

**International
Hydro-diplomacy:
Building and Strengthening
Regional Institutions
for Water Conflict
Prevention**

PRE-CONFERENCE STUDY 2021

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About Us

Konrad-Adenauer-Stiftung

Freedom, justice, and solidarity are the basic principles underlying the work of the Konrad-Adenauer-Stiftung (KAS). With 107 offices abroad and projects in over 120 countries, our European and International Cooperation contributes to the promotion of democracy, the rule of law and an ecologically oriented social market economy. The topics Energy Security, Climate Change and Natural Resources Management are of central importance for KAS and its four regional Climate and Energy Programmes in Asia (Konrad-Adenauer-Stiftung—Regional Programme Energy Security and Climate Change in Asia and the Pacific (kas.de), Latin America, Konrad-Adenauer-Stiftung—Regional Programme Energy Security and Climate Change in Latin America—Circular Economy and Public Policies (kas.de), Middle East and North Africa (Konrad-Adenauer-Stiftung —Regional Programme Energy Security and Climate Change in Middle East and North Africa (kas.de) and Sub-Sahara Africa (Konrad-Adenauer-Stiftung—Regional Programme Energy Security and Climate Change in Sub-Saharan Africa (kas.de). All KAS regional programmes provide policy advice on the Water-Security-Development-Governance nexus and include local, national and international stakeholders into solution oriented multi-stakeholder dialogues. Our Climate and Energy Programme in Brussels connects the voices from different regions with European Policy and Decision Makers and helps to bridge voices and to contribute to policy making which includes local practices and experiences. Access to water is developing more and more into a determining element in geopolitics, since most of the borders between states develop along rivers and lakes, which separate different water basins. Often, a river, considered the natural frontier of communities, takes on symbolic value and determines geopolitical perceptions and rivalries. Rapid population growth, urbanization, climate change and inefficient water resources management have led to increased water scarcity and limited access to adequate quantities of acceptable quality water for sustaining livelihoods in many parts of the world. Regional cooperation based on strong and democratic regional water institutions for KAS is therefore a prerequisite to build trust, align and mediate diverging interests and jointly manage water across borders and regions.

The Stimson Center

The Stimson Center promotes international security, shared prosperity & justice through applied research and independent analysis, deep engagement, and policy innovation.

For three decades, Stimson has been a leading voice on urgent global issues. Founded in the twilight years of the Cold War, the Stimson Center pioneered practical new steps toward stability and security in an uncertain world. Today, as changes in power and technology usher in a challenging new era, Stimson is at the forefront: Engaging new voices, generating innovative ideas and analysis, and building solutions to promote international security, prosperity, and justice.

Stimson's Energy, Water, and Sustainability program has diligently worked over the years to address important and timely policy issues and technical opportunities concerning energy, water, and sustainable development in the Global South from a multidisciplinary perspective. Our work on transboundary river basins identifies pathways towards enhancing water security and optimizing tradeoffs between water, energy, and sustainable development options in the Mekong, Ganges-Brahmaputra, Indus, Aral Sea and Euphrates-Tigris River basins. We also promote renewable energy transition by looking at examples of lessons-learned from countries that have had breakthrough developments in renewable energy and afford opportunities to share these lessons with other countries in the Global South.

Preface

We are pleased to present the *International Hydrodiplomacy: Building and Strengthening Regional Institutions for Water Conflict Prevention* pre-conference study commissioned and led by the Konrad-Adenauer-Stiftung with support from the Stimson Center. The study's goal is to highlight the need for an inclusive and pragmatic approach to transboundary water governance—at both regional and international levels—with a particular emphasis on the role for EU Water Diplomacy. The chapters of this study, each focused on three of the most water-stressed and conflict prone regions in the world, provides examples of how traditional approaches, political and diplomatic histories between countries, and lack of cooperative mechanisms have all contributed to weaker governance and management of transboundary water resources in these regions.

Water and climate insecurity are poised to become defining global issues in the 21st century. Therefore, advancing proactive hydrodiplomacy, narrowing the existing knowledge gaps in the field, and fostering multi-stakeholder dialogues are key priorities for the Konrad-Adenauer-Stiftung (KAS) and the Stimson Center. Over the years, we have made great strides in leading efforts to highlight the water and climate security challenges and their multi-faceted repercussions on the lives and livelihoods of millions of people around the globe. Through our joint project (previously housed at the East-West Institute) we have convened two high-level dialogues and a series of joint working group discussions which brought together several distinguished policy and research experts from the Global South, the U.S., and the European Union to jointly assess the risks and threats to water security and gauge opportunities for future inter-and intra-regional cooperation. Building on the success and impact of these initiatives, we are planning another high-level conference, scheduled for Fall/Winter 2021, for which this study will serve as an excellent curtain raiser.

A heartfelt thank you to all our authors and team members for their invaluable contributions and support; this study would have not been possible without them. We would like to also take this opportunity to recognize our former colleague, Louis Mourier, for his unwavering commitment and brilliant efforts throughout this journey; we wish him well for his future endeavors.

In the offing, KAS and the Stimson Center will continue to mobilize and engage stakeholders to address the global water and climate security threats in a bid to play our role in combatting what is undeniably one of the greatest challenges of our generation.

International Hydro-diplomacy: Building and Strengthening Regional Institutions for Water Conflict Prevention

FARWA AAMER

Water, a resource that is becoming increasingly scarce, is critical in sustaining human life. The last century has witnessed a multifold increase in global water demand despite its waning availability. The rapidly growing urban populations coupled with increasing impacts of climate change have further exacerbated this challenge: more than two-thirds of the global population live with water-scarce conditions at least one month of the year. If current trends continue, water scarcity, with its cross-sectoral implications on politics and economy, has the potential to challenge national, regional, and international security as countries across the globe compete for shared water resources.

The situation is even more alarming when evaluating transboundary water governance, wherein power asymmetries between upstream and downstream countries are threat multipliers in already fragile and vulnerable socio-political environments. There is thus an urgent need for an inclusive and pragmatic approach to water governance at both regional and international levels. This approach should employ hydro-diplomacy, multi-stakeholder engagement, and institution-building to reinforce greater cooperation over shared water resources. The chapters in this study are each devoted to three of the most water-stressed regions in the world: the Himalayas, Central Asia, and the Euphrates-Tigris River basin. Each region is vexed with finite transboundary water resources which have long been politicized. Tensions between riparian states engender a zero-sum approach to water sharing in the absence of robust frameworks for sustainable and long-term cooperation. The analysis and recommendations to build such frameworks, presented in each region-specific chapter, was made possible courtesy of selected regional experts with extensive knowledge and field experience in international hydro-diplomacy and transboundary river basins.



Dharamshala, Himachal Pradesh, India

Institutions and International Hydro-diplomacy

A primary step towards comprehending the appetite of formal institution-building and water governance frameworks is to understand the term hydro-diplomacy itself. Hydro-diplomacy comprises two conceptual frameworks—water diplomacy and science diplomacy—which define ways in which countries can work together to resolve water resource problems at their shared borders. In this context, hydro-diplomacy embraces the engagement of both state and non-state actors to allow for diverse stakeholder interests.

Over the past century, there have been various attempts to navigate the complex and intricate environment of transboundary water governance including international efforts at different levels and in different regions. The 1992 UNECE Water Convention (enforced in 1996) served to be an important international instrument which requires cooperation between riparian countries to “prevent, control and reduce transboundary impact.” In the same vein, in a range of regions, formal agreements and treaties surfaced over the



Gosainkunda, Nepal,
Himalayas. National park Langtang.

years to legally facilitate integrated water management. However, these treaties have not been entirely effective in keeping water conflicts at bay due to hostile political relations and power asymmetries between riparian states which mean that cooperation remains conditional on political and strategic national interests—compromising and often violating the terms of any formal transboundary agreements.

Regional politics can often weaken the already fragile regulatory frameworks that dictate transboundary water management. For example, the Indus Waters Treaty of 1960, a bilateral water-sharing agreement between India and Pakistan, serves as a case in point. The treaty is weak in that it offers no adaptive rules or protocols to cope with extreme weather events and other looming water stressors that require collaboration between India and Pakistan on long-term solutions. Similarly, in the Euphrates-Tigris river basin, existing treaties and Memorandums of Understanding (MoUs) alone do not have enough leverage to outmaneuver political schisms between Turkey, Iraq, and Syria. Therefore, these agreements must be supplemented by hydro-diplomacy efforts, and regional institutions and river basin organizations. Such institutions will serve as a regional or basin-wide platform for conflict resolution by enabling all riparian states to work with one another on both political and technical levels; drive research and hydrological data sharing; enable means for multi-sectoral—industrial, private, and non-governmental organizations—and multi-stakeholder coordination; and employ transparency and accountability. Once foundations for joint institutions and basin management plans are laid, an all-inclusive, consensus-driven, and unbiased decision-making process will help engender a goal-oriented and benefit-sharing approach as opposed to the widespread “zero-sum” attitude. The Senegal River Development Organization (OMVS)—a potent regional entity responsible for equitable water sharing among countries along the Senegal River in Africa—sets a good example in this case through its effective planning and development contributions to the region. Nevertheless, in other key water-stressed areas like the Himalayas, Central Asia and Euphrates-Tigris River basin, the securitization and politicization of transboundary water resources coupled with weak institutional capacity—a subject discussed more broadly in this study—have restricted the aptitude of cooperative transboundary mechanisms achieved by the likes of OMVS.

**Senegal River Basin
Development Organization
(OMVS)¹**

The Senegal River Basin Development Organization (OMVS) is a regional cooperative management organization on the Senegal River. Developed in 1972, the OMVS is the only African river management entity that has diligently followed guidelines of equitable sharing among member states. The OMVS currently includes Guinea, Mali, Mauritania, and Senegal.

The EU and Transboundary Water Governance Institutions

If scarce water resources are viewed only strategically, there is a strong likelihood of shared waters becoming a source of contention and competition between riparian states. This possibility alone warrants international attention. The ever-changing security and environmental context make it imperative for internal and external stakeholders to discuss water issues more efficiently within policymaking. To that end, the European Union (EU) has shown a vested interest in expanding its water diplomacy initiatives to support global water governance.

EU's Water Framework Directive of 2000 provides a good example for member states to follow a more holistic approach towards water management, outlining that "for river basins extending beyond the boundaries of the community, member states should endeavor to ensure the appropriate coordination with the relevant non-member states"². The Council Conclusions in 2013 also recognized the gravity of water scarcity and related conflicts across the globe that would not only adversely impact the EU but also international security. The Council Conclusions in 2018 reiterated that "a key objective of EU water diplomacy is to engage for the long term in fostering cooperative approaches to address the transboundary challenges of water. The EU stands ready to work in partnership with others to promote collaborative and sustainable water management, encouraging and supporting regional and international cooperation."³ Additionally, EU member states, like the Netherlands, Germany, Slovenia, and Finland have repeatedly set an example through their continued engagement in the water sector whether by means of enhancing quality, climate adaptation or knowledge sharing within the EU borders and even across.

A key objective of EU water diplomacy is to engage in fostering long-term cooperative approaches to address transboundary water challenges.

Although transboundary water governance is often beleaguered by the "tragedy of the commons"⁴, the commonality of water-related issues also makes a strong case for greater inter- and intra-regional cooperation both through back-channel diplomacy and third-party solicitation. The EU has made credible progress when it comes to regional cooperation over water vis-à-vis initiatives such as the EU-Central Asia Platform for Environment and Water Cooperation (WECOOP) 2009⁵ and the EU Regional Environmental Program for Central Asia (EURECA). Similarly, the India-EU Water Partnership, established in Brussels in 2016, launched a cooperative initiative to jointly work towards enhancing the efficiency, effectiveness and sustainability of water management in India.⁶ The EU is also an important influencer in the Mekong Basin through the financial support for the Mekong River Commission (MRC) and has capacitated the MRC to bring in new reforms, deliver on its strategic plans for integrated water management and basin-wide water cooperation.

Through these initiatives, the EU has advanced global engagement on water issues over the years and has the potential to further build on its model and best practices to support cooperative regional water mechanisms in other regions going forward. However, the EU's engagement, as well as knowledge concerning these water-impooverished and conflicted regions, is still limited. The often intense and convoluted nature of transboundary water sharing in conflict-prone regions means that the EU must employ additional undertakings to fully deliver on the industrious aims of the Council Conclusions and truly emerge as a leader in the field of international hydro-diplomacy.

