

# RESEARCH AND EDUCATION AS THE DRIVERS OF A PARADIGM SHIFT IN CENTRAL ASIAN WATER GOVERNANCE AND WATER DIPLOMACY

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**Abstract.** Detailed analysis of the growing problems of the Central Asian water sector leads the authors to the conclusion that there is an urgent need for a paradigm shift in water governance and water diplomacy. As a result of climate change the natural environment and human systems are nearing adaptation limits. Climate change affects the region primarily through the water sector. Central Asian countries - including Afghanistan - are linked by two large rivers, therefore strengthened regional cooperation is a sine qua non precondition of achieving sustainability of the water sector. Since there is a close link between domestic politics and regional cooperation, only the simultaneous improvement of water diplomacy and water governance can reverse the negative trends of the last three decades. As President Kassym-Jomart Tokayev in his State of the Nation Address on 1 September 2023 emphasized: *“conducting a balanced water policy and solving issues of transboundary water use are the most important tasks of the Government”*.

The authors propose integrating the latest achievements of political economy of the water sector, international political economy, international cooperation theory, institutional economics of sustainability and conflict analysis into the theoretical framework for water diplomacy, building on pragmatic and region-specific cooperation models developed and maintained in the last 30 years. The envisioned paradigm shift would be a catalyst for fostering innovative, creative, mutually stimulating and complementary cooperation among a broad range of stakeholders. It would offer a promising pathway not only to strengthening regional cooperation on

water in Central Asia but would empower Central Asian water diplomats to play a leading, proactive role in global efforts to address the challenges of the 21st century. It would pave the way for the integration of modern concepts like benefit sharing into negotiating strategies and initiatives, thereby helping translate into concrete action the existing high level political will at the regional level to resolve problems of the water sector.

**Keywords:** *climate change, water sector, adaptation limits, water diplomacy, water governance, paradigm shift, higher education, institutional economics of sustainability, political economy of the water sector, international political economy, international cooperation theory, conflict analysis.*

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## **ЗЕРТТЕУ ЖӘНЕ БІЛІМ БЕРУ ОРТАЛЫҚ АЗИЯДАҒЫ СУ РЕСУРСТАРЫН БАСҚАРУ МЕН СУ ДИПЛОМАТИЯСЫНЫҢ ПАРАДИГМАСЫ ӨЗГЕРУІНІҢ ҚОЗҒАЛТҚЫШ КҮШТЕРІ РЕТІНДЕ**

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**Аңдатпа.** Орталық Азиядағы су секторындағы өскен проблемаларды терең талдау авторларды су басқаруы мен су дипломатиясының парадигмасын шұғыл өзгерту қажеттілігі туралы қорытындыға әкеледі. Климаттың өзгеруі табиғи орта мен адам жүйелерін бейімделу шегіне жақындатуда. Климаттың өзгеруі ең алдымен су секторы арқылы аймаққа әсер етеді. Орталық Азия елдері, оның ішінде Ауғанстан, екі үлкен өзенмен байланысты, сондықтан аймақтық ынтымақтастықты күшейту су секторын тұрақты дамыту үшін қажетті шарт болып табылады. Ішкі саясат пен аймақтық ынтымақтастық арасындағы тығыз байланыс болғандықтан, су дипломатиясы мен су басқаруын бір уақытта жақсарту тек соңғы үш онжылдықтағы теріс үрдістерді өзгерте алады. 2023 жылдың 1 қыркүйегінде Президент Қасым-Жомарт Тоқаев өзінің Жолдауында: «*Су саясатын теңгерімді жүргізу және трансшекаралық су пайдалануды шешу - Үкіметтің ең маңызды міндеттері*» деп атап өтті.

Авторлар су секторындағы саяси экономика, халықаралық саяси экономика, халықаралық ынтымақтастық теориясы, тұрақты дамудың институционалдық экономикасы мен қақтығыстарды талдау саласындағы соңғы жетістіктерді су дипломатиясының теориялық негізіне интеграциялауды ұсынады, бұл үшін соңғы 30 жылда әзірленген және қолданыстағы прагматикалық және аймаққа бейімделген ынтымақтастық модельдеріне негізделеді. Күтілетін парадигма өзгерісі инновациялық, шығармашылық, өзара ынталандыратын және толықтыратын ынтымақтастықты кең ауқымды мүдделі тараптар арасында дамытудың катализаторы бола алады. Бұл Орталық Азиядағы су саласындағы аймақтық ынтымақтастықты нығайтуға ғана емес, сондай-ақ Орталық Азиялық

су дипломаттарына ХХІ ғасырдың сын-қатерлерін шешу жөніндегі жаһандық күш-жігерде жетекші және проактивті рөл атқаруға мүмкіндік береді. Бұл сондай-ақ пайдалармен бөлісу (*benefit sharing*) сияқты заманауи концепцияларды келіссөздер стратегиялары мен бастамаларға интеграциялау жолын ашады, осылайша аймақтық деңгейде су секторындағы проблемаларды шешуге бағытталған саяси ерік-жігерді нақты әрекетке айналдыруға ықпал етеді.

