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Transboundary Water Management in Central Asia and the Way Forward

Water Governance and Water Security Perspectives

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Abstract

Water resources in Central Asia are scarce, yet crucial for the socio-economic development of the region. Climate change may bring in further uncertainties and restraints to water availability. Therefore, this paper attempts to take a more comprehensive look at the status quo of water management in the region from water governance and water security perspectives. With obtained information, further literature has been reviewed for possible solutions for water problems in the region through upholding Sustainable Development Goal for Water, Human Right for Water and cooperation with China.

Keywords: Water Governance, Water Security, Transboundary Water Management, Central Asia, China, Tian Shan Glaciers, Soviet Union.

Introduction

Central Asia is a mostly arid, water-scarce region comprised of five land-locked states: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Water resources of the region come from two major rivers, Syr Darya and Amu Darya which are fed by Tian Shan glaciers of north-western China, the Hindu Kush at the Afghanistan-Pakistan-Tajikistan borders, the Wakhan in Afghanistan, and the Pamirs in Tajikistan (Sara & Proskuryakova, 2022). The river basins stretch from the Fergana Valley to the Aral Sea basin.

As Central Asian states were earlier part of the former Soviet Union, water management was then centralized in Moscow, where much attention was paid to cotton cultivation requiring massive irrigation resources and infrastructure. The complex water infrastructure was managed by the Soviet Ministry of Water Resources which put Central Asian countries' interdependence at the center of its management. Upstream countries (Kyrgyzstan and Tajikistan) were rich in water while downstream countries (Kazakhstan, Turkmenistan and Uzbekistan) were rich in natural resources and were considered more suitable for agriculture. Given these geographical and natural differences of the countries and Soviet cotton cultivation plans, water-energy integrated management was exercised in Central Asia (Djanibekov et al., 2015). The former Soviet Union implemented water management at a basin level with Small Transboundary Tributaries (STTs), canals, reservoirs and pump station schemes (Wegerich et al., 2015).

After independence, these states started to drift towards self-sufficiency and independence from each other. Formerly centralized, water-energy integrated management was proven hard to be applied to independent states with different interests. Such differences have been the cause for friction among Central Asian states. The upstream states flooded downstream states in winter in order to produce hydropower generated electricity and downstream states needed water to be discharged in summer for their agriculture. In 1992, in an attempt to resolve urgent issues, all five states signed Almaty Agreement ¹ on the basis of which joint management mechanism of Interstate Commission for Water Coordination (ICWC) was formed. The agreement serves as a soft law due to having declarative character. ICWC recommends water allocation among riparian states and

¹ The Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan, and the Republic of Uzbekistan on Cooperation in the Field of Joint Management of the Use and Conservation of Water Resources of Interstate Courses (Janusz-Pawletta, 2015).

does so based on the water allocation amounts of Soviet era (Murthy & Mendikulova, 2018). Later in 1999, the states founded International Fund for Saving Aral Sea (IFAS) which initially was a joint monetary contribution system for preserving Aral Sea, later it absorbed ICWC and Interstate Commission on Sustainable Development (ICSD)² into its structure. IFAS is considered as an authority type of Joint Management Arrangement (JMA) created by five Central Asian states. JMA is an example of international practice to cooperate and implement water law principles (Janusz-Pawletta, 2015). However, due to IFAS' uncertain legal status, uncoordinated structure between sub-organizations, geographically-rotational presidency, lack of dispute settling and implementation mechanisms, its institutional and legal efficiency is weak (Janusz-Pawletta, 2015). At the basin-level, four Central Asian states, except for Turkmenistan, signed Syr Darya Agreement in 1998 in order to settle questions on water and energy use in the Syr Darya river basin. This agreement does not follow common water law principles (Janusz-Pawletta, 2015), but is an important agreement allowing states to negotiate water releases from the upstream Toktogul reservoir for hydro-power energy generation and its impact on downstream states (Murthy & Mendikulova, 2018).

