



## Editorial

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### **Welcome to the new electronic journal on water-related research in Central Asia!**

We, the Board of Editors, welcome all readers of the e-Journal “Integrated Water Resources Management in Central Asia”! We are glad to present the initial issue, which will introduce the topics and mission of this new e-Journal by invited articles from the members of the Editorial Board as well as some other experts. This e-Journal is a joint endeavor of a group of water professionals and researchers from Central Asia and Afghanistan, who are united by their wish to advance the state of scientific knowledge in IWRM in Central Asia and strengthen the networks and scientific exchange among researchers and professionals within Central Asia as well as between Central Asia and the international academic community. We, the editors, deal with different aspects of water management and governance; we come from and work in different countries. We share the conviction that it requires a comprehensive, interdisciplinary approach to meet the water challenges Central Asia is facing – therefore our focus on Integrated Water Resources Management (IWRM).

### **A bilingual Open-Access e-Journal for IWRM and Central Asia**

The mission of this journal is the distribution of knowledge in the field of Integrated Water Resources Management (IWRM). To achieve this we combined three aspects:

- **Bilingual:** All papers will be published in English and Russian languages and thereby provide access to new research results for scientists within Central Asia but also outside the region. Authors, who have limited knowledge of either one or even both languages, may apply to the journal for translation support, which will be given in the frame of available funding.
- **e-Journal:** All papers will be published electronically online at the journal website [water-ca.org](http://water-ca.org) and can be downloaded individually or as whole issue. The publisher will undertake all efforts to register the journal with major citation indices, like

Thomson Reuter and SCI. We think that this is the easiest and most efficient way to distribute knowledge among a big readership.

- Open-Access: All papers will be accessible free of charge, allowing individual scientists, low-funded institutions and the general interested public to access the current knowledge without financial constraints and thereby increasing the number of potential readers once more significantly. For the beginning, the publication of papers will be free of charge for the authors. Depending on available funds and donations, the journal might later decide to introduce submission fees to cover the costs of the submission and publication system.

### **Topics**

The general approach of this e-Journal “Integrated Water Resources Management in Central Asia” is, as the title suggests, to look at water management in a holistically, interdisciplinary manner. The journal therefore will cover the different uses of water (in agriculture, industry, for drinking water, ecological services, etc.) and the different water sources (groundwater, surface water, precipitation etc.). It will look at both qualitative and quantitative aspects of its management; cross-sectoral management involving different economic sectors; demand-oriented management including cost recovery mechanisms and water-efficient technologies; participative management involving different stakeholders; and different levels of governance and management structures. The experience in implementing IWRM in Central Asia differs from country to country, and we are convinced that sharing research results among the countries can foster the implementation of best practices. More specifically, the journal is open to all articles fitting into one of the following thematic sections.

#### *Drinking Water and Sanitation*

Availability and access to clean drinking water is still a key challenge in many rural regions not only, but also in Central Asia. Under this topic we would like to publish papers, which investigate the state and the development of legal and informal regulations with respect to drinking water and sanitation. Technical methods for alternative treatment, storage, transport and distribution of drinking water but also for collection, safe disposal and treatment of municipal waste water represent the engineering perspective of this topic. The improvement of hygienic knowledge, the dissemination of relevant understanding and skills in all groups of the population is of interest as well. Additional related themes are of course welcomed!

#### *Food Security*

With the majority of agriculture in Central Asia depending on irrigation, water management and food security are inherently interlinked. The second major aspect is the irrigation of crops, the production of food and other agricultural or fisheries products and last but not least the watering of livestock. These are often only seen under the engineering perspective of hydrology and melioration, but it can also be investigated

under the perspective of economics and social impacts or from the perspective of ecological implications. A common objective is to increase the water-use-efficiency.

#### *Climate and Environment*

For this journal topic, we welcome original research articles, review articles and technical notes covering the fields of (1) monitoring climate, water and land resources and their interactions, (2) the assessment of past and future changes in water resources, their socio-economic impact and potential adaptation measures, as well as (3) concepts and tools which are of practical relevance for integrated water management. More specifically, the “Monitoring” subtopic includes monitoring techniques, networks approaches, ground-based or space-based, for the monitoring of quantity, quality and ecological state of water and land resources. The subtopic “Change” involves studies on climate and hydrological variability and changes, both in the past and in the future, e.g. changes in the inter-annual and intra-annual water storages (glaciers and snow), in river runoff, groundwater, lake levels. These changes may occur in water quantity, water quality, or the ecological conditions. Additionally, studies on changes in land use and their impact on water resources are welcomed. The questions of the socio-ecological impact of these changes and potential adaptation measure could be discussed as well. The 3rd subtopic “Tools” is dedicated to articles presenting concepts, models, or software tools which are or may become of practical relevance in the context of integrated water management. Examples are the implementation of concepts such as environmental flows, the development of seasonal runoff forecasting tools, Early Warning approaches for floods and droughts. All articles should put special emphasis on a detailed description of the data and methods used and discuss the limitations of their approach and the uncertainty of the results.