Foremost, there is a compelling need for the EU to have open channels of communication with the various string of stakeholders in each region or river basin as each has its own unique geographic, political and economic situation that needs to be navigated. There has to be a transparent understanding of all cross-sectoral impacts of water scarcity and security in each region. Additionally, given the lack of development funds

allocated towards water infrastructure or institutional capacity building in regions like the Himalayas or South Asia, the EU can work with stakeholders and river basin commissions, much like its cooperation with MRC, to create contingency plans and foster the initiation and expansion of non-partisan regional cooperative mechanisms. This can be achieved by encouraging the High Representative, the European Commission, and member states to give necessary consideration to the importance of water and sanitation in the programming of future financial and technical cooperation with partner countries, including under the next Multiannual Financial Framework. The EU should work in tandem with the private sector to fill the investment gaps which cannot be covered by public finance alone.

The world of transboundary water governance offers the EU an opportunity to be a broker of peace in water-stressed and conflict-prone regions. The EU can build on its multi-faceted experiences in the field of development cooperation to support regional integration on water issues and aid transboundary water initiatives. However, there has to be a more persistent, coordinated, and diligent effort to make a significant breakthrough and facilitate long-term solutions for the looming water crisis existing beyond its borders.

- 1 Setting the Example for Cooperative Management of Transboundary Water Resources in West Africa (2014). Available at: <https://blogs.worldbank.org/nasikiliza/setting-example-cooperative-management-transboundary-water-resources-west-africa>.
- 2 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, Official Journal L 327, 22 December 2000:1-73
- 3 Council conclusions on EU water diplomacy, Foreign Affairs Council Meeting, Brussels, 22 July 2013. Available at: <https://www.consilium.europa.eu/media/37022/st13991-en18.pdf>
- 4 Hardin. G. (1968) "The Tragedy of the Commons," Science 162(3859):1243–1248. Available at: <https://science.sciencemag.org/content/162/3859/1243/tab-pdf>
- 5 WECCOOP (2020). Available at: <https://wecoop.eu>
- 6 IEWP | India-EU Water Partnership (2020). Available at: <https://www.iewp.eu>

Himalayan Water Governance: Re-Imagining Institutions, Science and Transboundary Cooperation

NILANJAN GHOSH AND DIPAK GYAWALI

Key Issues at Stake

Water conflicts across the Himalayan river basins in South Asia are ubiquitous, occur at various scales¹ and are of various types. The large-scale failures of the Track-1 approaches reveal that governing the Himalayan river basins should ideally be based on a consensual approach involving all riparian stakeholders. These must then be calibrated against “national interests” to search for out-of-the-box solutions and trade-offs, and then persuade the other side(s) to put them on Track-1 agenda². This process needs to be implemented through transboundary interactions using multiple legitimate sub-layers that include technical and social science academia, activist groups, businesses, and also interests of federal states/actors at sub-national levels, all the while keeping Track-1 players engaged and informed without requiring them to take public positions. This approach would enable open discussions that otherwise will lurk beneath the surface and stymie official discussions³. Therefore, water negotiations eventually emerge as a “two-level, three-style” game: at the international transboundary level, at sub-national federal levels and between actors of state, market and civic movements where sectoral issues of economics, law, ecology, social justice and many others play out.

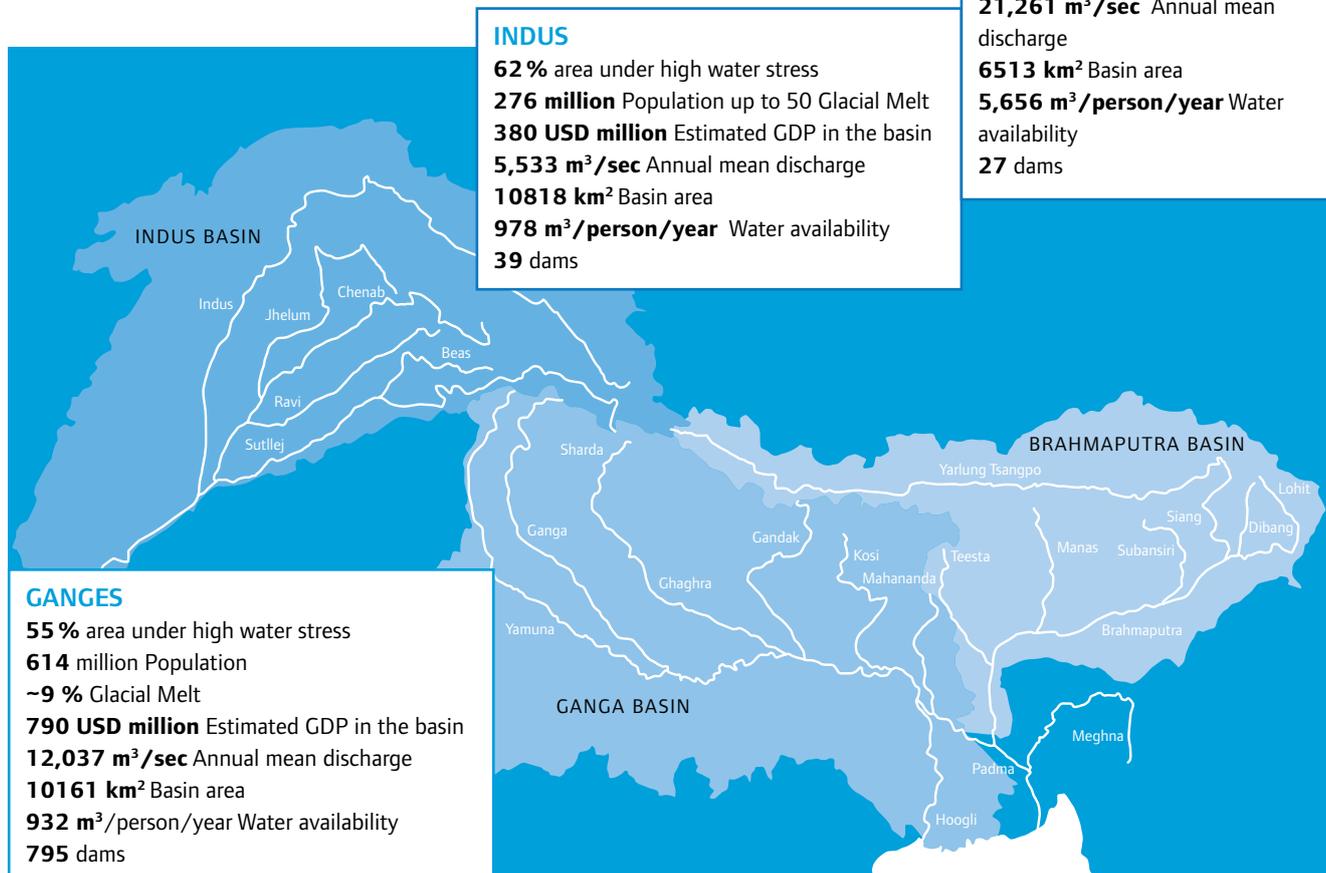


Figure 1: Physical characteristics of Major Himalayan River Basins in South Asia

Source: Bandyopadhyay and Modak forthcoming⁴.

Contrary to global best practices, South Asia's collaboration on transboundary waters has been bilateral and issue-based, thereby eluding nexused basin-level approaches to resolutions and governance⁵. Bilateral treaties signed between countries revealed mixed results (for an overview of bilateral water treaties in the region, see table 2). The Indus Water Treaty signed in 1960 between India and Pakistan has been hailed as a success story that has survived wars between the two nations. The treaty is construed as a response to the partition of British-ruled India into India and Pakistan in 1947 which converted the Indus into an international transboundary river basin. Brokered by the World Bank, the Treaty rendered control of the three "eastern rivers" of the basin, namely, the Beas, Ravi and Sutlej to India, and those of the three "western rivers", namely, the Indus, Chenab, and Jhelum to Pakistan⁶. However, recent geopolitical tensions between the two nations have often resulted in statements of misgivings even though "weaponising water" seems to be improbable given the fact that any form of upstream intervention will be socio-ecologically unsustainable at the basin scale⁷.

The Bangladesh-India water conflict about the Ganges emerged overwater sharing during dry season at the point of the Farakka barrage—constructed in West Bengal in 1975 to divert water through the Hooghly distributary to resuscitate the excessively silting port in Kolkata, an eastern Indian metropolis. While a 1996 Ganges Water Sharing (GWS) Treaty apparently resolved the issue, the streamflow depletion in the main course of the Ganges, and eventually the distributaries, still loom large. The Sundarbans archipelago, which is part of the Ganges-Brahmaputra-Meghna delta, has seen land losses due to sea-level rise, salinity ingress due to lack of freshwater flow, and a lack of soil resuscitation due to decline in sediment flow with sediments getting trapped in the upstream of the Farakka Barrage⁸. The lack of freshwater has affected fisheries substantially in the mainstream in Bangladesh and India. One interesting example is the hindering of Hilsha⁹ catch with large-sized catch (in the range of 2.5-3 kg) being almost extinct. This has also seriously affected agriculture in the Sundarbans delta, where, usually, freshwater is converting large tracts of agricultural land into brackish aquaculture ponds.

With the 30-year duration GWS treaty coming to an end in 2026, the utility of the barrage is still being questioned. Within India, Bihar, one of India's eastern states, has claimed that upstream floods are caused due to backwater flows resulting from sediment deposition upstream of the barrage. On the positive side, it is claimed that the non-tidal West Bengal has become water-secured due to the water diversion through the Hooghly channel because of the Farakka barrage. On the other hand, the unresolved Teesta¹⁰ water controversy over dry season water sharing between India and Bangladesh has been brewing and turned into a complicated two-level game with the state of West Bengal claiming that there is no adequate water to be shared with downstream Bangladesh¹¹.

