

Policy Brief

Issue 04/2015

Building and Developing Capacities in Water and Land Resources Management in Central Asia



The next generation of water experts at a CAWA summer school

Key Messages

≈ The programmes of the “Berlin Process” have implemented regional and trans-sectoral capacity building activities, focusing on the education and further professional training of Central Asian specialists to strengthen integrated land and water resources management in the region.

≈ A key factor of success is the link between up-to-date science and practice in Central Asian institutions, where science provided methodological impulses and was tailored to the practical needs of local specialists.

≈ The establishment of a regional and trans-sectoral professional network on land and water resources management could sustain capacity building activities in the mid- to long-term. Such a network should involve young scientists and professionals.

Summary

The implementation of Integrated Water and Land Resources Management (IWLRM) in Central Asia is facing substantial challenges today. The most basic challenge among them, to which many other challenges can be traced back, is the building and development of capacities at the individual and organizational levels. This Policy Brief reviews the capacity building approaches taken by the German Water Initiative for Central Asia (“Berlin Process”), in particular: (1) short-term vocational trainings for water professionals offered by the CAWA research project, (2) regional master programme “Integrated Water Management” implemented at

the German-Kazakh University in Almaty, (3) training module on river basin planning developed within the GIZ program “Transboundary Water Management in Central Asia”. These approaches address mainly the individual level of capacity building, but with the establishment of river basin commissions, the GIZ programme targeted also the institutional level. Key factors of success were the regional and trans-sectoral approach taken by all three programmes, the linking of science and practice, and the tailoring of the training contents to the practical needs of the participants.

The need for Capacity building and development in water management in Central Asia

Central Asia is a water-scarce region and a hot spot for water-related conflicts and environmental disasters. In recent years, water resources management in Central Asia has been facing major challenges: political and economic transition, inefficient water use in irrigated agriculture, environmental degradation, climate change and its impact on the water cycle, and in some countries years of civil war. This led to the degradation of infrastructure, well-documented erosion of educational systems and to a brain-drain of experts.

The implementation of Integrated Water and Land Resources Management (IWLRM) in Central Asia faces substantial obstacles at different societal levels, such as strong sectoral thinking, weakly developed horizontal (i.e. trans-sectoral) communication and coordination, and weak political commitment to cooperation in transboundary river basins. Despite efforts undertaken and some success, most water management institutions

in Central Asia still lack the knowledge and capacity to effectively apply IWLRM and plan for future.

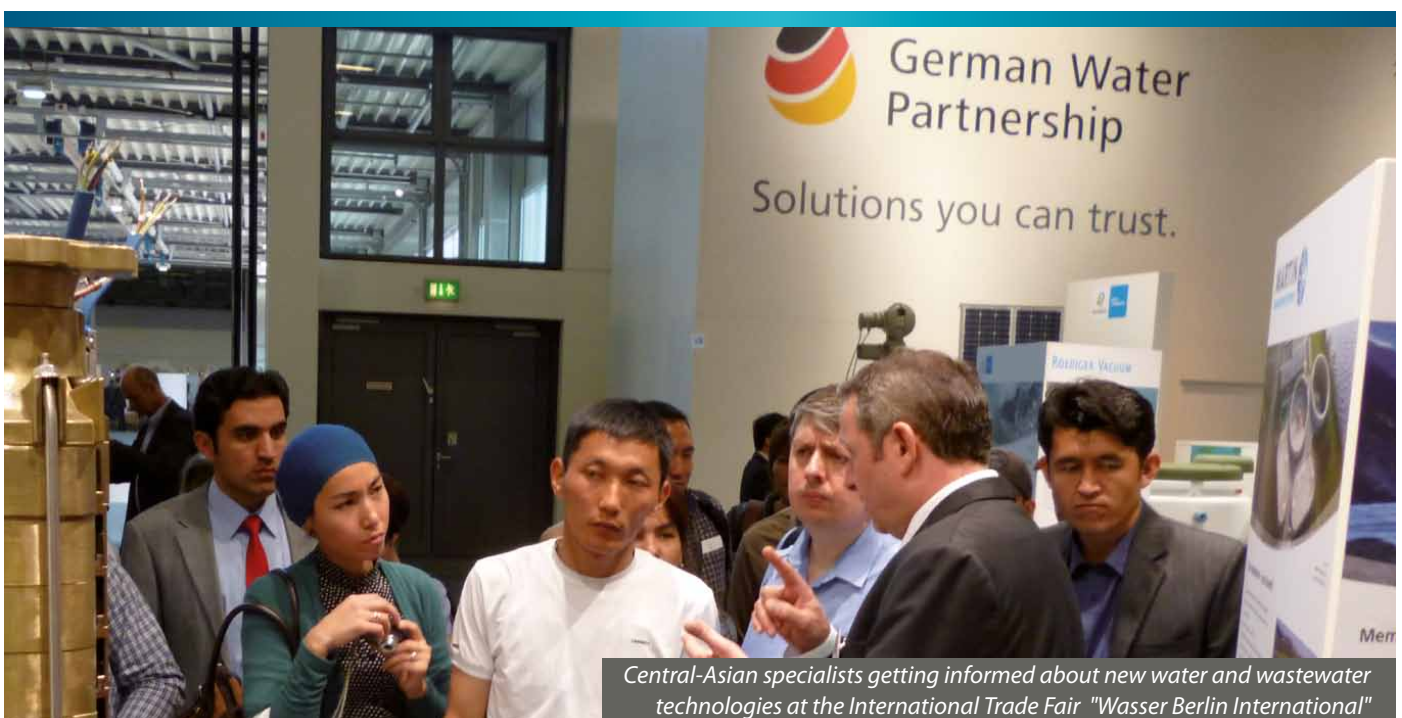
Formal training that would include aspects of IWLRM in educational institutions, particularly universities, has generally been limited in Central Asia. Here education in this field is normally restrained within the borders of the traditional water using and water-related sectors, such as agriculture, hydroenergy, engineering, environmental science, forestry, and others.