In water security front, Central Asian states appear to be on the brink of water insecurity according to one of the latest water security assessment estimations in Asia conducted by Park et al. (2022) based on Pentagonal Framework for Efficient Water Resource Management. This assessment which comprises five core factors obtained from available literature (social equity, economic efficiency, environmental sustainability, resilience to water-related disasters and government competency) ranges from score 0 being water insecure to 5 possessing a high level of water security. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan received 2.6, 2.6, 2.4, 2.0, 2.3 scores, respectively. These results reflect a more comprehensive water security assessment analysis of Asian countries than previous ones in the literature which used to overlook water management and governance aspects of water security (Xenarios et al., 2020). A more specific dimensional analysis of the water security in Central Asia was conducted by Assubayeva (2021) based on a 2-round Delphi survey for water security experts. The results show that improvement of agricultural irrigation management is the most crucial water security factor for Uzbekistan and

² ICSD was established in 1994 by a Decision of the Interstate Council for the Aral Sea. The main purpose of the Commission is to coordinate and manage regional cooperation on environment and sustainable development in countries of Central Asia. (<https://unece.org/environment/press/unece-and-interstate-commission-sustainable-development-strengthen-cooperation>)

Tajikistan with 84% and 60% expert agreement rate, respectively; 73% of experts point at improving river basin management plans for Kazakhstan; 65% agreement rate is observed for improving drinking water use in Afghanistan; only 47% of experts could agree on improvement of drinking water use in Turkmenistan and 49% agreement rate on prioritizing hazard plans for landslides for Kyrgyzstan.

Water in Central Asia

With these assessment results and background information, this paper proceeds to view suggested ways forward for strengthening water governance and water security in Central Asian countries. Transboundary water treaties, when seen through the lenses of United Nations Watercourses Convention (UNWC)³ and Water Diplomacy Framework (WDF)⁴, are expected to be based on equitable and reasonable water utilization, avoidance of inflicting significant harm on riparian states, mutually-beneficial flexible cooperation and transparency (Janusz-Pawletta, 2015; Murthy & Mendikulova, 2018). Nevertheless, above-mentioned important agreements among Central Asian countries, do not provide legal solutions fully coherent with UNWC and WDF; they are not flexible and do not shape trust due to member parties' agreement violations (Ibraimov, 2022). Committees established by those agreements do not hold clear legal functions and are underfunded not mentioning, Kyrgyzstan's frozen membership in 2016 (Murthy & Mendikulova, 2018). Although many regional experts, including Dinara Ziganshina, suggest updating ineffective legal provisions of the agreements, Kyrgyz water expert, Matraim Zhusupov, denied the possibility of solving Central Asian water problems with this method (Ibraimov, 2022). As there is such a deadlock situation in the regional transboundary governance, CA states are in search of self-sustaining water projects such as reservoirs and small-scale dams. For instance, insisting on construction of smaller hydropower plants, Uzbekistan has finally agreed to hydropower plant

³ UNWC is a flexible and overarching global legal framework that establishes basic standards and rules for cooperation between watercourse states on the use, management, and protection of international watercourses. It was adopted in 1997 with more than 100 nations gathered to discuss it. (https://www.un.org/waterforlifedecade/water_cooperation_2013/un_watercourses_convention.shtml)

⁴ WDF suggests a negotiated approach to water management based on mutual gains theory (Murthy & Mendikulova, 2018).

construction in Kyrgyzstan to which the first Uzbek president was confrontationally against, yet Kazakhstan has not expressed any sign of involvement (Ibraimov, 2022).

Literature discussing water security through newer water management methods include International Water Resources Management (IWRM)⁵ principles, Water User Associations (WUAs)⁶ and strengthening state-run water supply organizations. Decentralization of power to the local water users under IWRM principles (Amirova et al., 2019; Murthy & Mendikulova, 2018), utilizing varied adaptation mechanisms, long-term water supply organizations (Wegerich et al., 2015) or legacy of Soviet informality-involving local water management methods (Djanibekov et al., 2015) can be viable methods of resolving water disputes between people of bordering states in Central Asia. They can improve water management and security in general. However, experts state that one-size-fits-all methods for local cooperation in Central Asia may not succeed given the lack of nation-wide consistent IWRM solutions of neo-liberal origin and lack of interaction between state-run water management and WUAs (Abdullaev & Rakhmatullaev, 2013; Amirova et al., 2019; Wegerich et al., 2015). There is also a risk of local power dynamics, corruption and tokenism playing a role as it was revealed in decentralized water governance in north-central Namibia (Hegga et al., 2020) where locals worked merely for alleviating service-delivery workload of the government and did not participate in the decision-making process.