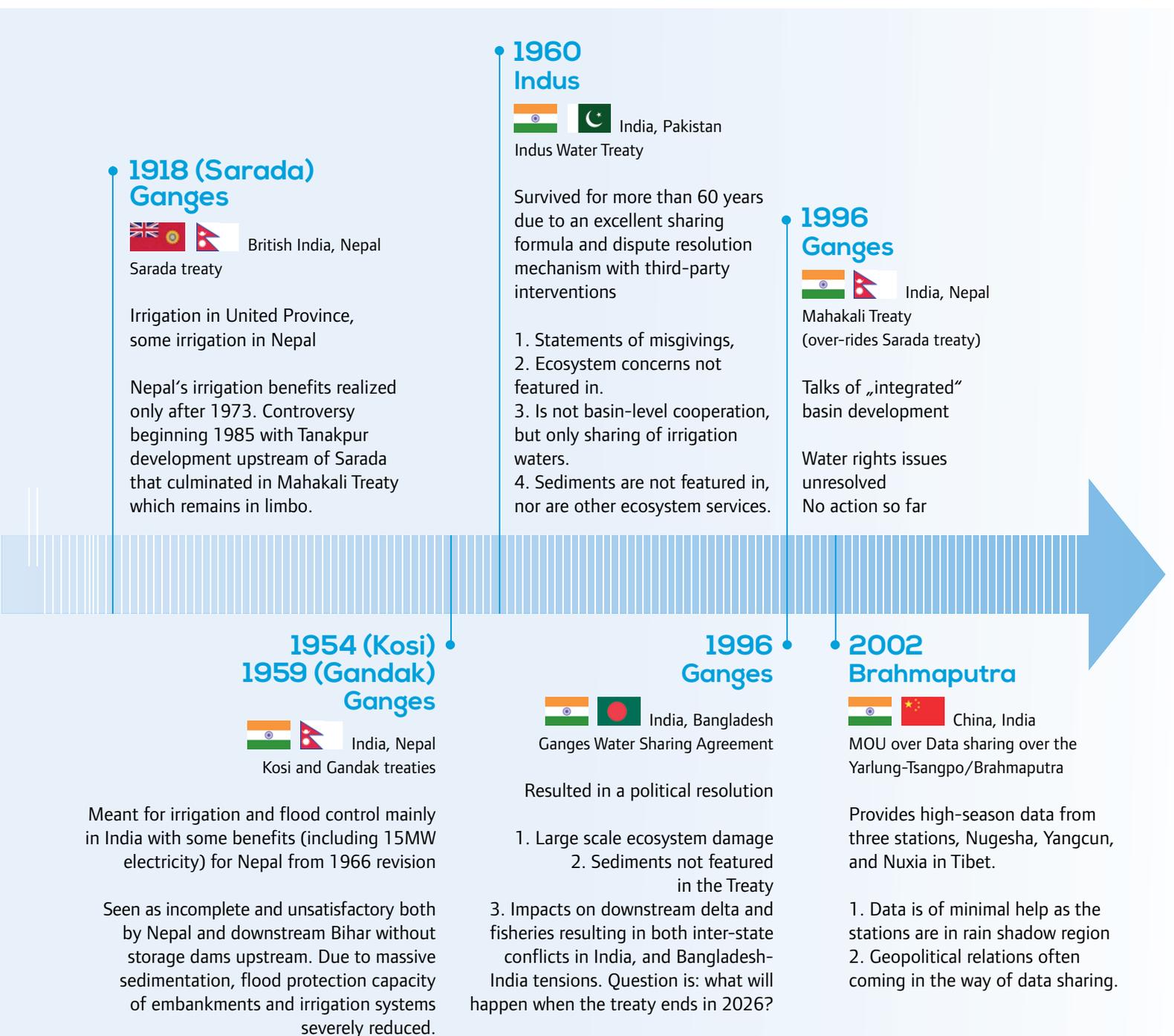
In a similar vein, India's Kosi and Gandak treaties with Nepal have been the basis of political rancour in Nepal and India's Bihar due to unmet expectations of future economic developments. The Kosi and Gandak barrages, built on the Nepal-India border, are managed by the Indian Bihar government. The Kosi barrage was envisaged as a stop-gap measure until the construction of the Kosi high dam for flood control, irrigation and hydropower generation. Failure to move the Kosi high dam project forward all these decades has fed a political discourse in Nepal of "being cheated" and in Bihar of "Nepal sending floods"¹². The 1996 Mahakali treaty, another Nepal-India water agreement, is in limbo for the last 24 years: even items such as the preparation of a detailed project report of the Pancheshwar high dam, envisaged within six months upon signing the treaty, is yet to be completed and delivered¹³. The matter has caused new tensions in current political battles over the Kalapani border dispute and the issuing of different maps about the headwaters of Mahakali¹⁴. It has further complicated official engagement mechanisms with high-level official meetings, originally designed to take place every six months, not taking place for years.

Moreover, India's post-Independence embankment building spree, which has left large tracts of fertile land water-logged in Bihar and eastern Uttar Pradesh in India, is now having impact on Nepal's Southern Tarai region¹⁵, giving rise to much rancour. India's river linking project

has been met with opposition from environmental activists within India as well as bilateral riparians. Groundwater mismanagement within countries, of springs in the hills and of contiguous aquifers in the plains, is rampant and threatens water security of exploding urban settlements as well as agriculture that has contributed to the Green Revolution.

Finally, the China-India issues over the Brahmaputra have largely been a matter of misreporting and misinformation regarding the basics of basin hydrometeorology, with China’s upstream construction plans (especially hydropower) in Yarlung-Tsangpo being of particular concern for many Indian strategic thinkers who feel that Chinese water diversion plans will dry up the Brahmaputra in India¹⁶. Also, the high-monsoon data-sharing agreement between China and India over the Brahmaputra is flawed due to wrong choice of measuring stations in Tibet—located in rain shadow areas and therefore less likely to provide any realistic early-warning for flooding or extreme events¹⁷.

Table 1: Bilateral Treaties over South Asian Himalayan rivers



Knowledge Gaps and Institutional Shortcomings



Boat Ride at River Ganges, Varanasi,
Uttar Pradesh, India Stock Photo

The above arguments are symptomatic of the fact that water management in South Asia, both on a national as well as regional level, suffers from gaps in scientific understandings as well as appropriate institutional frameworks for collaborative action. Traditional reductionist engineering paradigms—a legacy of colonial times—have dominated the institutional governance mechanisms of most of the Himalayan rivers¹⁸. This paradigm ignores the broader ecosystem functions and services embedded in them as well as the varied social solidarities that bring in different “knowledges” to bear on the problem¹⁹. Knowledge and information gaps together with the failure to provide appropriate frameworks can be summarized as follows:

- *Gaps in ecohydrological knowledge on water systems:* The extensive ecosystem services offered by the flow regimes (provisioning services like water for agriculture, urban uses, fisheries, etc.; supporting services like soil formation and supporting downstream delta ecosystem; and a host of cultural and regulating services), and the impacts of changes of flow regimes due to infrastructure on such services are either unknown or unacknowledged due to poor understanding of the ecohydrological processes of South Asian rivers and inadequate adoption of better holistic systems science.
- *Knowledge gaps in flood management:* High-flow inundations during monsoons are “natural” with significant ecosystem services (e.g. soil formation, enhancing soil fertility) offered by them. Policy failures allowing infrastructure development and heavy settlement growth in flood plains lead to increased “flood damage” costs.
- *Knowledge gaps in the relation between water and food security:* Although food security is equated with water availability, the nexused nature of water, energy and food is not acknowledged institutionally, and agencies continue to work in silos. Further, given present interventions in the forms of better water-use-efficiency through crop diversification, soil and water management, food security is no more a function of water availability
- *Lack of detailed hydrological data in public domain:* Sensitive flow data have not been made available in the public domain, especially by India²⁰. This restricts the practice of good science and international scientific collaboration which could contribute to better understanding of the associated sciences to bridge the knowledge gaps.
- *The uncertain impacts of Climate Change:* Intergovernmental Panel on Climate Change (IPCC) third assessment report has indicated increased frequency and intensity of extreme weather and water related events in the future. The base flows of most of the Himalayan rivers, scale of droughts and floods as well as their timings will be uncertain²¹. Climate uncertainty compounds the socio-economic problems of hydro-power projects²² in the Himalayas where rent-seeking, corruption and poor planning have rendered such projects unviable.
- *Knowledge gaps of social dimensions of water systems use and local governance:* The local and indigenous knowledge of water management was lost under the mayhem of colonial engineering that looked at water as an arrowy-viewed economic resource to serve colonial profit-making ends. Some of these irrigation and water conservation systems are over millennia-old and have stood the test of time, but unfortunately are not part of modern engineering studies.

The multidisciplinary approach needed in water governance, which is now being globally recognised, is still missing in South Asia. Unfortunately, hydrocracy or water technocracy in South Asia does not engage with social and environmental activists at the outset while defining projects, or if it does at all, only at a much later confrontational stage.

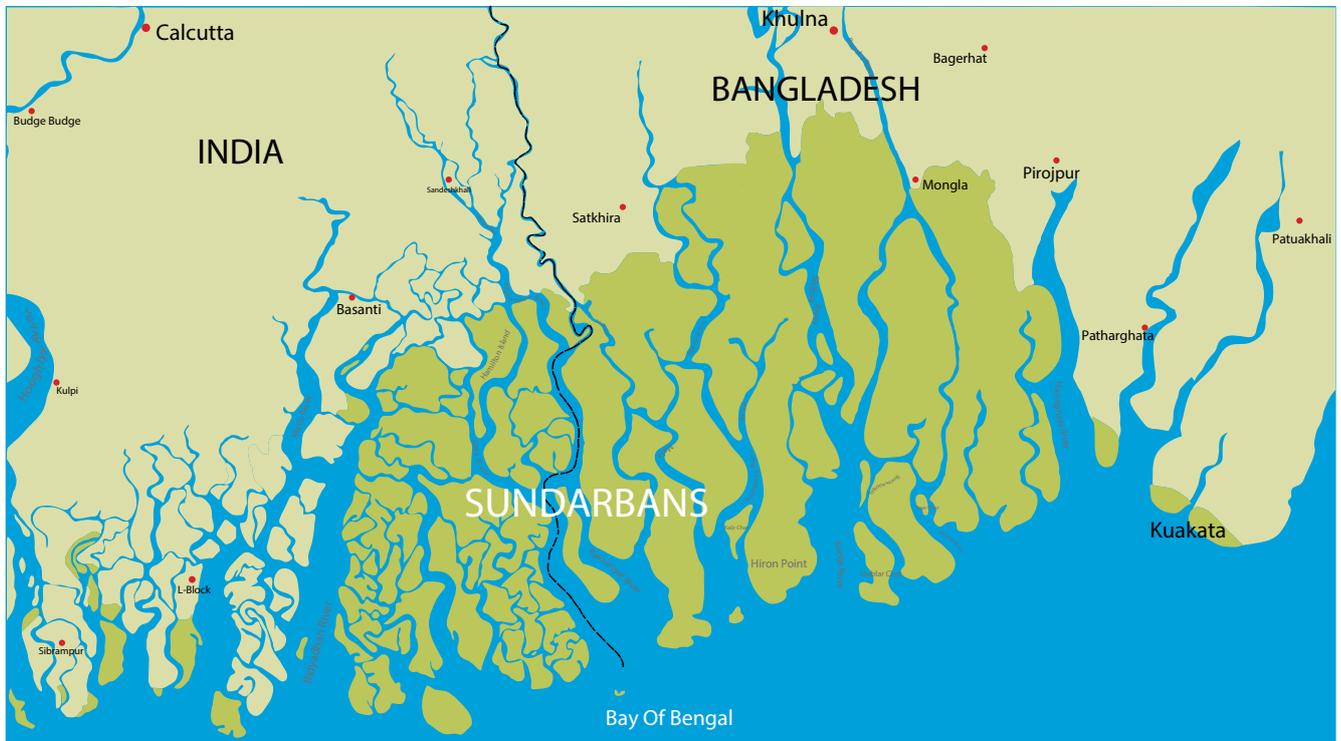


Figure 2: Indian Sundarbans Delta, Source: Danda et al (2019)²³ / NASA image created by Jesse Allen, Earth Observatory, using data obtained from the University of Maryland's Global Land Cover Facility (29 January 2008)



The Sundarbans

Institutional Challenges and Opportunities

A reductionist, colonial engineering approach to rivers and water resources is exhibited in the short-sighted visions of existing water governance institutions. For example, the 1996 Ganges Water Sharing Treaty has resulted in drying up of the Sundarbans delta²⁴. Even in the Indus basin within Pakistan, upstream interventions have been causing streamflow depletion for the delta regions. Such phenomena are prevalent mainly due to government agencies' institutional blind-spots, misuse of pumping technology, and destruction of traditional recharge ponds²⁵.

Most government departments around water (including in international development agencies) are plagued by silo-thinking of primarily civil engineering construction, despite the fact that water governance is a transdisciplinary subject that needs a nexus approach²⁶. Such reductionism emerging from the civil engineering perspective of water management ends up being a win-lose proposition due to its inherent ignorance of the impacts of water governance on the broader social-ecological system. Water governance perspectives must be set against a wider backdrop of multi-faceted water resources development across various disciplines, hydrological cycles (precipitation, river, groundwater etc) and the sectors (agriculture, fisheries, energy, transport, industry, household and the natural ecosystem).

This would enable basin-scale collaborations and trade-off deals with multiple stakeholders at various levels, especially on the following aspects:

- Understanding the common meteorology, namely, the summer monsoon, winter westerlies and the jetstream;
- Creating a common knowledge base on the impacts of climate change;
- Understanding water-energy footprints in our economic products;
- A collaborative understanding of floods and droughts;
- Creating common database by promoting data democratization;
- Creating a holistic evaluation framework for water infrastructure projects where narrow economic cost-benefit analysis of structural engineering interventions is replaced by a transdisciplinary framework of ecological economics, social sciences, engineering sciences, hydrological sciences and other physical sciences to encompass the related concerns of social justice and ecological health, along with economic progress;
- Treating river basin as the unit of governance instead of adopting a fragmented approach of project-based water agreements and treaties;
- Creating interdisciplinary research groups through transboundary collaborative efforts.