**Түйін сөздер:** климаттың өзгеруі, су секторы, бейімделу шекаралары, су дипломатиясы, су басқаруы, парадигманың өзгеруі, жоғары білім, тұрақты дамудың институционалдық экономикасы, су секторының саяси экономикасы, халықаралық саяси экономика, халықаралық ынтымақтастық теориясы, қақтығыстарды талдау.

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## ИССЛЕДОВАНИЯ И ОБРАЗОВАНИЕ КАК ДВИЖУЩИЕ СИЛЫ СМЕНЫ ПАРАДИГМЫ В УПРАВЛЕНИИ ВОДНЫМИ РЕСУРСАМИ И ВОДНОЙ ДИПЛОМАТИИ В ЦЕНТРАЛЬНОЙ АЗИИ

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**Аннотация.** Детальный анализ растущих проблем водного сектора Центральной Азии приводит авторов к выводу о необходимости срочного пересмотра парадигмы водного управления и водной дипломатии. В результате изменения климата естественная среда и человеческие системы приближаются к пределам адаптации. Климатические изменения в первую очередь воздействуют на регион через водный сектор. Страны Центральной Азии, включая Афганистан, объединены двумя крупными реками, поэтому усиление регионального сотрудничества является *sine qua non* (необходимым) условием для достижения устойчивого развития водного сектора. Поскольку между внутренней политикой и региональным сотрудничеством существует тесная связь, только одновременное совершенствование водной дипломатии и водного управления может переломить негативные тенденции последних трёх десятилетий. Как отметил Президент Касым-Жомарт Токаев в своем Послании к народу 1 сентября 2023 года: «Проведение сбалансированной водной политики и решение вопросов трансграничного водопользования – важнейшие задачи Правительства».

Авторы предлагают интегрировать новейшие достижения политической экономии водного сектора, международной политической экономии, теории международного сотрудничества, институциональной экономики устойчивого развития и анализа конфликтов в теоретическую основу водной дипломатии, опираясь на прагматичные и адаптированные к региону модели сотрудничества, разработанные и применяемые в течение последних 30 лет. Ожидаемый сдвиг парадигмы может стать катализатором для стимулирования инновационного,

творческого и взаимодополняющего сотрудничества среди широкого круга заинтересованных сторон. Он обеспечит не только укрепление регионального сотрудничества в водной сфере Центральной Азии, но и позволит центральноазиатским водным дипломатам играть ведущую, проактивную роль в глобальных усилиях по решению вызовов XXI века. Это также откроет путь к интеграции современных концепций, таких как распределение выгод (*benefit sharing*), в стратегии переговоров и инициативы, способствуя воплощению в конкретные действия существующей на региональном уровне политической воли к решению проблем водного сектора.

**Ключевые слова:** изменение климата, водный сектор, пределы адаптации, водная дипломатия, водное управление, смена парадигмы, высшее образование, институциональная экономика устойчивого развития, политическая экономика водного сектора, международная политическая экономика, теория международного сотрудничества, анализ конфликтов.

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## Introduction

During its long history Central Asia had brilliant achievements and tragic failures in the management of its water resources. The extraordinary wealth of oasis cities and states along the Silk Road was based on prodigiously productive irrigated agriculture. They boasted highly developed arts and crafts and large markets renowned far and wide. During the period of “Central Asian enlightenment” between the 8th and 15th centuries the region became one of the centers of world civilization (Starr, 2015). Poets, philosophers, historians, political thinkers, astronomers, mathematicians and doctors contributed to the vibrant intellectual and artistic scene of the oasis states. Prosperity went hand in hand with cultural openness and religious tolerance: in Central Asia peacefully coexisted several major religions, starting from Zoroastrianism to Manichaeism, from Buddhism to Islam, not to mention well established local communities of Jews, Nestorian Christians or the great variety of shamanistic belief systems of the people of the steppe. At the same time there are examples of the tragic consequences of the neglect and destruction of irrigation systems for the communities that depended on them. In the 11th and 12th centuries Merv was one of the biggest cultural and economic centers of the world but as a result of renewed large scale military campaigns by nomadic conquerors the irrigation systems it depended upon gradually decayed, leading to the depopulation of the city by the 19th century.

The water sector of Central Asia went through a period of rapid development during Soviet times. When the countries of the region became independent in 1991 they inherited an extensive, highly integrated and well-maintained water infrastructure as well as one of the greatest man-made environmental disasters of the 20th century, the drying out of the Aral Sea. The use of practically all available water resources for irrigation and industrial and communal water supply and competing needs of the energy and irrigation sectors resulted in a fragile balance among various uses of water by riparian's, with a non-negligible conflict potential. Central Asian countries managed to preserve this delicate balance, avoided major conflicts and have recently started to address key issues left unresolved for decades. How much the emerging political will to cooperate is going to be translated into

concrete action depends very much on the effectiveness of water diplomacy.

A paradigm shift in water diplomacy is necessitated by the uneven performance of water diplomats in recent decades and the increasing water stress that has made water an issue of national security for several countries. The water sectors of Central Asia are racing against time. There is growing uncertainty caused by the cumulative effects of climate change, melting glaciers and growing demand for water due to population growth and economic development. The building of new infrastructure of regional importance, like the Kosh Tepa irrigation canal in Afghanistan, if not managed in a rational and cooperative way, may upset the existing water sharing arrangements and regional water resources management in general. Business as usual is not an option. A combination of national and regional measures is required if riparian countries want to avoid increasingly frequent crisis situations and an eventual collapse of large parts of regional water infrastructure.