Although progress in international science in the field of water and land resource management has been made, in many cases, this knowledge is simply not accessible to those who need it: materials are not disseminated to potential users, or they are not available in local languages, or they are written in very technical language that is hard for practitioners to understand.

The contributions of the "Berlin Process"

The primary objective of the German Water Initiative for Central Asia ("Berlin Process") funded by the German Federal Foreign Office is to make water a subject of intensified regional cooperation and thereby set in train a process of political rapprochement in Central Asia that leads to closer cooperation in the use of scarce water resources.

The three components of the initiative aim at strengthening the capacities of regional and local institutions, stimulating the research and higher education systems, and establishing networks of Central Asian researchers linking them to the international research community. Capacity building and development, scientific cooperation and knowledge dissemination are an integral part of these efforts and contribute to the overall goal of the initiative.



Central-Asian specialists getting informed about new water and wastewater technologies at the International Trade Fair "Wasser Berlin International"

Developing professional capacities

Example 1

Vocational trainings for professionals

Within the research project CAWa, the focus is on the development and implementation of short-term vocational trainings to disseminate technical and methodological knowledge to water professionals from all over the region. The trainings target employees of regional, national and local water management organizations on different levels involved in basin planning, employees of scientific institutions, specialists from water management institutions, university teachers.

In collaboration with Central Asian institutions trainings were offered on topics such as: Hydro-meteorological monitoring, climate change impact assessment, geodata management, Geographic Information Systems and remote sensing techniques, optimization of crop water use.

The trainings strengthened the methodological expertise of the specialists at the Central Asian partner institutions and raised their ownership and initiative. The trainings in a multi-country group broadened the perspectives of the participants from a national to a regional one. Among some participants, in particular those who attended several trainings, a new sense of professional identity developed – of belonging to the group of “regional experts”. Certainly, the trainings established networks between professionals and researchers across the region. Thus, the activities contributed to creating, enhancing and developing capacity at country and regional level to strengthen transboundary networking and cooperation on water related issues.

Key facts

Period: 2009-2015

No. of trainings

16 trainings (1 week)

No. of participants

239



Trainings strengthen the methodological expertise...



... and give room for discussion.



Specialists from Kyrgyzstan and Afghanistan learn how to install a hydrometeorological monitoring station, including the establishment of the satellite communication system.