Unfortunately, South Asia's official water management institutions are not designed for transdisciplinary thinking. This is true for most institutions like the Central Water Commission (CWC) in India or the Water and Energy Commission in Nepal. Even concerns of *environmental flows*²⁷ have been reduced by the technocracy to a percentage of the total flows rather than being perceived through a holistic negotiated approach: a phenomenon often described as "arithmetic hydrology" that reduces every aspect of water governance into metrics of volumetric measurement only²⁸.

One avenue that has opened up in transboundary collaboration over Blue river waters is the Government of India's passage of National Waterway Act 2016 that deems making 111 water courses of India navigable, including the Himalaya-Ganga. This, if properly promoted, has the potential for introducing nexus approach and possibilities in transboundary collaboration with both upstream Nepal and downstream Bangladesh²⁹.

Institutional reform and possible EU engagement

While South Asian technocracy has relied on the engineering knowledge introduced by Europe³⁰, it is across much of EU that over the past 20–25 years, at least 5,000 small dams, weirs and culverts have been removed from rivers in France, Sweden, Finland, Spain and the United Kingdom³¹. The EU should bring in these examples and knowledge to South Asia to save the region's rivers, advancing the course of peaceful hydro politics. The EU may also bring in their expertise for cleaning the Rhine³² and Danube, and making them navigable, as that is an opportunity with India's passage of the National Waterway Act 2016. The EU needs to work with the governments of the basin at the very outset for capacity building in the domains of holistic water governance. Here, the European Union can intervene as a third party (like the World Bank in the Indus case) and facilitate more constructive engagement between contending social solidarities such as hydrocracies, market players and activists.



Modest straw hut of Indian fishermen in the Ganges, Sundarban, West Bengal, India

The existing South Asian institutions have failed to promote better transboundary water governance. The South Asia Association for Regional Cooperation (SAARC) fails to address some of these critical concerns as its very charter unequivocally states that controversial issues (i.e. water resources, security etc.) will not be brought up. The same is true of other such sub-regional bodies. Nevertheless, within the SAARC framework, there are several chartered SAARC institutions such as the energy center in Islamabad, the disaster centre in New Delhi and others which could serve as platforms for Track 1.5 dialogues on regional water issues.

There remains the possibility of engaging with the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) as a regional bloc where Ganges and Brahmaputra fall in the fold. The BIMSTEC, though an evolving institution, possesses less hostile geopolitical relations between its members as compared to the SAARC, thereby creating better opportunities for cooperation³³ This perhaps might be where EU policymakers could possibly engage with appropriate parts of the relevant organization's Water Framework Directive regarding transboundary collaboration. Such third-party interventions can be initiated through the creation of collaborative incentives which can be achieved by directly buying data from the riparian nations and placing them in a public forum. Further measures could involve providing complementary investments for transboundary water infrastructure which incorporates the downstream and ecosystem concerns, and supports the creation of transboundary river basin organizations through additional funding.

- 1 The conflicts occur from international transboundary levels to interstate levels and goes down to further micro-levels of the society. They also occur across sectors, and the recent forms of transboundary water conflicts occur between the economic and the ecosystem sectors. For details, one may refer to Ghosh, N. (2020). "Three propositions on transboundary water conflicts in light of the new emerging paradigms", <https://www.orfonline.org/expert-speak/three-propositions-transboundary-water-conflicts-light-new-emerging-paradigms/>
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Effectiveness, challenges and potential of transboundary water governance institutions in the Aral Sea basin of Central Asia

DINARA ZIGANSHINA AND JENNIVER SEHRING

Overview of the key water issues in Central Asia

Most of Central Asia (CA) is part of the Aral Sea basin: almost the whole territories of Tajikistan, Turkmenistan and Uzbekistan, as well as parts of the Kyrgyz Republic, Afghanistan and Kazakhstan. In the arid climate of the basin, water is a key driver for food and energy security, biodiversity, employment, and poverty reduction. Irrigated agriculture contributes about 20% to the regional GDP and employs about 40% of the population and hydropower accounts for 21 % of the average regional energy consumption. The extensive agricultural development along the two main rivers, Amudarya and Syrdarya, whose water flow is highly regulated, has led to the desiccation of the Aral Sea with its widespread environmental, social and economic consequences. While Central Asia also comprises other transboundary basins, including the Ili, Irtysh, Tarim, Chu-Talas basins, we will focus on the Aral Sea basin in this paper.

Figure 1: map of the Aral Sea basin (Source: FAO)



The water usage patterns established during Soviet central planning got increasingly contested since the independence of the former Soviet republics. The disintegration of the previous water management system and different national development priorities led to disagreements among states about seasonal water allocation, reinforced by projects to build new dams. The Kambarata dam project in Kyrgyzstan, and even more the Rogun hydropower project in Tajikistan, were long opposed by downstream countries alarmed at the prospect of upstream countries gaining greater control over water flow and trading energy with new partners. The water challenges in the region are amplified by the impacts of climate change, natural hazards, population growth, environmental degradation and economic development.

While the basin states have signed numerous water agreements since 1992 and established an institutional framework under the International Fund for Saving the Aral Sea (IFAS),¹ these so far have proven unable to provide sustained and mutually acceptable solutions to the issues at hand. The key challenge is to find a stable and reliable mechanism for seasonal allocation of water, which concerns both the quantity of water (the volume) and the seasonal operation of the reservoirs (the time). This needs reconciliation of different sectoral interests (water-energy-food-environment nexus) and requires economic cost/benefit-sharing mechanisms to make arrangements viable and sustainable.

While disagreements on water issues affect regional stability, it is mainly the general political relations and state of cross-border cooperation in Central Asia that affect water cooperation. In the centralized and hierarchical decision-making systems of the countries, regional cooperation depends largely on political will from the highest level, with a limited role for regional water organisations or senior level experts.

 Technical	Diverging views on operation and construction of infrastructure, aging water infrastructure
 Management	Unresolved water-energy nexus issues and as consequences poor compliance with water allocation schedules, absence of multiyear water regulation and long-term planning
 Environmental	Response to disasters like droughts, floods, climate change as well as low priority to environmental water needs
 Political	Perceived unfairness and mistrust at regional level; interdependence of access to water and land, ethnic issues, border issues at local level
 Economic	No new approach after the collapse of the previous economic basis of the water management, economic losses due to uncoordinated management
 Social	Restricted access to good quality drinking water and health issues, decreased water availability per capita due to population growth

Table 1: Specific water-related issues that trigger political disagreements in Central Asia

Transboundary water governance institutions in the Aral Sea basin

This section describes the water governance institutions for the Aral Sea basin. While Afghanistan is part of this basin, due to historical reasons only the riparian countries formerly part of the Soviet Union are members of its joint institutions: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Mandate, structure and decision-making

The Interstate Commission for Water Coordination in Central Asia (ICWC or Commission), made up of heads of national water authorities of five countries, was established in 1992. The Commission elaborates and approves water use limits for each country, reservoirs operation regimes, and water releases for river deltas and the Aral Sea for a hydrological year (separately for growing and non-growing seasons). It also determines key directions of regional water policy. Its decisions are mandatory for all water consumers and users and are taken on quarterly meetings by consensus.

The Commission has five executive bodies as shown in figure 2 below:

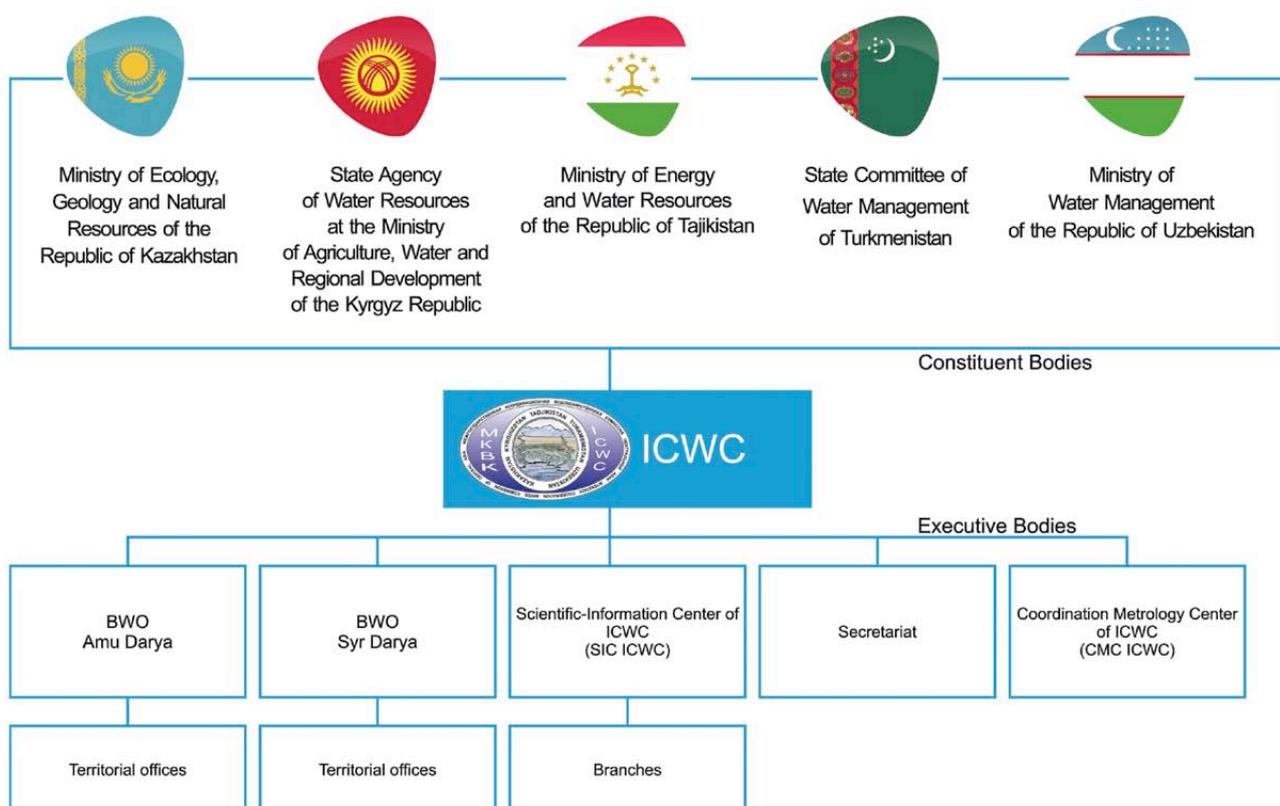


Figure 2: Structure of the ICWC

In 1993, the ICWC became one out of two commissions operating under the newly established International Fund for Saving the Aral Sea (IFAS) which was set up to coordinate the implementation of programs and projects and is headed by the President of the country that holds the rotating chairmanship (see figure 3 below).