Climate change pressures, such as droughts and floods, have become frequent enough to seriously affect the water systems of Central Asian countries. Climate change is a game changer in Central Asia: it accelerates the negative trends, like decreasing water availability, and it directly impacts upon the socio-economic development of the region. This change is not linear, but exponential and its effects are aggravated by another exponential change, the increasing cost of restoration, modernization and maintenance of the decaying regional water infrastructure. These two concomitant processes constitute a strategic challenge for the region.

The growing uncertainties and emerging challenges are hammering home the importance of strengthened regional cooperation. The policy brief by Adelphi on the publication “Rethinking Water in Central Asia” points out: “Despite a general commitment to cooperation, Central Asia is witnessing intense competition over water resources. Water policies are often driven by uncoordinated national strategies. A combination of low water efficiency, strong interdependencies, and competing national priorities has caused disagreements, and contributed to political and diplomatic disputes between Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Insufficient water cooperation entails significant costs and major risks for the future development of the region”. Stubborn stumbling blocks hindering regional cooperation on water weaken the ability of Central Asian countries to jointly formulate and defend their strategic interests in a period of complex and unpredictable geopolitical processes called “multipolarization” by the Report of the 2025 Munich Security Conference.

The list of recent positive developments include regular consultative meetings of the Heads of State of IFAS member countries and cooperation in the development of strategically important water infrastructure like the agreement of Uzbekistan and Tajikistan to build two hydropower stations on the Zeravshan river and the January 2023 offer by Kazakhstan and Uzbekistan to participate in the building of the Kamarata HPS in Kyrgyzstan. After 30 years of underinvestment, finally more resources are shifted to the water sector.

### **Methodology and Research Methods**

The foundation of this article is based on systematic and comparative analysis, the analytical method, and the historical research method. This approach enables

the examination of these processes within the context of the political and social conditions of the corresponding period. The authors compared their personal experiences in the water sector over a decade and a half with the results of projects assessing the state of water related research and higher education in Central Asian countries to draw conclusions and recommendations. Extensive first-hand experience, among others, in the Central Asian Regional Environmental Center, the CAREC Research Institute, IWMI, the UN Special Program for the Economies of Central Asia, the UNECE and GiZ supported project on legal and institutional strengthening of regional cooperation on water and the Blue Peace Central Asia project allowed the authors to assess the consequences of insufficient human capacity for water governance and water diplomacy in Central Asia. The analysis of the conclusions of recent assessments of water related research and education capacity in Central Asia (among others projects supported by the World Bank, USAID, SDC and the Erasmus+ program of the European Union) made it possible to reveal the root causes of slow build up of human capacity on water governance and water diplomacy and formulate concrete recommendations for steps to overcome persistent problems in water related research and higher education.

## **Discussion and Results**

### ***How can water diplomacy rise to the challenges ahead?***

To translate the increased political will into joint action and optimally utilize available resources, Central Asian countries need a paradigm shift in water diplomacy. The shift should be started by joint research and training a new generation of water diplomats. The collaborative analysis and understanding of the challenges that the region is facing could facilitate progress towards joint governance and management of water resources.

Studying “best practices” like cooperation in the Danube, Sava or Rhine basins could be useful, but it should be kept in mind that each river basin has its own challenges and opportunities, especially when historic, economic, social, institutional, regulatory and political factors are taken into account. Therefore copying or adapting “best practices” has its limitations (and there is a danger that in some cases it might be simply misleading). Moreover, global concepts and principles applied in earlier years yielded mixed results. As Biswas (2001) points out, the “crux of the major water problems of the future will be on developing countries. And yet, the universities and research institutions of developing countries are generally not conducting research on water problems that are relevant and appropriate for their countries. The basic thrusts of their research programs are often similar to what could be seen at Oxford or Harvard Universities, even though the water problems faced by developing countries are very different from those of the UK or USA”.

The water sector transformations in Central Asia continue since the collapse of the former Soviet Union in the 1990s ( Table 1).

**Table 1.** Water sector transformation in Central Asia

Periods	Transformations	Observed intentions
<b>Late 1980's and early 1990's</b>	Water sector financing was reduced, and the role of the water sector in the overall government system declined	Reducing the hydraulic mission-based water sector and transitioning to the new economic settings
<b>Mid 1990's-2000's</b>	Formation of water users' associations, donors lead reforms and focus on setting up post-soviet water systems. Transboundary issues are emerging as factors in water policy and management	Crafting new water systems, integrating water into the nation-building efforts Setting up new local water institutions, hydro services, WUA's
<b>2000's- 2010's</b>	Setting up normative reforms in the water sector: IWRM period	Making the water sector attractive for international financing and support
<b>2010 onwards</b>	Water sector financing and a broader focus on water security	Setting up efforts toward sustainable and productive water systems

*Source: Compiled by the authors*

The proposed paradigm shift should start with the thorough analysis of the experiences of Central Asian countries since 1991. Looking at the history of the last three decades through the lens of international cooperation theory, international political economy, institutional economics and conflict analysis would allow researchers to go beyond the usual diagnosis repeated ad nauseam: the lack of sufficient investment in the water sector is resulting in huge losses of water due to a crumbling infrastructure. Research based on the proposed new theoretical basis would be able to explain the reasons for the decade-long under-investment, the inability to achieve economic and financial sustainability of the water sector and preference for national solutions versus more efficient regional projects.