#### *Water Governance*

According to the widely acknowledged definitions by UNESCO and UNDP, water governance encompasses all social, political and economic structures, rules and processes that influence water use and water management. Although this e-Journal is primarily dealing with IWRM, we include the broader governance perspective in order to not only analyze the performance of water management, but also the decision-making processes that identifies the goals and values of water management. Water governance provides a comprehensive perspective on water usage and regulation, taking into account the role of different stakeholders at multiple administrative and political levels as well as including questions of participation, accountability and transparency. Additional aspects could be decision-support algorithms to improve the efficiency of IWRM related decision processes and the development of a unified professional glossary for all participants of water governance.

#### *Economic and financial mechanisms*

In this section, we welcome investigations on the socio-economic aspects of water and water related services, on virtual water trades, and experiences with the implementation

of payment systems. Other interesting aspects could be water related (micro) credits or financial analysis of investments like hydro power stations.

#### *Hydraulic structures*

This classical field of water technology will of course also find its place. Here we are looking for critical analysis of established technologies, but even more for new developments and its application in Central Asian praxis. These may include methods of calculation and designing, of construction, operation and maintenance, including the issues of durability and reliability of hydraulic structures, as well as issues of hydraulics, fluid mechanics, including laws of motion and equilibrium of fluids and methods of application of these laws to solve problems of engineering practice. In addition, articles can investigate further the development of new cost-effective designs, efficient construction methods, materials, installations, experimental studies on the effects of water on the structures and their foundations, studying the behavior of rock and non-rocky soils as bases. Not surprisingly these new methods having also economic, ecologic and social implications, which are worth to be discussed.

#### *Capacity Development*

Capacity-building in an area like water management matters first and foremost as it tries to solve a long-term structural problem. Hence the societies will have to find responsible solutions based on mutually acceptable lasting concessions and should not be constrained by the shorter term interests of leaderships. It should be understood that solutions are subject to the readiness to compromise and the depolitization of the technical aspects of the matter in order it would not be taken hostage by broader problems between the states involved.

Capacity has five dimensions: individuals (knowledge, skills, and attitudes), organizations (management functions, operational capacity, and human, financial, and information resources), the enabling environment (political, legal, and economic frameworks and budget incentives), partnerships (between distinct organizations and in a broader context) and communities (local communities, communities of practice, professional associations and networks, multi-stakeholder platforms, online groups, and other forms of knowledge sharing) [1]. A necessary condition for IWRM success in Central Asia is to promote the involved parties interest to continuously improve knowledge and skills. We welcome articles discussing different approaches of capacity building and development and their short-term, mid-term and long-term impact to address the knowledge gaps in Central Asia.

#### *Technology of cleaning polluted water and its reuse*

Pollution of water can be caused by agriculture (e.g. “flushing” water from rice fields carries pesticides and fertilizer; excessive irrigation can increase the salt content of groundwater), keeping livestock, industrial use and last but not least by municipal wastewater. The quantity of clean water in Central Asia is so limited, that pollution should be minimized and polluted water should be cleaned using the best available

technology before it is released into streams, lakes or into the ground. Depending on the type of pollution, there is a broad range of methods and technologies available, which are used traditionally, recently introduced or evaluated in pilot projects for future implementation. These should not only be described, but also discussed and compared in detail.

### **Call for papers and reviewers**

To create a lively journal of high scientific and practical impact we are looking for competitive papers from young and experienced scientists and practitioners from Central Asia and other regions with regional or thematic relation to Central Asia. Details on the requirements and the publication process can be found on the e-Journals website <http://water-ca.org>.

All manuscripts will undergo a double-blind peer-review. Therefore we are also looking for interested reviewers from all covered fields, proficient in English and/or Russian language. A registration form for reviewers can also be found on the e-Journals website. It should be noted, that the editors' and reviewers' work is undertaken on a voluntary basis without any financial interests. We are united by the vision of interdisciplinary and international scientific exchange and its benefits for the region of Central Asia.

### **A final word**

Non-commercial projects like our e-Journal "Integrated Water Resources Management in Central Asia" live by their dynamic and active community. We therefore welcome you in our community and look forward to your contributions as author, reviewer or critical reader. As learning is essential for any scientific process, we are grateful for your critical comments, as it will improve our e-Journal.

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## References

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