The Way Forward

At this stage of the research, the paper looks into alternative areas of water governance including soft law elements like the Sustainable Development Goal 6 (SDG 6) of Clean Water and Sanitation and the Human Right for Water (HRW) as well as a less discussed method of water cooperation with China in terms of potential joint initiative for preserving Tian Shan Glaciers and foreign direct aid aimed at infrastructure enhancement in Central Asia (CA).

⁵ IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. (<https://www.un.org/waterforlifedecade/iwrm.shtml>)

⁶ (WUAs) are formal community-based organizations that share a common interest of well performing irrigation systems. (<http://web.worldbank.org/archive/website00983A/WEB/OTHER/662C94AF.HTM?Opendocument&Start=1&Count=5>)

Water in nearly all the Central Asian countries, except for Turkmenistan, is constitutionally recognized as an inalienable property of the State and every person has the right to use water within the territory of a respective state (Javorić Barić, 2016). This indicates the notion that water is mostly considered as a government-provided human right. If such a right is efficiently regulated with the use of SDG 6 at the domestic level, it constitutes a more practical approach to water access (Ibrahim, 2022). SDG 6 in its contents and descriptive tools is meant to reflect HRW in order to encourage and direct states to protect and fulfil HRW in a sustainable way (Spijkers, 2020). Thus, it can be viewed that SDG 6 and HWR, when followed and applied at a domestic level, can reinforce each other to maintain access to water. The latest SDG 6 assessment indicators for CA states show that there are still remaining challenges for SDG 6 implementation ranging from major (for Uzbekistan and Turkmenistan) to significant (Kazakhstan, Kyrgyzstan and Tajikistan) ones. Nonetheless, Uzbekistan, Turkmenistan and Kyrgyzstan display a positive trend by being on track or maintaining SDG 6 achievement while Kazakhstan and Tajikistan are moderately improving (*Sustainable Development Report, 2022*).

Due to the fact that Central Asian river basins are fed by the Tian Shan mountain range glaciers originating in China, there is a role for China to play in this region's water security and cooperation even if much attention is not given to it in the literature. Although China has turned the Tian Shan glaciers in Xingjian province into protected zones to slow down alarming glacier meltdown rate (Trilling, 2022), the foothills of the mountain range, being at the edge of Taklamakan Desert, are an agricultural powerhouse for grape cultivation (Schmitz, 2017). It is advised for China to further its efforts in Tian Shan protection through transnational efforts and elimination of unsustainable agriculture practices (UNESCO World Heritage Centre, n.d.). Hereby, China can display leadership and initiate transboundary glacier preserving efforts in cooperation with the Central Asian republics. In addition, water diplomacy efforts in Central Asia are expected to be helpful for Beijing after its scarred water governance reputation in the ICJ's South China Sea arbitration ruling in 2013 in favor of the Philippines; amid Washington's interest in CA water area; for uneasy relations with Kazakhstan after river diversion plans and as a promotion method for its Belt and Road Initiative (Zhang & Li, 2017). Zhang and Li (2017) also mention China's developed capability of investing into water-efficient plant types and technologies, small dam construction and water irrigation infrastructure of Central Asia which consumes 75% of water in the region and most of which is lost due to irrigation inefficiencies. Recent slowdown of the economic growth

and the pandemic effects may delay China's potential water diplomacy endeavors for the time being, but it remains as one of the most optimal trajectories for China given the potential of CA region, largely limited by water resources.

Conclusion

The aim of this paper was to display water management in the Central Asian region from transboundary water governance and water security perspectives and shed light on further steps for improvements in the water sector. There are legal tools available in the form of several international agreements and commissions, which need updates, functional revisions and other soft law principles. Suggested good practices for regional and national water management need careful adaptation for local settings in each of the Central Asian states and joint efforts for ensuring more sustainable use of glaciers.