Interstate Fund for Saving the Areal Sea

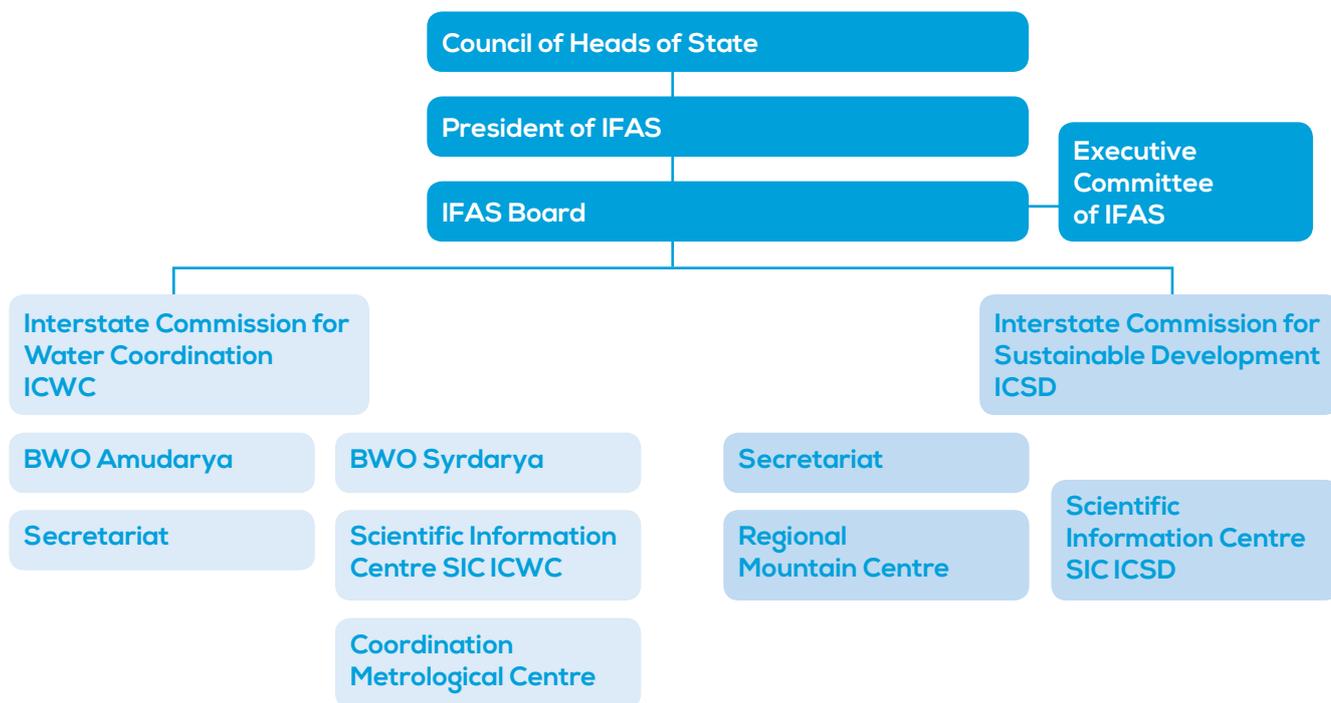


Figure 3: Structure of the IFAS

Key achievements

The regular meetings of ICWC and EC IFAS as well as the daily operations of ICWC’s executive bodies have enabled riparian countries in CA to build relative stability in trans-boundary water management and adapt the water allocation system, set up in the Soviet time, to new conditions.² As such, the most important achievement of CA transbound-ary water governance institutions lies in ensuring that peaceful interactions between riparian countries prevail even under the extremely difficult hydrological, political and economic conditions that occurred over the last 29 years.

ICWC also facilitated the introduction of contemporary approaches to water manage-ment such as integrated water resources management, developing a regional informa-tion portal, introducing decision support systems and automation of head water facili-ties, elaborating new agreements, and conducting and coordinating research and joint projects.

Under the umbrella of IFAS, four regional comprehensive Aral Sea Basin Programs (AS-BPs) have been developed and implemented to address common social and environ-mental problems in the region and improve the management of transboundary water resources. The ASBPs are also a major coordinating framework among the CA states and international actors.

Crucially, the institutions under IFAS are also the only Central Asia regional framework where all five countries are members (even if the participation of Kyrgyzstan is frozen at the moment). All these achievements are an encouraging sign for a more prominent role that water can play in regional integration processes.

Key shortcomings

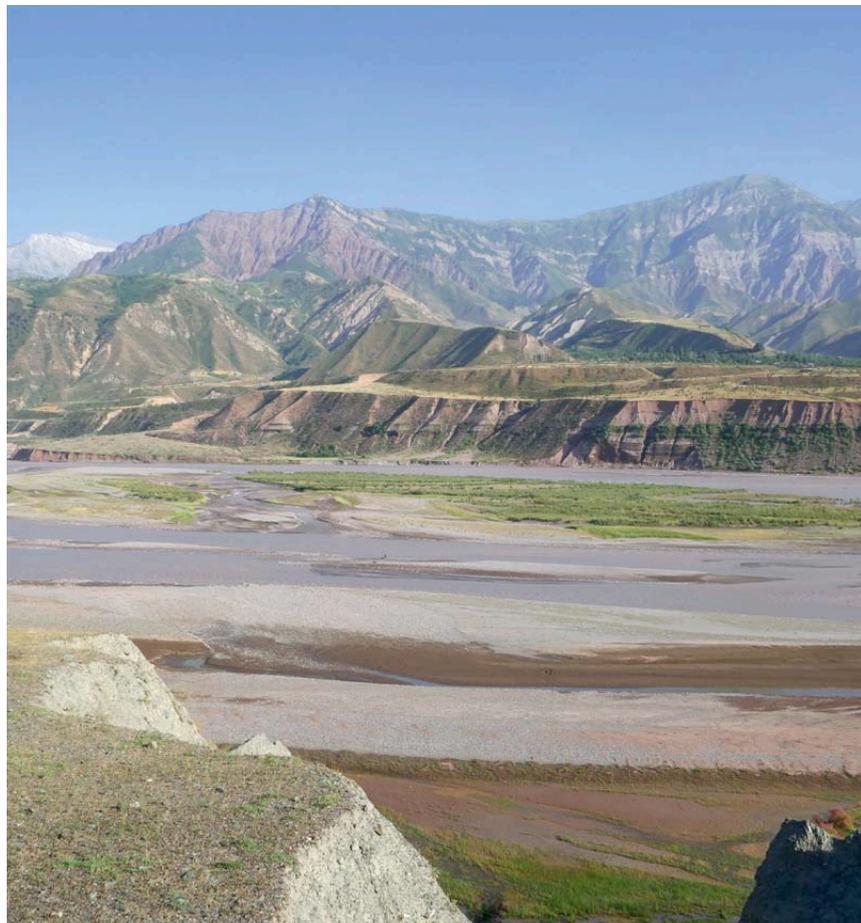
The most difficult challenge ICWC faces is to accommodate irrigation, hydropower and ecosystem requirements even though these sectors are not fully represented in its decision-making structure. In a similar vein, ICWC lacks full jurisdiction over the rivers and only has limited control over national implementation. Non-compliance with ICWC decisions is not sanctioned and economic incentives for compliance are underdeveloped. The complex water-related challenges, amplified by climate change, require the ICWC to coordinate its activities more efficiently with various sectors as well as the public. Poor quality of flow forecasts, inadequate water accounting and insufficient information exchange are the main technical barriers for ICWC in matters of water management planning and monitoring.

The countries finance the operation of the ICWC bodies located in their respective territories, with Uzbekistan—where most executive bodies are located—bearing the main costs. The funds, allocated on a regular basis, are not sufficient to cover all expenditures. Due to the unbalanced funding and staffing, these bodies are sometimes not fully seen as regional bodies by the other riparian countries. Similarly, not all riparian states perceive EC IFAS as an impartial regional body but as dominated by the respective Chairmanship. Consequently, there is widespread mutual distrust in organizations engaged in the provision and consolidation of information at both national and regional level.

Additionally, the 1999 Agreement on the Status of the IFAS and its organisations assigns the status of an international organization to IFAS, but also to the ‘organizations of the IFAS’ individually (e.g. EC IFAS, SIC ICWC, etc.), without specifying their hierarchy and relations within the IFAS system. This creates legal challenges, reflected by the fact that regulatory documents of these institutions are not reciprocally linked, show several inconsistencies, and that there is no joint planning. As a result, there is no “corporate identity” of IFAS as a joint water governance structure but all bodies act rather independently from each other.

In contrast to other bodies, EC IFAS does not have a permanent seat but is located in the respective country that holds the rotating chairmanship. Thus, the Executive Committee has been moving every couple of years to another CA capital, placing a considerable burden on the host governments to allocate adequate resources for the work of a temporary secretariat. Also, for donors it means that assistance for capacity development of staff, provision of office equipment and other similar facilities lack institutional sustainability.

Finally, new dam constructions on the tributaries of Amudarya and Syrdarya, in particular the Rogun hydropower project on the Vakhsh River, a major tributary of the Amudarya, led to increased tensions between the upstream and downstream countries. The regional water governance institutions were not able to play a leading role in addressing this issue and balance the interests. Only upon request from the Government of Tajikistan, the World Bank facilitated independent assessment studies and regional consultations. The tensions eased after a change of government in Uzbekistan in 2016, with the new President re-establishing a constructive dialogue with Tajikistan.



Vakhsh valley and Vakhsh river, between Roghun dam and Garm, Tajikistan

Institutional reforms

All Aral Sea Basin programs (ASBPs) starting from 1993 emphasised the need for institutional reforms. While the EU and other international actors have been involved in strengthening transboundary water governance institutions over the years, the riparian countries played the dominant role in transboundary institution building by initiating the establishment of regional organisations and bearing most operational costs.

40 years ago it was the fourth largest lake in the world



At the 2009 IFAS summit, CA presidents called for further improving the organizational and legal framework of IFAS. EC IFAS, aided by UNECE and GIZ, brought together regional and international experts to develop recommendations for ameliorating the institutional framework for cooperation. The recommendations included strengthening the existing mechanism through better coordination between interstate organizations, clarification of responsibilities, and introduction of integrated water resources management principles as well as fairer geographical distribution of seats of regional bodies. As an alternative, it was advised to transform IFAS into a regional organization dealing with sustainable development, environmental protection and integrated water resources management and set up separate river basin commissions for the Amudarya and Syrdarya. These recommendations received a mixed response and remained subject to discussion for several years. However, these reform efforts faded away with the end of the Kazakh IFAS Chairmanship. As a consequence of its frustrations with the lack of reform process and perceived neglect of its interests, Kyrgyzstan officially froze its participation in IFAS in May 2016. Only under the Turkmen chairmanship, another IFAS summit took place in August 2018 and the discussion about reforms was re-opened. Kyrgyzstan, attending the summit as a guest, announced to consider restoring its participation. Also, the proposal to set up a regional water and energy consortium has been taken up again at this summit.

EU involvement

The combined assistance of EU Member States and the European Commission makes the EU one of the major donors in the region. Regional cooperation and the rational use of natural resources have been among the priorities of EU engagement since the TACIS programme of the mid-1990s. Based on its 2007 Strategy for a New Partnership with CA, the EU together with the CA states has established in 2009 an EU–CA Platform on Environment and Water with regular high-level conferences as well as working group meetings of senior officials. The European Commission is also contributing to the multi-donor trust of the Central Asia Energy and Water Development Program (CAEWDP), implemented by the World Bank. At national level, under the EU Water Initiative and jointly facilitated by the OECD and UNECE, National Policy Dialogues (NPDs) have been implemented in Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan to regularly meet and advance water policy reforms.

The EU, like other development partners, has been playing an important role in supporting the efforts of regional water institutions such as the IFAS and the ICWC. However, due to lack of effectiveness and transparency of regional institutions, donors have significantly decreased their support in recent years, or shifted it from one institution to another. On the one hand, this acknowledges the deficiencies and lack of truly regional ownership for reforms; on the other hand, it might risk further weakening regional structures.

Policy recommendations for policy-makers from Central Asia and the EU

Joint water governance institutions must be strengthened to address the needs and challenges faced by the riparian countries. Policy makers should be ready to make difficult choices in terms of enhancing the effectiveness of joint institutions but also harnessing legitimacy, trust and equity. Sometimes these concepts may trade off each other: broader participation and transparency would enhance legitimacy but might hamper efficiency of decision-making. To complicate matters further, the role of state sovereignty has to be considered. A supranational authority with rigid enforcement mechanisms may offer the most effective water governance regime but most likely would not be acceptable to the countries. Since many donors have been supporting transboundary water governance in CA, any increased hydrodiplomatic engagement of the EU should involve donor coordination to generate synergies between the different approaches.

Foster basin-wide, cross-sectoral and inclusive coordination and strategic planning

Despite coordination efforts, so far policy planning has been taken place in isolated sectoral silos, not covering the full basin, and relied mainly on governmental actors. However, integrated policy frameworks and inclusive processes are a must to enable a long-term, cross-sectoral vision and stable water management. A constant dialogue is needed to align diverging water use priorities and identify trade-offs (agriculture, energy, land use, etc) as well as incentives to foster synergies on national and regional levels. In this context, basin-wide long-term integrated water planning and management is critical in order to foster coherence between sectoral policies and enable more efficient, reliable and conflict-free water management. Countries can decide whether they want to address the full range of water related issues in an integrated way or would prefer a step-wise approach focusing on priority water management areas (e.g. irrigation and hydropower). There are a number of ways to ensure cross-sectoral integration. For example, Tajikistan is represented in the ICWC by the Ministry of Energy and Water Resources, which covers both agriculture and hydropower sectors. It is also possible to establish a national mechanism for coordinating intersectoral interests, which will then represent all sectors at ICWC; the EUWI NPDs serve as good tools in this regard. To address this issue at regional scale, it may require expanding the ICWC membership to include main sectors such as agriculture, energy, environment or establishing an advisory basin council. Basin-wide integrated water management requires all riparian countries and relevant stakeholders being involved in decision-making processes. Currently, Afghanistan is not yet a member in IFAS and Kyrgyzstan suspended its membership due to lack of attention to hydropower. The opening towards Afghanistan has been discussed for years, and first bilateral steps have been taken (e.g. cooperation on hydrological data between Afghanistan and Tajikistan). A nuanced and step-wise approach with specific joint activities and granting observer status might be the most politically feasible initial steps.