### **Why to start with education and research?**

In Soviet times universities of Central Asian countries trained world class water engineers (in Russian “vodniki”) who built, maintained and operated one of the biggest networks of irrigation canals and reservoirs in the world. At the same time, decisions on strategic development plans, large scale investment and financing were made in Moscow by the Central Committee of the CPSU, the State Planning Committee and central line ministries. After 1991 when Central Asian countries became independent the curricula of the majority of universities continued to reflect this lopsided situation. According to the 2019 Review of water-related academic and research capacity in Central Asian countries (Ibatullin, 2019) “The overall analysis of current education trends and existing specialty in the Central Asian countries shows that, at large, they are almost identical in all universities and do reflect existing water sector management policies.” The teaching programs of the 24 surveyed institutes of higher education aim to train technical specialists, thus contributing to the perpetuation of the “engineering approach” in the governance of water resources and in water diplomacy. As the 2023 “Needs assessment of 12 Central Asian universities” conducted in the framework of the Erasmus+ project

“Strengthening Higher Education in the Water Sector for Climate Resilience and Security in Central Asia” revealed, only a handful of institutes of higher education have a curriculum that can serve as the basis for the development of a modern water diplomacy training program and faculty who can teach such a curriculum. The lack of economic, financial, institutional and management expertise is arguably one of the reasons for the slow progress of negotiations on market-based solutions in regional cooperation. It goes without saying that further modernization of the teaching of existing subjects that are commonly referred to under the collective name STEM (science, technology, engineering and mathematics) should go hand in hand with the development of new modules that include social sciences subjects.

### **Results and lessons of three decades**

#### *The case for more attention to economic and financial aspects*

Central Asian water sectors inherited a number of problems from the Soviet Union, like the drying out of the Aral Sea, one of the most serious man-made environmental disasters of the 20th century, wide-spread environmental pollution, obsolete irrigation methods and the predominance of water-intensive crops in agriculture. The dramatic drop of GDP in the first decade after independence and the break-up of a unified economic space along national borders further aggravated inherited problems. Many state-owned companies producing materials for the water sector went bankrupt due to imprudent and hasty privatization attempts. Building capitalism without capital did not work too well in the water sector either. As a result, today the bulk of water infrastructure of regional importance remains in public ownership and needs massive investment. According to a conservative estimate, Central Asian countries would have to spend USD 33 - 35 billion annually to modernize and properly maintain thousands of kilometers of irrigation canals and communal water systems, predominantly built in Soviet times. Attempts to introduce market based solutions into regional cooperation on water have brought only limited successes. According to a number of recent studies (OECD, ADB, IWMI, UNECE) sector-based, ill-coordinated planning and investment in the water sector do not provide alternative solutions for infrastructure financing. Negotiations on a water-energy consortium have dragged on for a quarter century with no early results in sight.

Current financing of crucial sectors of the water-energy-food-environment nexus, especially the water sector, is fully public. However, only 50% of the financing needs of the water sector are at present covered by the state budgets. Upscaling private sector financing, in particular opening up the water sector for FDI and other financing instruments would have great importance for achieving economic and financial sustainability of the water sector. The proposed paradigm shift would empower experts and water diplomats to correctly define the optimal role of the public and private sectors and multilateral development banks in investment in and maintenance and operation of national and regional water infrastructure in Central Asia. This task is highly complicated. As Ghosh (2024) points out: “If they (multilateral development banks) allocate more resources to mitigating risks for private investors, available funds for essential public services will shrink even further. Historically, private investors have relied on the public sector to finance infrastructure projects and riskier, less profitable ventures. If governments and

international institutions remain resource- constrained, it is highly unlikely that private entities will step in to bridge the gap. The problem is compounded by the difficulty of ensuring that private entities fulfill their commitments. The prevailing approach involves offering incentives, such as subsidies and risk underwriting, but not at the same time establishing clear conditions, enforcement mechanisms, and regulations to curb monopolistic and anticompetitive behavior.” Combining incentives with conditionality at the regional level is a highly complicated task, a major challenge for water diplomats.

#### *Untapped geo-economics advantages*

Obviously, the narrow focus on physical water necessarily results in a zero sum game: if one party uses more water, less is left to the others. Focusing on shared benefits instead of quantity would facilitate the development of cooperative solutions. The broader the range of benefits under discussion, the more likely that riparians will be able to work out configurations of benefits that are mutually acceptable. Central Asia has exceptionally favorable conditions for regional cooperation based on benefit sharing. As the Adelphi report on water diplomacy (2014) points out, in many river basins upstream countries not only control water flows but are in an economically dominant position - suffice just to mention the Mekong or the Tigris-Euphrates rivers. In Central Asia the situation is just the opposite. The economies of downstream countries are much bigger than the economies of upstream countries while the latter - Tajikistan and Kyrgyzstan - have abundant freshwater resources and huge, underdeveloped hydropower potentials. The approximate equilibrium of relative bargaining power of upstream and downstream countries could provide a solid basis for water diplomats to combine strengths and work out cooperative solutions.