Example 2

Training module on river basin planning



Within the “Transboundary Water Management in Central Asia” programme and the EU action “Water Management and Basin Organizations in Central Asia” (WMBOCA) implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in cooperation with CAREC, a comprehensive training module on river basin planning was developed and implemented (see also Policy Brief no. 2 published in this series).

The training module, designed for broad use among relevant stakeholders, was successfully approved by the members of two inter-sectoral working groups, established within the GIZ programme for the Isfara river basin, shared by Kyrgyzstan and Tajikistan. These working groups included representatives of various local institutions concerned with water management, such as state water management, environmental protection, water and sanitation, epidemiology, financing and financial management agencies, representatives of local administrations and water users.

Other than the approach of broadly disseminating knowledge, as taken in Example 1, this training module was focused on building capacities of the working group members in the development of a basin plan for their respective part of the transboundary Isfara river basin. This involved also a review of the socio-economic conditions in the basin, lessons and exercises in geoscientific methods such as GIS-based river basin delineation and land cover mapping, analysis of natural hazards, assessment of climate variability and climate change and its impact on water resources. By the end of the training courses, the working groups had developed the basin plans for their respective part of the Isfara river basin. To ensure a coordinated approach, transparency and the compatibility of the two basin plans, each national working group included representatives from the neighboring country.

The training was embedded into a whole set of programme activities, which addressed also the organisational and policy levels. This was of particular importance for ensuring the success of the training module by generating the required ownership and political support for the long-term implementation.

Key facts

Period: 2012-2014

No. of participants

50



Members of the Tajik working group discussing the draft of the river basin plan

Further reading

Dusik, E., Nurmamedova, M. (2015): Interstate cooperation and joint planning and management of transboundary river basins – The example of the Isfara river basin. Policy Briefs of the German Water Initiative for Central Asia No. 2. DOI:

10.2312/5.4.2015.002e

www.waterca.org



Training session in ArcGIS for water management specialists from Kyrgyzstan

Educating the next generation of water managers

Key facts

Period: 2011-2015

No. of classes

5

No. of participants

35 (in total)



Background of IWM Master students

Key facts

Period: 2014 - 2015

No. of summer schools

2 (each two weeks)

No. of participants

45



Mapping course in the field

Example 3 **Regional Master Programme** *"Integrated Water Management"*

Since its establishment in 2011, the Integrated Water Management MA Programme has been training young specialists from the governmental, academic and NGO sectors in the field of integrated water resources management with focus on Central Asia. This Masters' Programme aims to fill the gap between technically oriented water management programmes and disciplinary programmes in the fields of economics, law, social and natural sciences. The Programme is conducted by the Kazakh-German University in Almaty (GKU) and supported by the German Academic Exchange Service (DAAD) and Freie Universität Berlin, with support of the Ministry of Foreign Affairs of Germany.



Since its start in 2011, a total number of 35 students participated in the regional master programme "Integrated Water Management" at DKU.

The Integrated Water Management MA is exceptional in its highly interdisciplinary approach: it equips its participants with technical knowledge and provides the students with 'scientific literacy' in the more socio-economic and natural scientific aspects of water management, at the same time having a regional focus and being supported by regional and international expertise. During the programme, the students gain experience in field work, get an opportunity to write their MA Thesis in collaboration with international and regional partner organizations, as well as an opportunity to participate in independent research projects done

jointly by the Kazakh-German University and its partners, among which are the British Council, Freie Universität Berlin, and the World Bank.

Scholarships are provided annually by the DAAD and the German Federal Foreign Office for 10 students that are selected for the Programme based on criteria of excellence, work experience in the water-related areas, geographical representation and knowledge of English. Most of the students return to their positions after graduation, while some of them continue their education by pursuing PhD degrees (e.g. in Germany and China).

Example 4 **Summer schools** *methods for water and land resource management*

The future generation of water professionals in Central Asia is in the focus of two-week summer schools held at the GKU annually since 2014 in cooperation with CAWA partners. Scientists and practical experts of different disciplines and countries meet students and young professionals of four Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan) and Afghanistan, and provide an intensive introduction into scientifically based methods supporting the implementation of IWLRM in Central Asia.