Moreover, government negotiations are as important for successful hydrodiplomacy as informal exchanges and cooperation at technical, scientific or non-governmental levels. Beyond government officials, integrating experts and other stakeholders in form of an overall basin council or specific advisory committees to the different bodies can enhance the legitimacy and efficacy of IFAS and its functions. The EU should identify drivers for change at all these different tracks and target programmes to develop capacities for cooperation and multi-stakeholder dialogue. Special attention could be given to the younger generation as future decision-makers, for example through supporting student exchange programmes similar to the Erasmus programme and creating room for creative, interdisciplinary and innovative thinking.

Create a clear mandate with sufficient and sustainable capacity and funding for regional water organisations

A clear, unambiguous mandate with adequate enforcement mechanism is needed to make transboundary water governance institutions in CA work. This includes aspects like the legal status of the organizations, their financing, and the jurisdiction of the BWOs (over the entire river reaches, access to cross-border posts). It also implies that joint institutions need room to act as independent, international organizations, and not under tight control of national governments. Policy makers should help to secure hard (infrastructure) and soft (expertise) capacity to address operational difficulties as well as long-term transboundary water management challenges, especially those related to more reliable forecasts, better data and information exchange, and joint monitoring facilities. Addressing the funding and capacity mismatch would also significantly help to improve the governance system.

The current financial framework is not fit for the future and needs adjustments. A more equitable (not necessarily equal) contribution to regional cooperation of all basin countries (for example, in proportion to the volume of water used) will help to secure predictable and sustainable finance. Matters related to permanent location of joint bodies and

rotation of its staff can be settled only if all countries will commit to providing support and funding.

Strengthen home-grown institutions in a comprehensive, coordinated and context-sensitive approach

It is essential to build on home-grown institutions and regional values and practices that have proven to work. New ‘ideal’ institutions may not function unless emerged from and embedded in the local institutional setup and culture. The ICWC and its executive bodies were established by the riparian countries based on pre-independence institutions, rules, practices and infrastructure. While unequitable and unsustainable arrangements require change, this can only be initiated by regional actors themselves with “global blueprints” bound to fail. In the early 1990s, the heads of water authorities of the CA countries signed an agreement establishing a legal and institutional foundation for transboundary water cooperation in a period of instability, which was later re-confirmed by the heads of states. This leadership serves as a remarkable illustration of personal responsibility of water professionals of the basin. Identifying and supporting agents for change is therefore a suitable approach for donors who want to support home-grown institutional reforms.

Due to its presence in the region and its longstanding experience, the EU is well-suited to develop a nuanced support towards institutional building which takes the political and socio-cultural context as well as the differences between the CA countries into account. However, it is important to note that water management challenges in CA are very different from those in Europe, hence any simple replication of EU’s experiences should be avoided.

Support research, education, innovation and unconventional thinking

Policy-makers and donors should support research, innovation and unconventional thinking going beyond traditional approaches in water management and governance.

Advancing new technologies and creating innovative solutions demands multi-stakeholder engagement. It will also need investments in the education of the new generation of experts and policy-makers, and reforming curricula to equip students with a comprehensive and interdisciplinary understanding of water challenges and adequate analytical and applied skills to tackle them.

Policy-makers can seek inspiration from such ventures in other basins (e.g. US-Mexico experimental measures to rejuvenate the Colorado Delta) or globally (e.g. exploring the pathways of the Paris Climate Agreement, CA countries could agree on “nationally determined contributions” towards transboundary water cooperation, water conservation and SDG 2030 Development Agenda).

1 CaWater-Info Portal. E-library. http://cawater-info.net/library/index_e.htm

2 Information about ICWC meetings available at: www.icwc-aral.uz/meetings.htm.

1987

Basin water authorities for Syrdarya and Amudarya have been established (later re-organized into basin water organizations (BWOs))

18 February 1992

Agreement on Co-operation in Joint Management of the Use and Conservation of Water Resources in Interstate Sources has been signed (Almaty Agreement) to: validate the soviet rules for coordinated water management in the region, establish the Interstate Commission for Water Coordination, with two BWOs as executive bodies.

5 December 1992

Scientific Information Center of the ICWC was established on the basis the Central Asian Irrigation Research Institute (SANIRI)—one of the oldest research institutions in Central Asia created in 1925

27 February 1997

The ICAS was merged with the IFAS and the ICWC became one out of two commissions operating under its umbrella.

23 October 1998

Established “Central Asian water sector professional development courses” at SIC ICWC with the purpose of strengthening water professionals in CA and enhancing cooperation in the region.



4 January 1993

The International Fund for Saving the Aral Sea (IFAS) was established by a decision of the heads of Central Asian states

26 March 1993

Agreement on Joint Actions to address the problem of the Aral Sea and Prearalie, environmental rehabilitation and socio-economic development in the Aral Sea region (Kzylorda Agreement) was signed to confirm the ICWC mandate and place it under the newly established Interstate Council on the Aral Sea (ICAS).

10 October 1993

The ICWC Secretariat established in Tajikistan

9 April 1999

Adopted the Ashkhabad Agreement on the status of IFAS and its organizations that gave the ICWC and its executive bodies the status of international organizations as part of IFAS. The 1999 Agreement on the Status of the International Fund for Saving the Aral Sea and its organisations, along with the statutes of each particular organisation, further articulate the functions and duties of the interstate water institutions established in the 1992 Almaty Agreement and the 1993 Kzyl-Orda Agreement.

23 October 1999

The Coordination Metrology Center of the ICWC was established on the basis of Design and Technological Institute “Water Automation and Metrology” located in Bishkek, Kyrgyzstan.



12 October 1991

The water ministers of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan called for establishing “joint institutions for coordination” (Tashkent Statement)



28 April 2009
Almaty Statement of the Heads
of the Central Asian States on
the need to improve the
organizational structure of IFAS

24 August 2018
Joint Communique of the Heads
of the Central Asian States on
willingness to further improve
institutional and legal framework
of co-operation under the IFAS

Effectiveness, Challenges, and Potentials of Transboundary Water Governance in the Euphrates-Tigris river basin

HAMZA SHAREEF AND TUGBA EVRIM MADEN

Introduction and overview

The Euphrates-Tigris (E-T) Basin, shared predominantly by Turkey, Syria, Iraq and Iran, is one of the most important river basins of the Middle East (Figure 1). Estimates for the total flow of the E-T and their tributaries vary between 68 billion cubic meters and 84.5 billion cubic meters. However, in the upcoming years the water flow rate is expected to decrease due to climate change coupled with the demand surge owing to population rise, increase in agricultural activities and rapid urbanization in the river basin area (Figure 2). Furthermore, there is added pressure on water resources not only in terms of quantity but also quality— especially due to rising water salinity mainly in the downstream Basra.

Figure 1: Map of Euphrates-Tigris river basin



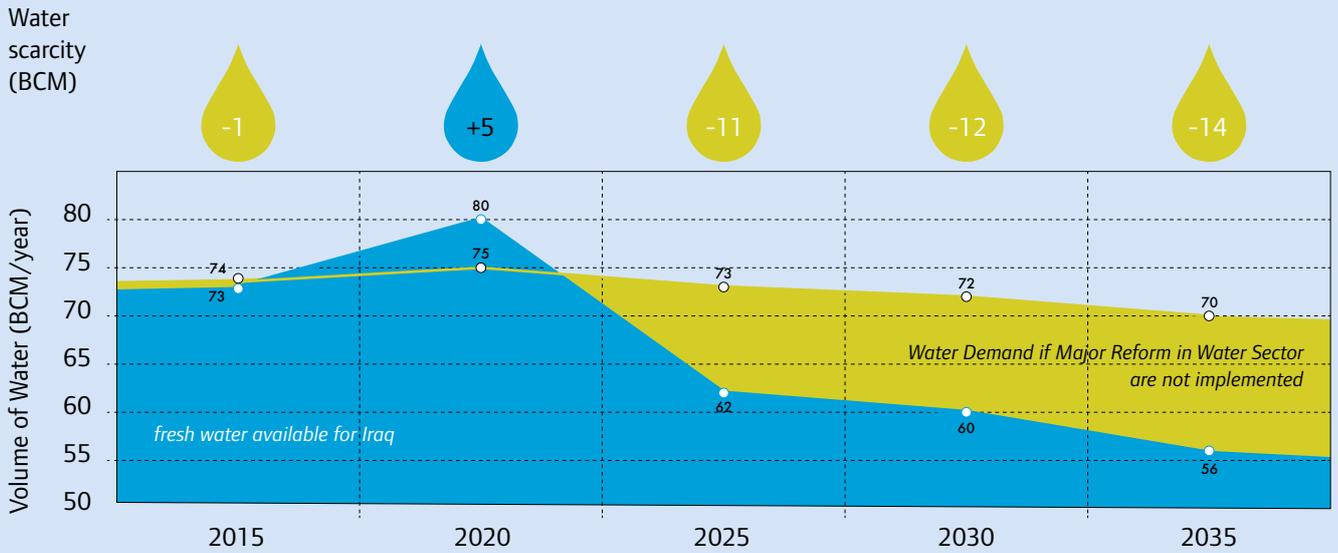


Figure 2: The estimated water shortage in Iraq by 2035, The data driven from multiple sources and edited by the author, the wet seasons in 2018–2020, shows water volume above the average, mainly because of the climate change. The data does not reflect the accurate values of the quantities, but to provide an overview of the water shortages.

Research carried out by scholars and experts on the E-T basin at all levels—national, regional and international—have concluded that the basin faces multiple challenges that should be considered jointly by all riparian countries to avoid future disputes and water conflicts. Historically, there were no disputes between the riparian countries. In fact, initially the only concerns, which are still existent, were for downstream countries like Iraq related to floods and flood-control. After 1975, the dam constructions and irrigation projects in the upstream countries — set up to meet their national demands for increased power generation and water storage—served to be a cause of concern for downstream countries. The degradation of Iraq’s water infrastructure, during the previous few decades as a result of several wars (1980-1988, 1990-1991, and 2003), coupled with international sanctions from 1991 to 2003, managed to further complicate matters downstream.

Over the years, the riparian countries strived to negotiate on both bilateral and trilateral levels regarding more efficient water utilization of the E-T basin but were not able to reach any final agreements on equitable water allocation. While Turkey and Iraq have repeatedly stated their intent towards river basin cooperation, unfortunately, cooperative initiatives among the riparian countries since the 1980s have been interrupted by the region’s political instabilities, conflicts and wars.

Climate change is another factor which has heavily influenced the hydrology of the basin in recent years. It is estimated that water scarcity will further strain the E-T river basin in the near future. Studies indicate that the surface temperature in the Middle East will increase by 2.5-5.5 degrees Celsius in the upcoming years—slashing the average precipitation rate by 20 percent—which will result in more evaporation from water reservoirs and consequently cause more droughts. These climate induced changes are likely to create significant impacts on water inflows to Turkey, Syria and Iraq and also affect the water quality in the river basin. As Figure 3 illustrates, the water quality of the Tigris river, as estimated by the Total Dissolved Solids (TDS) value, at the Turkish border is 280 ppm but increases to 1,800ppm at downstream of Basra due to the irrigation and agricultural activities as well as high evaporation¹.