#### *Analyzing the conflict potential*

Since 1991 Central Asian countries have managed to maintain a cooperative system of water resources management and avoided major conflicts over water. Still the tense situation on the border between Kyrgyzstan and Tajikistan is a stark reminder that there is room for improving the effectiveness of water diplomacy. Water diplomats will need to be trained in conflict analysis and preventive diplomacy. Conflicts, as a rule, are multi-faceted and have multiple causes. Conflict analysis by water diplomats needs to go beyond the narrow problems of the water sector and take into consideration the history, culture and traditions of the region as well as the economic, environmental, social, political and strategic aspects of bilateral or multilateral relations.

#### *Stepping up international funding*

Water is a global public good. Its efficient management requires a fundamental reinvention of international water cooperation, using a multi-actor approach. This requires the constant evolution of the conceptual basis of water diplomacy to empower water diplomats to actively participate in collective action to overcome water crises and develop networked responses at the regional and global levels. The amount of resources available for collective action is growing every year. The Central Asian region needs coordinated strategies and well-functioning institutions to have better access to climate funds and “green” development assistance, which are indispensable for restoring the water infrastructure and introducing modern water saving technologies in order to avoid more frequent crises.

At the same time the recent decision by several developed countries, including the US and the UK, to drastically cut their development aid budgets is a cause for serious concern. Central Asian states need to strengthen their cooperation with partners such as the European Union and China, which are able to continue to support research and higher education in water governance and water diplomacy through development programs. Well trained water diplomats can more effectively promote the interests of Central Asian countries in negotiations on transboundary water resources with neighboring countries, like Russia or China, and can play an active role in formulating and defending the political, economic, financial interests of the region at various multilateral fora.

### ***Outlining a paradigm shift for Central Asian water diplomacy***

For the last thirty years water diplomacy in Central Asia has mostly been going around in circles. The old engineering-legal approach more often than not condemned the negotiators to focusing on physical water or trying to use international water law to underpin their positions. The drawback of this approach is that the only country that is party to both the 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the 1997 UN Convention on the Law of Non-Navigational Uses of International Watercourses, is Uzbekistan, while the three upstream countries - Afghanistan, Kyrgyzstan and Tajikistan - to none of them. It is true, international water law (including customary law) principles include the duty to cooperate and equitable and reasonable utilization, but in practice these cannot be determined unilaterally, only through a complicated and lengthy process of bilateral and multilateral negotiations, repeated claims and counterclaims by the parties involved. As “asymmetrical vulnerability interdependence” described by Keohane and Nye (2012) would predict, upstream countries often see their control of transboundary water flows as that can be used as a source of leverage in negotiations among riparians. A too narrow focus on physical water or international water law makes it difficult for water diplomats to design strategies that translate power resources that are unequally distributed in various issue areas into the desired outcomes that result in balanced cooperation. One of the key issues that needs to be tackled is how to develop a workable negotiating strategy that balances/combines through cooperative arrangements upstream control of water flows (traditional source of power) and downstream economic clout. Water diplomats need to be aware that power resources under conditions of complex interdependence are not fully homogeneous and in most cases they are not fully fungible. They face the complicated task of developing strategies that can balance and combine capabilities in one area with capabilities and influence in other issue areas. The central element of the proposed paradigm shift in the region is to focus on applying more “out-of-the-box” or “out-of-water-sector” approaches. The trade-infrastructure-security-development nexus should become a major trend in setting water, environment and climate issues.

### ***Improving the institutional frameworks***

In Central Asia the Ministries of Foreign Affairs are the main actors and coordinators of water diplomacy. In its activities, the MFA seeks to represent and promote the general political, security and economic interests of the country. So water diplomacy is inextricably embedded in the general planning and conduct of foreign (and foreign economic and security) policy. MFA-s and presidential

administrations prepare consultative meetings of the heads of state, which in turn play a key role in the strengthening of political will.

While water diplomacy is a primary responsibility of foreign ministries, it requires a combination of different knowledge, information and skills that is the involvement of water experts, engineers, economic, financial, investment and environmental specialists. The proposed paradigm shift would provide a sufficiently broad theoretical framework for structured and productive cooperation among experts of technically distant disciplines.

Reducing organizational competition and clearly delineating interstate agencies' functions could help improve cooperation attitudes. The current competitive and complex structure of the institutional environment is the outcome of the post-soviet period of regional development. The integration of international cooperation theory, international political economy, institutional economics and conflict analysis into the theoretical basis of Central Asian water diplomacy would also facilitate better analysis of strategic issues, like competition among regional organizations and strengthen the ability of Central Asian states to maintain control over this vitally important resource.