Numerous lectures and practical courses focus mainly on

the use of Geographic Informational Systems (GIS), a powerful tool for the integration of data from different sectors, i.e. for meeting the trans-sectoral thinking required in IWLRM. Other components of the summer schools address the possibility to use satellite remote sensing for monitoring of land and water resources, or introduced to hydrometeorological monitoring techniques, climate change impact assessment, and assessments of irrigation efficiencies. The potential and advantages of these methods have been described and discussed in the previous policy briefs of this series.

Linking science, education, industry, and policy-making

Example 5

Kazakhstan Water Forum - platform for trans-sectoral cooperation

The Kazakhstan Water Forum “Government – Education – Science – Industry” is held since 2014; this is an ongoing platform that brings together representatives of governments, universities and industry engaged into sustainable and effective management of water resources in Kazakhstan. The basis of the Forum is a network of specialists from the water and water-related sectors of Kazakhstan and their cooperation on interdisciplinary multi-stakeholder projects related to the water sector they are implementing or proposing. The Forum is initiated by the GKU who is also the primary facilitator of this platform.

In 2015, the recent Forum in Astana gathered more than 100 participants who represented various sectors of the water-related community of Kazakhstan (business, governmental sector, research and education) and international observers, such as international organizations and universities. The participants discussed the results of the Seventh World Water Forum in Korea, and the applicability of those to the realities of the water sector of Kazakhstan; discussed the critical issues of the water sector at the national and local levels, as well as attempted to map the practical solutions that would enhance professional

education and connections between potential employers and employees, which will be beneficial for the government, business and the academic sector as employers.

The Forum is planned to be continued in 2016 and beyond with the goal of identifying and exploring critical issues of the water sector on the national agenda that are of shared interest for the government, universities, and industry. It is aimed that this experience will be replicated by the other countries of Central Asia in future.

Example 6

Water Diplomacy for Civil Servants of Central Asia and Afghanistan

Solving water-related issues requires interstate cooperation, which should now and in future rely on decision makers that have deep understanding of the recent developments in all aspects of water management, and the ability to find common solution with colleagues from other countries.

In 2015, with the workshop “Water Resources Management in the context of climate change for Central Asia and Afghanistan” supported by the Ministries of Foreign Affairs of Germany and Kazakhstan the Kazakh-German University made the first attempt to bring the young civil servants of the five countries of Central Asia and Afghanistan together to allow them to discuss various aspects of trans-boundary water

management together with national experts and representatives of international organizations, such as the OSCE, UNRCCA, UNESCO and the World Bank.

First part of the training was held at the GKU in Almaty. Subsequently the participants visited Berlin, where they met German specialists from the CAWa project and from GIZ, who are partners of the “Berlin Process”. The participants were familiarized with German water diplomacy efforts and trans-boundary water cooperation during the visits to the Ministry of Foreign Affairs, the German Parliament “Bundestag”, and the International Commission for the Protection of the Oder River against Pollution (ICPO). Technical advances and scientific research in



Young civil servants from Central Asia and Afghanistan visiting the Oder Natural Park shared between Germany and Poland.

the water-related areas were also presented to the participants during the visit to the Leibniz Center for Agricultural Research, Tegel Waterworks, and discussion with the Central Asia Water research project (CAWa).

Example 7

„Integrated Water Resources Management“ e-Journal

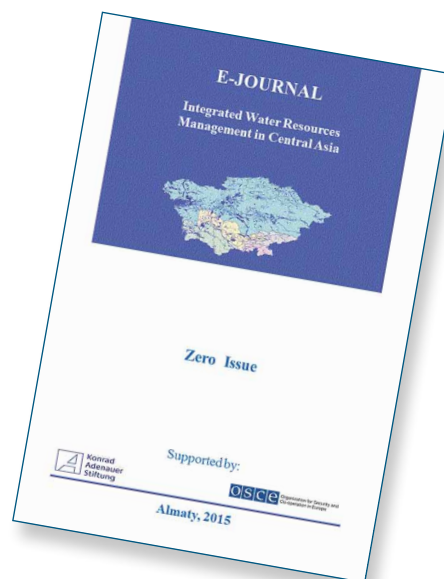
“Integrated Water Resources Management in Central Asia” is an interdisciplinary, bilingual open-access e-Journal dedicated to all aspects of water management in the region of Central Asia. This online-based journal launched in 2015 with gracious support of the OSCE is to be issued twice a year. It seeks to reach all scientists working in the areas of IWRM and familiarize them with each other’s achievements across the region. The journal also aims at strengthening the existing networks of the regional scientific community with the goal of developing scientific research throughout the region and linking it to the international research community.