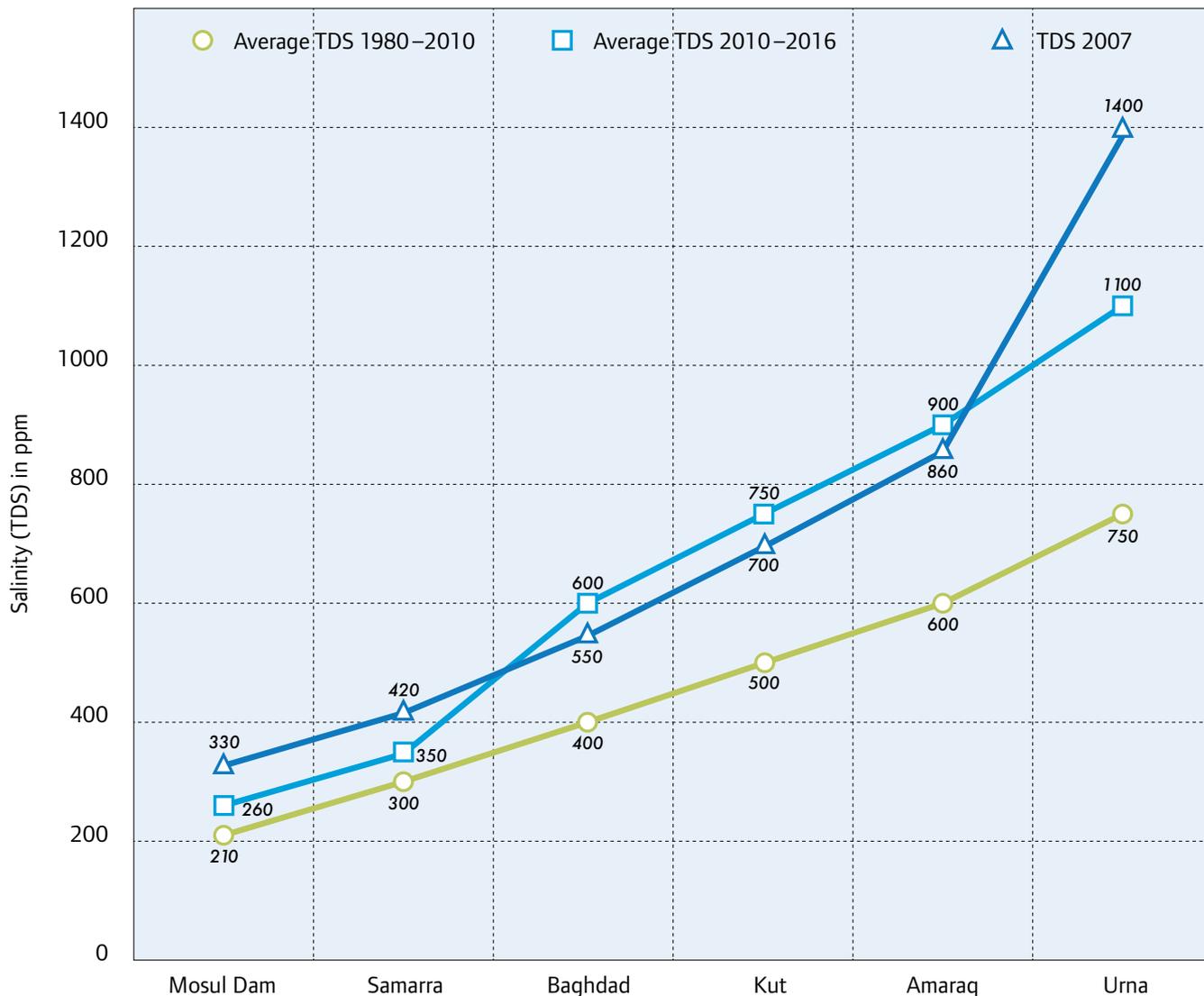


Figure 3: Shows the salinity in the Tigris river, as Total Dissolved Solids (TDS) calculated in Parts Per Million (PPM), from Mosul Dam down to the City of Qurna (1000 km), where the two rivers meet to form Shat Al-Arab, for the years 1980 till 2009 and from 2010 till 2016 in comparison with the dry season of the year 2007.

The palatability of drinking- water in relation to its TDS level has been rated as follows: excellent, less than 300 mg/liter; good, between 300 and 600 mg/liter; fair, between 600 and 900 mg/liter; poor, between 900 and 1200 mg/liter; and unacceptable, greater than 1200 mg/liter. The data are derived from multiple sources and edited by the author. The data does not reflect the accurate values of the salinity, but provides an overview of the salinity along the river and how it significantly increases inside Iraq.

Transboundary water negotiations and engagement

Between 1960-1980, the three riparian countries—Turkey, Iraq and Syria—held unofficial meetings and exchanged information on technical issues under Turkey’s initiative. Since 1980, these meetings have become official under the “Joint Technical Committee Meetings”. In this context, Turkey and Syria signed a protocol on economic cooperation in 1987 — an important turning point in terms of addressing the transboundary water issues affecting the basin. The protocol was agreed to be a temporary legal document until a final agreement among the three riparian countries was reached. Under article 6 of the protocol, Turkey committed “to release a yearly average of more than 500 m³/s at the Turkish-Syrian border and in cases where monthly flow falls below the level of 500 m³/s, the Turkish side agreed to make up the difference during the following month”² during the filling-up period of the Ataturk Dam reservoir. Within the framework of a bilateral agreement signed between Iraq and Syria in 1989, the two countries agreed that 58% of the water released by Turkey from the Euphrates would be allocated to Iraq.

The creation of a High-Level Strategic Cooperation Council was an important step.

In another development, the Turkish government in the early 2000s embarked upon cooperative foreign policy initiatives involving its southern neighbors, Syria and Iraq in particular. To this end, an important step that strengthened political and economic relations between Turkey and Iraq was the creation of a High-Level Strategic Cooperation Council (HSCC), with the Joint Political Declaration signed in Baghdad on 10 July 2008. Similarly, another such bilateral HSCC was created between Turkey and Syria on 22 December 2009, with the countries signing a range of MoUs including four related to the Euphrates, Tigris and the Orontes (see Figure 4 below). The 2008 HSCC empowered Turkey and Iraq to draft and sign different memorandums of understanding (MoUs) to work collaboratively on a number of socio-economic issues including water resources. On 15 October 2009, 48 such MoUs were signed between Turkey and Iraq including one MoU in the field of water, with direct references to cooperation on water resource management, modernization of irrigation systems and exchange of hydrological and meteorological information. The MoU also identified the need for an urgent assessment of water resources given the demand pressures and exacerbating climate conditions. These initiatives were followed by a second HSCC meeting between Turkey and Iraq in 2014, based on which the countries developed yet another MoU (2014) which is in the process of being enforced. However, the ratification and efficient implementation of these bilateral MoUs continues to be strained by the often-tense political situation in the region. The dwindling political will, particularly in the context of the developments in Syria, hampers effective cooperation. Additionally, in the absence of adequate institutional capacities the protocols may fall short to live up to their coordinated water policy vision.

The “*Friendship Dam*” serves to be a case in point. In February 2011, Turkey and Syria agreed to launch a joint “*Friendship Dam*” on the border between the two countries as a sign of good neighborhood that would further strengthen their relationship. This collaboration raised public confidence that water issues in the Middle East could be solved through close cooperation. Unfortunately, the “*Friendship Dam*” project was suspended due to the conflict that broke out in Syria in March 2011.

On top of existing MoUs, in 2019, Turkey proposed a ‘Turkey-Iraq Action Plan’ in the field of water to establish a high-level bilateral team between the two countries, consisting of around fifty water specialists and a hundred technical experts from each, under the head of the presidency of the Turkish Republic Special Envoy to Iraq. The task of this joint team was to study mutual water issues and propose solutions to the respective decision makers in both countries accordingly. This joint team also aimed at

At a glance: Water-related MoUs signed between Turkey and Syria	
1	MoU between Turkey and the Syrian Arab Republic in the Field of Remediation of Water Quality
2	MoU between Turkey and the Syrian Arab Republic in the Field of Efficient Utilization of Water Resources and Combating of Drought
3	MoU between Turkey and the Syrian Arab Republic on Establishment of a Pumping Station in the Territories of Syrian Arab Republic for Water Withdrawal from the Tigris River
4	MoU between Turkey and the Syrian Arab Republic for the Construction of a Joint Dam on the Orontes River under the name "Friendship Dam"
5	MoU between Turkey and the Syrian Arab Republic in the Fields of Meteorology and Meteorological Researches

Figure 4

bringing best practices from Turkey to Iraq and focused on solving problems in Iraq emanating from water-borne diseases, lack of modern irrigation system and poor water efficiency. The team was further required to establish a Turkey-Iraq Water Research Centre in Baghdad. Building on the cooperative work of the joint team of water experts from Turkey and Iraq, Turkey appointed a special envoy to Iraq to resolve the water-related issues between the two countries. In that vein, the action plan was submitted to the Iraqi side and was well received. The two countries remain engaged on the action plan and the door remains open to Syria to join these cooperative activities when the war is over and the political situation settles down. Water experts in the region welcomed the action plan as a positive step in the right direction and in line with water development cooperation following the 1946 Treaty of Good Neighborly Relations between Iraq and Turkey.³ Despite the positive developments surrounding the Turkish-Iraqi action plan, there remain several unresolved differences between riparian countries which have impacted the extent of success of such endeavors—similar to the shortcomings of the numerous initiatives noted above.

The overall political instability and fragile security conditions still serve as roadblocks to greater transboundary water governance in the region. Too often, national interests have been a guiding factor in how transboundary water governance is perceived in the region as each riparian country depends on the E-T river basin for its agricultural production and/or hydropower development. Consequently, transboundary water resources tend to also become heavily politicized rather than being understood more technically for the benefit of all parties involved. Additionally, there should also be due consideration for the meaning and value of water within each country for example, in Iraq, water plays a part in its general elections while this is not the case in Turkey. In order to counter these challenges and avoid inefficient water usage, a multidisciplinary approach must be applied which includes technical perspectives along with other areas of decision-making. Despite recent positive political overtures from all sides, a lot remains to be done. All riparian countries must work in tandem to prepare and assess a common inventory of water and land resources in the E-T river basin so to enhance cooperation and coordination towards better transboundary water governance.

Turkey holds the view that E-T is one single basin. Both rivers originate in Turkey, flow through Iraq and Syria and form the Shatt-al-Arab in the north of Basra in Iraq as one

river discharges into the Gulf. In contrast, Iraq and Syria consider them as two separate basins highlighting that the “Tharthar” canal is an artificial canal for flood control and that there are differences in the geographical nature of the two rivers: the Tigris River has tributaries with Iran, which provides 13% of the Tigris water for Iraq, and the quantity of Tigris water is not sufficient to serve as an additional source for the Euphrates via the “Tharthar” canal.

Yet again, the unresolved nature of many of these issues and inability to reach transboundary cooperation can also be attributed to the domestic politics of each country—the changing political landscape within Iraq since 1958 coupled with wars on its borders; the international sanctions through 1991 to 2003; and the U.S. invasion of Iraq in 2003 followed by ongoing armed conflicts until 2016, have all resulted in destruction and neglect of water infrastructure and managed to diminish the importance of water issues in the priorities of the Iraqi government.

The creation of a High-Level Strategic Cooperation Council was an important step.

The way forward

Agreements between riparian countries on transboundary water resources, whether bilateral or multilateral, are crucial towards conflict resolution and provide grounds for better cooperation on transboundary water issues. However, these agreements can only be successful if there is mutual commitment to implement them. The best approach would be to adopt the concept of water cooperation as a strategic objective, which, in turn, could be the basis for cooperation in other fields. As a first step, all countries need to prioritize the guidelines under the signed MoUs. For example, the 2014 MoU between Turkey and Iraq proved to be a significant development and the decision-makers should follow through the implementation of it in by:

- Enabling knowledge sharing and transfer of experience and technology on the basis of equality, reciprocity and mutual benefits.
- Cooperating on joint projects on water resource management, including the assessment of water resources and the increase in water use (agricultural, industrial, municipal and drinking water), irrigation efficiency and climate change, etc.
- Conducting joint studies and research on water, environment and agriculture problems, including the potential for better capacity-building in order to address the sustainable development approach that includes the improvement and utilization of water resources for the health and welfare of current and future generations.

Given that the water quantity and quality aspects of the transboundary rivers have regional dimensions, there is an urgent need for joint institutions established by riparian countries which can ensure and enforce the agreements for the benefit of all riparian states and pave way for future collaborations as the threat of increasing water scarcity looms. Joint institutions have proven to be effective in terms of enforcing the Integrated Water Management approach in other regions and can help facilitate a similar sense of benefit-sharing, provided the riparian countries can develop mutual trust and confidence towards cooperation.