#### *Costs and benefits*

The book “*Rethinking water in Central Asia: the costs of inaction and benefits of water cooperation*” (2017) provides convincing arguments in favor of strengthening regional cooperation on water: “Costs of inaction” – defined here as the difference between the current, limited cooperation and the benefits that would result from full cooperation. Even if only parts of these costs are taken into account, they amount to more than US\$ 4.5 billion per year for the whole region and are significant for each of the five countries studied. Due to deteriorating infrastructure, environmental degradation and demographic and economic pressures, these costs will increase if water management remains as it currently is.”

It is quite striking to discover that the discussion paper by the Expert Platform “*Rethinking Institutional and Financial Mechanisms on Water and Energy Cooperation in Central Asia*” (Ibatullin, 2023) published six years later exposes disappointingly slow progress in key areas of water cooperation. The old engineering-legal approach, if it continues, would seriously limit the ability of water diplomats to use more recent concepts, like the nexus or benefit sharing, when developing negotiating strategies to eliminate stumbling blocks and accelerate progress towards substantive cooperation.

#### *Examining water within an expanded conceptual framework*

Sadoff and Grey (2002) bring convincing arguments in favor of water diplomacy based on an expanded conceptual framework: “Cooperation or disagreement on the management of shared water resources are bundled with many other factors - historic, cultural, environmental and economic - that affect relations between neighboring nations. Fully unbundling water's role from the complex dynamics of relationships between states is not possible. Control of international rivers is inextricably entwined with economic opportunity, national security, society and culture...The management of shared water can be a force for peace, or a force for war, but politics—as a proxy for the full bundle of relationships, and associated tensions, that arise between states—will determine whether cooperation or conflict is chosen.”

Such an extended conceptual framework would make it possible to revisit issues which have for decades been stubborn stumbling blocks for cooperative solutions for regional water resources management. It could allow water diplomats to get rid of old stereotypes. Take, for example, Afghanistan: the opening of the Mes Aynak project (and several similar projects in the pipeline) shows that the Taliban is well aware of the importance of economic development and economic cooperation. Water diplomacy, taking advantage of a new, extended conceptual framework, could base negotiating strategies on a benefit sharing approach when discussing thorny issues, like Qosh Tepa.

*Institutional strengthening: a sine qua non precondition of IWRM*

Biswas (2008) highlights the political, institutional and regulatory bottlenecks for using IWRM (at the river basin level) to develop negotiating strategies, as proposed by several authors. He explains the problems caused by different institutions, regulatory frameworks, weak inter-sector coordination as well as inter-sector competition. An unpublished study prepared by the Center for Central Asia Research of Corvinus University (2023) Budapest for the World Bank on the water sector of Kazakhstan revealed persistent problems with inter-sector coordination and multilevel governance. Needless to say, harmonization of policies, institutions and regulations at the regional level is immensely more complicated than within just one country. The proposed paradigm shift could help identify the most pressing regionally coordinated institutional and regulatory reforms that could pave the way for a gradual introduction of IWRM in negotiating strategies on regional cooperation on water. Ongoing efforts to strengthen legal and institutional frameworks (the International Fund for Saving the Aral Sea) and establish a Central Asian water and energy consortium would also greatly benefit from the proposed paradigm shift.

*Central Asia needs its own solutions and models*

Local, national and regional level management of water resources are closely intertwined: by failing to create negotiating space for water diplomats by improving governance and increasing investment at home, governments tie their own hands when it comes to developing regional negotiation strategies. Technical assistance by development agencies and advice by international partners have for decades influenced the conduct of water diplomacy in Central Asia. Such advice was supposed to help governments to realistically assess the social and economic needs and the optimal direction of reforms in their water sectors. While the Sustainable Development Goals adopted by the UN in 2015 (Goals 6: “Ensure availability and sustainable management of water and sanitation for all”) set the right goals for the water sector, it is important to note that an increasing number of economists, like Noble-winning J. Stiglitz (2004), doubt whether it was a realistic idea to rely on neoliberal (market fundamentalists) economic theories to solve mounting problems of a sector which not only remained overwhelmingly in public ownership but played a key role in maintaining social stability, facilitating poverty reduction, provision of WASH services and preserving food security in the midst of the long and complicated process of economic transition after 1991. “Neoliberalism had given short shrift to externalities, but with climate change and then the Covid-19 pandemic, it became obvious that externalities are of first-order importance. Government is as necessary to helping society maintain the environment and

public health as it is to helping sustain macroeconomic stability.” (J.Stiglitz 2024)

How can we explain that very few experts proposed to implement reforms based on the New Public Management theory developed by Hood (1995) and others, designed to mitigate the inherent challenges of public ownership and foster efficient operations within these entities? As G. Boccaletti (2023) explains “The prime objective of public water resource development is the maximization of national welfare. But it is almost impossible to calculate beforehand what those benefits will be. Water investments last for decades, during which time economies are transformed and systems change. Moreover, people care about more than income. Add in budgetary constraints – which force choices between second-best options, rather than pure benefit optimization – and the problem becomes analytically intractable. All one can do is construct scenarios to facilitate a political discussion about what solution people might prefer.” Integration of modern concepts of international cooperation theory, international political economy, institutional economics and conflict analysis into the theoretical framework for water diplomacy would help representatives of Central Asian countries to develop indigenous economic, institutional and regulatory solutions at the regional level to solve the problems of the water sectors. Regional institutions strengthened by more effective water diplomacy would, in turn, influence national policies through empowering domestic constituencies, thus consolidating broad support to reform agendas within Central Asian societies.