The articles are published in Russian and English to allow for accessibility within and outside of the region. The journal is peer-reviewed. The reviewing process is supervised by a regional editorial board consisting of representatives from the leading universities performing IWRM-related research and offering relevant education across Central Asia, and by an international editorial board, consisting of representatives from international and regional organizations, among which are

the Executive Directorate of the International Fund for Saving the Aral Sea in Kazakhstan, GFZ German Research Centre for Geosciences, and OSCE.

The Zero Issue of the E-Journal was published in June 2015 and presented at the Second Kazakhstan Water Forum (Astana, 4 June 2015) and the High-Level International Conference on the implementation of the International Decade for Action “Water for Life”, 2005-2015 (Dushanbe, 8-10 June 2015).

The first issue of the E-Journal is planned to be made available online in January 2016 with a number of articles from across Central Asia and Afghanistan.



Website of the IWRM in CA e-Journal
www.water-ca.org



Discussion of IWRM concepts



Geo-information systems facilitate trans-sectoral cooperation



Practical exercises strengthen the methodological expertise

Key Factors of Success

Tailored trainings. Professional trainings tailored to the specific needs and tasks of the local experts in Central Asia substantially increase the impact of the trainings. Some of the trainings gave immediate results enabling the participants to perform their daily tasks in a better and more efficient way; others opened new perspectives on how to improve their daily operations. This quick benefit noticeably increased the motivation of the training participants and raised their ownership.

Linking science and practice.

Over the years, the research project CAWa has collected geodata from hydrometeorological monitoring stations, field trips, and from satellite-remote sensing covering the whole region of Central Asia. It has developed data processing chains and data management tools (see list on the right) which are used in the vocational trainings. This vast information pool and knowledge base bridges the gap between science and practice.

Regional, interdisciplinary and trans-sectoral approach.

Trainings, summer schools and workshops usually cover a broad range of disciplines, including socio-economic aspects of water management and water diplomacy as well as the application of modern technology to water management. The involvement of participants from different institutions, e.g. universities, research institutions, state agencies for hydrometeorology and environmental protection, water allocation organizations, and different countries facilitates the trans-sectoral and trans-boundary dialogue and exchange of experiences, and broadens the perspectives of the participants. Thus, it builds trust and promotes trans-sectoral and transboundary cooperation.

Creation of platforms. Annual Water Forums and the newly launched electronic open-access journal "IWRM in Central Asia" create longer-term platforms for exchange. They sustain the dissemination of knowledge throughout the region and lay the foundations for advancements in science, technology and cooperation.

Recommendations.

A range of actors is involved in the transfer and implementation of better practices in land and water resource management (WLRM), including government agencies, river basin organisations, non-governmental organisations, local communities, international donors, and education and research organisations. In their efforts to improve WLRM in Central Asia, these actors should:

- ▶ learn, practice and share knowledge on IWLRM at local and regional scales,
- ▶ create and develop a professional network on WLRM-related issues, that would also involve young career scientists, young career civil servants and other young professionals from various water- and land-management areas,
- ▶ integrate the interdisciplinary IWLRM knowledge into the curricula of geography, agriculture, forestry, water resources, law, economics, and other professional and vocational training programmes,
- ▶ launch and support regional capacity building initiatives as opposed to country-focused ones,
- ▶ strengthen the interaction between government, industry, science and education for better training of future water specialists. For example, annual national Water Forums, such as the Forum launched in Kazakhstan, could be established in all countries.

Useful links

CAWa data and knowledge pool

- (1) Data on land and snow cover in Central Asia are stored at the geo server of the CAIAG institute in Bishkek and are accessible via the links provided under:
<http://geonode.caiag.kg/documents/231/download> (land cover)
<http://geonode.caiag.kg/documents/243/download> (snow cover)
- (2) Data from the hydrometeorological monitoring stations:
<http://178.217.169.232/sdss>
- (3) eLearning platform with course materials:
<http://elearning.cawa-project.net>

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You can find the Policy Briefs in Russian and English languages

in the download area at the website
www.cawa-project.net

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