Bibliography

- Abdullaev, I., & Rakhmatullaev, S. (2013). Transformation of water management in Central Asia: From State-centric, hydraulic mission to socio-political control - ProQuest. *Springer*.
<https://doi.org/10.1007/s12665-013-2879-9>
- Amirova, I., Petrick, M., & Djanibekov, N. (2019). Long- and short-term determinants of water user cooperation: Experimental evidence from Central Asia. *World Development*, 113, 10–25.
<https://doi.org/10.1016/j.worlddev.2018.08.014>
- Assubayeva, A. (2021). Experts' Perceptions of Water Security in Central Asia: Results from a Delphi study – CAJWR. *Central Asian Journal of Water Research*, 7(1), 50–69.
<https://doi.org/10.29258/CAJWR/2021-R1.v7-1/50-69.eng>
- Djanibekov, N., Van Assche, K., & Valentinov, V. (2015). Water Governance in Central Asia: A Luhmannian Perspective. *Society & Natural Resources*, 29(7), 822–835.
<https://doi.org/10.1080/08941920.2015.1086460>
- Hegga, S., Kunamwene, I., & Ziervogel, G. (2020). Local participation in decentralized water governance: Insights from north-central Namibia. *Regional Environmental Change*, 20(3), 105.
<https://doi.org/10.1007/s10113-020-01674-x>
- Ibrahim, I. A. (2022). Water as a human right, water as a commodity: Can SDG6 be a compromise? *The International Journal of Human Rights*, 26(3), 469–493.
<https://doi.org/10.1080/13642987.2021.1945582>
- Ibraimov, B. (2022, June 30). How much progress has been made on Kyrgyz-Uzbek water cooperation? *The Third Pole*. <https://www.thethirdpole.net/en/regional-cooperation/how-much-progress-has-been-made-kyrgyz-uzbek-water-cooperation/>
- Janusz-Pawletta, B. (2015). Current Legal Challenges to Institutional Governance of Transboundary Water Resources in Central Asia and Joint Management Arrangements. *Environmental Earth Sciences*, 73(2), 887–896. <https://doi.org/10.1007/s12665-014-3471-7>
- Javorić Barić, D. (2016). Water agreements in Central Asia and their impact on human rights. *Pravnik : Časopis Za Pravna i Društvena Pitanja*, 50(100.), 123–132.
<https://hrcak.srce.hr/en/174764>
- Murthy, S., & Mendikulova, F. (2018). *Water, Conflict, and Cooperation in Central Asia: The Role of International Law and Diplomacy* [SSRN Scholarly Paper].
<https://papers.ssrn.com/abstract=3147903>
- Park, S.-Y., Kim, J.-S., Lee, S., & Lee, J.-H. (2022). Appraisal of Water Security in Asia: The Pentagonal Framework for Efficient Water Resource Management. *Applied Sciences*, 12(16), 8307. <https://doi.org/10.3390/app12168307>
- Sara, J., & Proskuryakova, T. (2022, June 7). *Central Asia: At the confluence of global water action and climate resilience Dushanbe conference to emphasize role of water in sustainable*

development. <https://blogs.worldbank.org/water/central-asia-confluence-global-water-action-and-climate-resilience-dushanbe-conference>

Schmitz, R. (2017, October 21). “Impossible To Save”: Scientists Are Watching China’s Glaciers Disappear. *NPR*.

<https://www.npr.org/sections/parallels/2017/10/21/554271726/impossible-to-save-scientists-are-watching-chinas-glaciers-disappear>

Spijkers, O. (2020). The Sustainable Human Right to Water as Reflected in the Sustainable Development Goals. *Utrecht Law Review*, 16(2), 18–32. <https://doi.org/10.36633/ulr.560>

Sustainable Development Report. (2022). <https://dashboards.sdgindex.org/>

Trilling, D. (2022, April 13). Chinese scientists measure Central Asia’s shifting water patterns | Eurasianet. *eurasianet.org*. <https://eurasianet.org/chinese-scientists-measure-central-asias-shifting-water-patterns>

UNESCO World Heritage Centre. (n.d.). *Xinjiang Tianshan*. Retrieved August 19, 2022, from <https://whc.unesco.org/en/list/1414/>

Wegerich, K., Van Rooijen, D., Soliev, I., & Mukhamedova, N. (2015). Water Security in the Syr Darya Basin. *Water*, 7(9), 4657–4684. <https://doi.org/10.3390/w7094657>

Xenarios, S., Assubayeva, A., Xie, L., Sehring, J., Amirkhanov, D., Sultanov, A., & Fazli, S. (2021). A bibliometric review of the water security concept in Central Asia. *Environmental Research Letters*, 16(1), 013001. <https://doi.org/10.1088/1748-9326/abc717>

Zhang, H., & Li, M. (2017). *China and global water governance* (pp. 219-236). <https://doi.org/10.4324/9781315162973-11>