A modern, indigenously developed and comprehensive theoretical framework would allow Central Asian water diplomats to take the initiative and present innovative proposals when negotiating with international partners - be it development banks, foreign consultants or scholars. The same is true for negotiations at global forums on climate change or sustainable development.

#### *The potential for conflict must be carefully analyzed*

Besides international cooperation theory, international political economy and institutional economics, conflict analysis should occupy a prominent place in the broad theoretical framework for water diplomacy. Experience has shown that only a comprehensive study of root causes (as opposed to analysis that focuses only on one particular sector/field, be it the military, political, economic, environmental or the human dimension) would produce useful results. The proposed paradigm shift would help water diplomats to base their negotiating strategies on comprehensive conflict analysis. It is important to note here that above a certain level of tension legal and institutional frameworks become largely irrelevant. Preventive action is therefore highly important.

Central Asian countries need skillful water diplomacy (and not just technical and economic expertise to develop mutually beneficial projects), as a larger pie does not automatically stop disputes over the size of the slices. Distributional conflicts may persist in the future even if there are large net benefits as a result of improved regional cooperation.

#### *The first steps - education and research*

Developing an updated curriculum or module on water diplomacy that includes lectures, case studies and skills development exercises on the latest achievements of political economy of the water sector, international cooperation theory, international political economy, institutional economics of sustainability, and

conflict analysis is a complex and demanding task, requiring top level teaching staff as well as proven research capacity. To facilitate the optimal use of available resources, a small number of Central Asian universities could be selected to become advanced regional centers for training water diplomats. Central Asian institutes of higher education could cooperate in teaching modern theory and practice of water diplomacy: universities of water resources management or irrigation could team up with academies of public administration, universities of world economy or diplomacy to equip students with the broad range of knowledge and skills that they need to become successful water diplomats. A good example is the MoU signed recently by the Tashkent Institute of Irrigation and Agricultural Mechanization Engineering and the University of World Economy and Diplomacy on developing a joint MSci program on water diplomacy.

Leading authors of international cooperation theory, international political economy, institutional economics and conflict analysis provide a broad theoretical background for the proposed paradigm shift in CA water diplomacy but they don't offer tailor made solutions for concrete problems of the water sector of Central Asia. Universities and research institutes need to develop their own, curricula or modules that would facilitate the proposed paradigm shift before they can be used for teaching BA and MA courses, instructing doctoral students, retraining government officials, developing new, out-of-the-box and out-of-the-water initiatives for MFA-s, presidential administrations and high level decision makers. Regional organizations and institutions - like EC IFAS or SIC ICWC - could provide a much needed framework for joint research by the academic communities of Central Asian countries.

### **Key issues**

As Keohane (2020) notes "Political science has two missions: to help us understand politics better and to improve the world." The proposed paradigm shift in Central Asian water diplomacy must start with an analysis of the successes and lessons of regional cooperation on water since 1991 and the mapping of research topics and directions. The main objective of regional research programs would be to produce new teaching materials, methodology and case studies that could be integrated into the MA or PhD programs of the advanced regional centers for education. In addition, the proposed research program would have important spin-offs: it could produce recommendations, policy papers, high-level initiatives as well as basic packages for retraining government officials, decision makers, youth and women activists and civil society organizations.

Experts of international cooperation theory, international political economy, institutional economics and conflict analysis will need to continue working with natural scientists and engineers to understand the economic, technical, social and political stumbling blocks to regional cooperation on water and explain how to overcome them through innovative political and economic strategies and more effective water diplomacy. It bears emphasizing that the new subjects can only be taught effectively in the framework of the renewed water diplomacy training if the general theories are first adapted to the specific conditions and needs of Central Asia and linked to concrete problems of the region. The group of experts should select a limited number of subjects that are most relevant for the water sector of

the region and develop methodologies and case studies to facilitate their effective teaching. Case studies should be selected by the faculty of each university that teaches the module, taking into account what issues have been on the agenda of water cooperation with neighboring countries over the last thirty years.

The modules - developed on the basis of a general basic package - could be integrated into various curricula and taught to students with different majors and areas of interests. However, it would be a mistake to teach the new modules using the old, traditional methodology. For example, teaching staff might be encouraged not to include formal, predefined and unified exams in the module. It is important to keep in mind that one of the main objectives of the module is to develop capacities for critical thinking and teach basic social sciences skills to future generations of water diplomats. Accordingly, faculty teaching the module should be encouraged to ask students to develop and present projects. The projects should focus on challenges, opportunities for cooperation or conflict risks in areas linked to the majors of the student. The projects should offer an opportunity to evaluate the creativity, critical thinking and independent judgment of the student, as well as her/his openness to cooperation and ability to engage in teamwork. Curriculum development should go hand in hand with retraining faculty of selected universities to teach the new modules.