Water conflicts, driven by political manipulation for strategic advantages, whether to exercise hegemony or to strengthen national positions in other policy areas might lead to conflict and generate public hostility in any region. For the E-T, this became particularly evident in 2011 and 2018, when the people of Basra (Iraq) demonstrated against their government as well as Iran—a public backlash that was triggered due to severe deterioration of the water quality of Shat-al- Arab, a river formed by the confluence of the E-T rivers in southern Iraq. The water quality deteriorated because of poor water quality management and as a result of Iran diverting the Karun and “Karkha” rivers from Shatt al-Arab, underscoring the importance of the policy recommendations



Karun River, Ahvaz,
Khuzestan Province, Iran
Karun river of Ahvaz which has dried
up a lot due to the lack of rain in recent
years

outlined above. The event was perceived as a major humanitarian crisis given more than 120,000 people got severely sick and several others lost their livelihoods. Iran relies on the Tigris river and its 42 tributaries (excluding Karun and Karkha) 18 out of which are small and seasonal.

Recommendations for EU involvement

Ideally it can be considered that investment in transboundary water management and cooperation is equal to investment in peace and stability as opposed to the high costs and security risks attached to the lack of cooperation⁴. This makes transboundary water cooperation an issue of major importance for the EU, which has identified the E-T-basin as a hotspot for hydro-political tensions. In line with that, Iraq prefers that the EU plays an active role in promoting the above-mentioned proposed cooperative activities to reach a solution to the aggravating water challenges and avoid any likelihood of conflicts. Turkey states that transboundary river basins have their own characteristics and peculiarities and each case of transboundary waters reflects specific regional, economic, social, cultural and historic aspects, which is why, in the eyes of Turkey, transboundary water issues should be addressed only among the riparian countries with no third-party involvement.

Nevertheless, the EU can still play an important role in the following areas by:

- Facilitating cooperation in integrated water management between the riparian countries and providing best practices (sharing agriculture technology and management experiences) from EU experience.
- Participating with riparian countries in studies/research on water related topics and sharing best practices for efficient use of water resources and salinity and pollution management along the E-T, which is crucial for Iraq in particular.

Beyond the facilitation of region-wide dialogue mechanisms on transboundary water issues, individual riparian countries have called for more targeted EU support on water

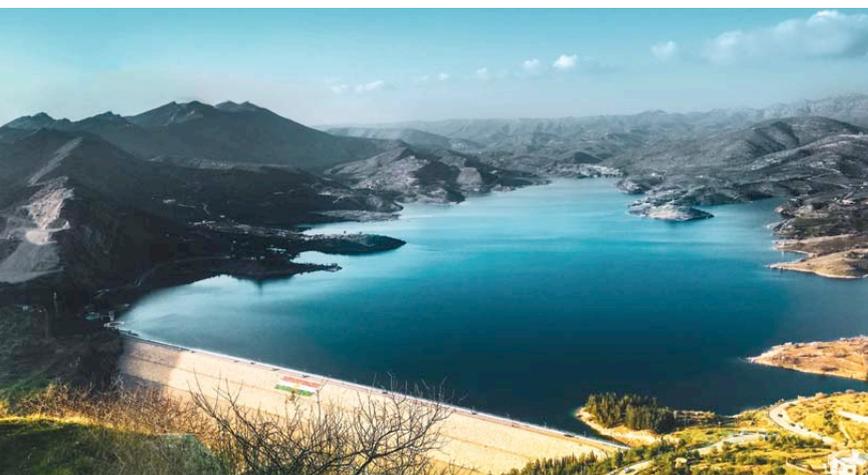
management. For instance, Iraqi authorities have expressed interest in realizing projects similar to those carried out in Turkey with the EU's support. In this vein, Iraq hopes that the EU could facilitate the implementation of the country's "Strategy for Water and Land Resources 2015-2035"⁵ (SWLRI). Here, the EU could take a leading role in a) improving Iraq's irrigation efficiency, water quality management and desertification mitigation, b) reviewing and updating the SWLRI on a regular basis, and c) establishing a water resources early warning system.

- 1 JICA, Data Collection Survey On Water Resource Management and Agriculture Irrigation in the Republic of Iraq, Final Report, April 2016, pg.13
- 2 Özden Bilen, Enlarged and Revised 2nd Edition (2000): Republic of Turkey Prime Ministry, Southeastern Anatolia Project (GAP), Regional Development Administration-Ankara, TURKEY. pg.73
- 3 Spotlight: Turkey, Iraq agree to work together to address regional water issues - Xinhua. Available at: http://www.xinhuanet.com/english/2019-08/07/c_138288861.htm
- 4 Trondalen, Water and Peace to the People—Possible Solutions to the water disputes in the Middle East (UNESCO), 2008.
- 5 SWLRI 2015 – 2035; the Iraqi Ministry of Water Resources formed this strategy by contracting a consortium of 3 companies started in 2012 and finalized and adopted in 2015, the Strategy contains comprehensive information, data and plans to develop water land resources in Iraq. The Co-author was a member of an inter-ministerial steering committee for the strategy,

Conclusion

FARWA AAMER

This study necessitates a call to action on transboundary water governance in the Himalayan region, Central Asia, and the Euphrates-Tigris River basin. Transboundary water systems cannot be unilaterally addressed and instead require multistakeholder approaches. There is an outstanding need for coordinating mechanisms and frameworks at all levels to ensure an equitable sharing of water resources by means of an integrated and deliberate effort. Through their analysis, the authors further validate the notion that “most indicative variables for conflict reflect rapid or extreme change to physical or institutional systems within a basin in absence of transboundary institutional mechanisms able to manage the effects of that change.”¹ Therefore, water conflict prevention relies on identifying and understanding different interests and creating an environment that supports arbitration and mediation.



Duhok-Dam, Duhok, Iraq

As discussed, in each chapter, a significant number of bilateral and basin-level agreements as well as some governing bodies have been established over the past few decades. Yet the overall effectiveness of these initiatives falls prey to the status quo, “hydro-hegemony”, and conflicting interests of the stakeholders. Often, powerful stakeholders succeed in pushing policymakers to support their claims at the expense of other stakeholders or choose not to participate in collaborative functions altogether. In Central Asia, Afghanistan has not participated in any of the regional platforms on the Aral Sea basin over the years. Therefore, there has been a limited exchange of information and knowledge between Afghanistan and the rest of Central Asia on shared rivers which further creates a division between water policies and strategic interests. In the Euphrates-Tigris River basin, Turkey, being the upper riparian, generally is at an impasse over water sharing with the lower riparian Iraq and Syria despite cooperative initiatives. Similarly in the Himalayan region, the MoU which covers data sharing on the Yarlung-Tsangpo/Brahmaputra has consistently fallen victim to geopolitical tensions between India and China. China, post the Doklam standoff in 2017², refused to share the flood data, required under the MoU, with India. Such cases make it evident that ad-hoc and purely bilateral approaches to water management or water conflict prevention are not always enough, and regional institutions and third-party solicitation can play an important role in incentivizing a collaborative and mutually beneficial approach to transboundary water governance.

The significance and urgency of institution building, legal bindings, and water-sharing agreements is well-accepted and recognized, but their successes are dependent on various aspects exclusive to the exigencies of each region and river basin. For instance, most international water laws already in place are more applicable in non-arid regions like Europe as opposed to arid regions. Laws are subsequently better enforced in the former than the latter. The existence of joint institutions also cannot guarantee inclusive decision-making due to political reservations, and funding and capacity gaps only further minimize the overall influence of any institutional frameworks. In Central Asia, the Interstate Commission for Water Coordination in Central Asia (ICWC) lacks full jurisdiction over the rivers and has technical limitations. Any non-compliance with ICWC decisions is also not sanctioned. Moreover, existing regional water governance institutions in Central Asia have not been able to effectively address the tensions between upstream and downstream riparian countries stemming from dam constructions on the tributaries



Dukan Dam, Dukan, Iraq

of shared rivers such as the Amudarya and Syrdarya rivers. In the Himalayan region as well, institutions have made little to no progress over transboundary water governance. In chapter 1, the authors argue that South Asia is yet to apply a robust multidisciplinary and inclusive approach towards water governance, especially given the rampant hydro-power projects and dam-building by upstream countries. Although attempts at shared transboundary water governance commenced as early as 1946 in the Euphrates-Tigris River basin, the tense relations between the three riparian states coupled with the growing water scarcity have heavily compromised any gains made over the years.

By and large, all three regions have the following common challenges with regards to transboundary water governance institutions and arrangements:

- Political inertia in devising and enforcing guidelines that can enable equitable water sharing. Water issues are often overshadowed in national and regional policy spheres.
- Financial and technical capacity challenges further weaken any existing institutional frameworks. There are wide gaps in knowledge that tend to compromise objective analysis of river basins, ecological systems, and water flows.
- Geopolitical tensions and power asymmetries divert countries away from cooperative initiatives, third-party mediations, and joint endeavors on water governance.

Reflections on EU's water diplomacy

The global landscape is rapidly changing in a way that makes it crucial for governments and international organizations to prioritize water security and climate change in their policy-making agendas. We have witnessed ardent attempts by the EU towards broader cross-border engagement. The EU's successful trajectory in driving cooperation on issues such as water governance within the EU borders has allowed it to develop the experience and knowledge that can be transferred to water-stressed regions across the globe.

The EU's active involvement in Central Asia is noteworthy. As highlighted by the experts, the EU has been supportive of regional water institutions such as the IFAS and ICWC, and in 2009 launched an exclusive EU-CA Platform on Environment and Water. In addition to this, the European Commission also is a major contributor to the multi-donor trust of the Central Asia Energy and Water Development Program (CAEWDP),

implemented by the World Bank. Authors suggest that the EU, with its experience on the ground through the aforementioned engagements, is a strong candidate to assume the role of a third-party solicitor who not only facilitates regional institutional building but also oversees accountability and enforcement of a cooperative framework. This would ensure capacity building and participation of all relevant stakeholders in the decision-making process of the key regions discussed in this study.

In the Euphrates-Tigris River basin, the EU's influence has been credible, primarily through its efforts in rallying Turkey to engage in active cooperation with its neighbors on shared rivers. Turkey's declaration as a candidate for EU-membership in December 1999 led to a positive transformation in its water management policies. In order to comply with the EU's vision and requirements under the Water Framework Directive, Turkey more willingly engaged in cooperative efforts with other riparian countries. Consequently, Turkey signed bilateral MoUs in 2009 with Syria and Iraq respectively to develop and manage shared rivers. In South Asia, the India-EU Water Partnership (IEWP) is certainly an important initiative that enables India to learn from the EU's technical and management expertise in the water sector. Even though the IEWP is a bilateral initiative, it does indicate a promising role that the EU can play on a more basin-wide and regional level. While the aforementioned examples demonstrate a step in the right direction for EU's water diplomacy, the emphasis on global water security in EU's policy agenda and the scale of its engagement abroad is still relatively low.

Despite resolute ambitions, reservations in terms of meddling or being directly involved in water politics of volatile and crisis-prone regions may have also served to hinder EU's progress over the years. Nevertheless, the growing water scarcity and its worldwide humanitarian and security implications require bodies like the EU to develop greater diplomatic synergies and a more comprehensive understanding of issues that extend beyond its strategic neighborhood. To this end, the EU must take initiatives that will strengthen its water diplomacy and allow it to build on its own achievements in the realm of transboundary water governance. The EU may consider:

- Promoting the ratification of the 1997 UN and 1992 UNECE Conventions by third countries in order to facilitate the adoption of the much-needed multilateral approach to shared water governance.
- Building confidence in disintegrated regions by promoting broader knowledge sharing and engendering a benefit-sharing mindset among contesting riparian countries.
- Becoming a leading development donor and global player in regions with weak or non-existing water institutional frameworks by providing technical and financial support.

Overall, the EU must exercise a conscious diplomatic effort to acquire more knowledge pertinent to the geographical, political, and social elements of each region/river basin and engage with field players in charting the best way forward.

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2 Fravel, M. (2017), "Why India Did Not "Win" the Doklam Standoff with China," *War on the Rocks*. Available at: <https://warontherocks.com/2017/09/why-india-did-not-win-the-standoff-with-china>

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