exacerbating the extent of the problem, specially hitting hard through the poor. The issue of distribution of wealth and benefits has been highlighted in context of mountain countries not getting the benefits they deserve and entitlements for their stewardship service over ecosystem goods and services they provide for downstream.
2) In relation to this, many participants highlighted the need in capturing the full value of the ecosystem goods and services provided by the water related ecosystems

including the mountains (as defined in the SDG 6.6.), scaling up the schemes such as PES and other economic instruments for rewarding and compensating the poor and marginalized from uplands. Capacity building and cross-learning have been prioritized to this regard.

3) In terms of increased vulnerability, there is a consensus on the need to improve the level of preparedness and short term immediate responses to these frequent emergencies. One of the key highlights the participants noted was to ensure interlinkages of emergency preparedness and humanitarian response with the development processes.

4) The participants also talked a lot about the need in development planning and regulatory frameworks to be multidisciplinary, employing holistic and integrated approaches for managing the resource base, take into account the specific needs of regions and solid understanding of the facts. For this, the importance of quality and accessible data has been emphasized for understanding disaster cycles in case of disasters, and the state of the resources when it concerns the resource management such as water. The participants of this round table noted to integrate water management issues as a strategy to avoid impeding conflicts and resolve existing ones.

5) The participants also highlighted the importance of involving local communities, civil societies, private sector and relevant stakeholders in designing risk mitigation, preparedness and response activities, addressing development challenges in mountain regions by learning from their vast experience and localize climate adaptation, risk management and responses as well as development plans and strategies.

Presentation of outcomes of the Dushanbe Forum of Mountain Countries 2015 at the UN High Level International Conference "Water for Life"

Svetlana Jumaeva,
Director, Centre for Climate Change and Disaster Reduction

Dear Excellencies, chairs, ladies and gentlemen,

I would like to share with you the results of the Dushanbe Forum of Mountain Countries 2015 that have gathered representatives of 120 organizations working on mountain issues including representatives of national and local governments, parliaments, civil society, development partners, practitioners and researchers from 19 countries of the world.

The Forum was initiated be the Central Asian Hub of Mountain Partnership hosted by the University if Central Asia jointly with the State Committee for Environment Protection of Tajikistan with support from Swiss Agency for Development and Cooperation.

The Forum was organized as pre-conference event and provided great opportunities to ring in the linkages of water and mountains. The Forum highlighted the importance of not only consider the use of mountain ecosystems but elaborate on the issues of the conservation of the unique mountain ecosystems, referring to the Sustainable Development Goal 6.6 calls for protection and restoration of water related ecosystems including mountains.

As an outcome of the Forum the Resolution was developed specifying the following recommendations:

(1) Diversify food systems

(2) Promote participatory governance of natural resources in watersheds

(3) Scaling-up sustainable land management practices in watersheds encouraging efficient and sound resource use and management practices for increased socio-economic and environmental benefits

(4) Ensure placing equitable benefit sharing and compensation mechanisms that reflect the value of mountain ecosystem goods and services (water, forests, land and biodiversity) that are safeguarded by mountain communities

(5) Facilitate improved knowledge exchange

(6) Ensure research and policy interactions in partnership with mountain communities by investing into development of policy/decision support tools for water and land resources management

(7) Integrate sustainable mountain development concerns into development strategies and processes at multiple levels (local/regional/sectoral)

(8) Use international fora and processes including the UN Conventions on climate change, combating desertification and protecting biological diversity to highlight the role of mountains and channel technical support and investment, which is much needed for enhancing resilience and adaptive capacities of mountain communities around the world.

The final Forum resolution will be sent to the Water Conference Secretariat within 10 days for consideration.

The Dushanbe Forum of Mountain Countries is the first gathering of its kind in Central Asia. Similar events are happening around the world such as the upcoming World Mountain Forum in 2015 where the outcomes of Dushanbe forum will be shared.

Taking the opportunity on behalf of the Forum participants I would like to extend sincere gratitude to the Government of Tajikistan, the people and partners from Tajikistan for hosting the Dushanbe Forum of Mountain Countries 2015.

Tajikistan, Dushanbe, June 10, 2015.

Cultural event “Eastern village” for the participants implementation of the International Decade

of the High-Level International Conference on the of Action “Water for Life”, 2005-2015

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