Let's have a look now at the subjects that could be included in the basic package. These should be carefully selected to equip students of water diplomacy with the most useful, region-specific knowledge and skills without overburdening them. Graduates should be able a) to critically analyze the history (good practices and lessons learned) of regional cooperation on water b) develop a new conceptual framework for strengthening regional cooperation c) translate high level political will to cooperate into concrete initiatives and projects d) develop negotiating strategies to implement these initiatives and projects e) conduct bilateral and multilateral negotiation in a highly professional manner f) formulate and represent the interests of the region at global fora.

The list below is far from complete. It serves just to illustrate the subjects that could be considered for inclusion in the proposed basic package / module:

- *A general introduction to international cooperation theory, international political economy, institutional economics and conflict analysis.*

Students should acquire a profound knowledge of relevant theories so they are able to undertake an in-depth, critical review of successful models, challenges and lessons learned of regional cooperation on water since 1991. They should learn to analyze relations of complex interdependence in the economic, environmental, social, political and security fields. They should get acquainted, among others, with the process of policy coordination, principles, norms, rules, and decision making procedures and the theory of non-zero sum games. They should learn how to find efficient solutions to the problems of externalities (e.g. water pollution) and practical skills like market-oriented bargaining, mutual adjustment and bargaining to strengthen cooperation and lowering transaction costs of bargaining by strengthening credibility and reducing uncertainties.

- *Institutional and legal frameworks*

Students should learn about the strengths and weaknesses of the existing institutional and legal frameworks for water cooperation in Central Asia and

analyze lessons of past and ongoing efforts to strengthen and modernize them. They should examine the role of incomplete information and negative consequences of asymmetrical information in regional cooperation and analyze how organizations / institutions can enhance monitoring and information transmission. A case study could look into the mandate and functioning of SIC ICWC and the role of civil society as a low-cost monitor. They should learn about connections between institutionalized regional cooperation and domestic politics, domestic distributional effects of regional agreements and problems of local commons and regional interdependence.

Students should critically analyze international water law and the existing legal frameworks for regional cooperation on water. They should examine how to modernize the present legal frameworks without undermining their stabilization effects. More generally, students should learn about the latest trends in the development of international water law: how its evolution could narrow the gap between existing legal norms (including customary law) on the one hand and the latest theories and policy frameworks for regional cooperation on water (e.g. benefit sharing or nexus) on the other. Case studies and skills development exercises should give an opportunity for students from different countries to elaborate mutually acceptable solutions.

- *Economic aspects of regional cooperation on water*

Students should undertake a critical analysis of economic problems of regional cooperation on water through the lens of international political economy, learn about the the cost of inaction and benefits of cooperation, the influence of institutionalized regional cooperation and the international political and economic environment on the business and investment climate in the nexus-sectors of Central Asia.

- *New approaches to regional cooperation and water diplomacy*

Students should be invited to undertake a critical evaluation of global concepts and principles applied in Central Asia, including IWRM, the nexus and benefit sharing. Students could analyze the implementation record of various concepts and policy frameworks, identify causes of slow and uneven progress (e.g. weak institutional and regulatory frameworks) and learn (through skills development exercises) to adapt them to prevailing political, economic and social conditions and accepted, proven cooperation models in Central Asia.

Students should learn about the role of non-state actors (youth, women, representatives of disadvantaged and vulnerable communities) in regional cooperation on water and second track diplomacy.

- *Fundamentals of conflict analysis*

Students should learn how to undertake an analysis of existing and future conflict potential in the region with a focus on the role of water in the comprehensive concept of security. They should study concepts of interdependence, including sources, benefits and costs of interdependence and positive and negative implications of interdependence for conflict. They should be able to conduct comprehensive analysis of root causes of conflict, including economic, social, environmental, political and other factors and identify entry points for preventive action.

## **Conclusions**

In Central Asia water is becoming a key issue of national security. Climate

change directly impacts upon the socio-economic development and political stability of the region. This change is not linear, but exponential and its effects are aggravated by another exponential change, the increasing cost of restoration, modernization and maintenance of decaying regional water infrastructure. These unprecedented challenges can lead to two scenarios: increased economic, social, environmental and political tensions or fundamental improvements in policy making, institutional reforms and the joint management of transboundary water resources. The time has arrived for a paradigm shift in water governance and water diplomacy in order to achieve the second scenario. The proposed paradigm shift is intended to strengthen political will to increase resilience and achieve economic, financial and environmental sustainability of the water sector and help translate political will into action.

Change should start with human capacity building and the creation of a new theoretical basis, new policy frameworks for water governance and water diplomacy. Today very few Central Asian universities are able to offer complete modern courses on water governance and water diplomacy alone. Due to time pressure and limited resources overall modernization of water related higher education can only be a long-term task. Through academic exchanges, scholarships, joint degrees, joint research projects and eventually a regional doctoral school leading universities should become “regional champions” and form a “Central Asian Water Campus” that could offer training to students of all six countries. Thanks to modernized curricula on water and reskilled teaching staff, graduates of Central Asian universities should become initiators and drivers of change in governments, public companies, the private sector, civil society and academia.

To launch the process of paradigm shift, a panel of experts could be tasked to prepare a programmatic action plan based on bilateral or regional initiatives that enjoy political support. The Executive Committee of IFAS or a similar institution could host such a panel. Research institutes and think-tanks could become knowledge and information hubs to promote dialogue and joint research.

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