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WATER DISPUTE IN CENTRAL ASIA: CONFLICT POTENTIAL

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ABSTRACT

The Central Asian republics (CARs), which emerged as independent states in the post-Soviet phase, faced several challenges. During the Soviet era, the CARs were agriculturally oriented towards the Soviet economy and, accordingly, river water management was also centralized under the command economic model. However, with the collapse of the Soviet Union, the CARs had to review the existing water management arrangements. This is where the absence of a Moscow-centric central authority has proven detrimental to the region endowed with two major rivers and their several subsidiaries. In this context, the paper suggests an emphasis on multilateralism, rather than bilateralism, as a more feasible approach to river water management. Clearly, multilateralism would promote a more equitable solution compared to bilateralism, which does not adopt a holistic approach to the region. Considering the fact that the region is characterized by a water crisis in addition to the fragility of the environment makes a multilateral arrangement significantly more appropriate for the region in the long term.

KEYWORDS: ***CARs, Soviet, water management, Moscow, multilateralism, bilateralism, environment.***

Introduction

Rivers are indispensable for both the environment and human existence due to their water resources, which are integral to life. In the international relations sphere, rivers which flow across national boundaries assume importance due to their potential for conflict between riparian nation states.

Rivers are also representative of national wealth due to their hydropower potential in generating electricity.

The physical characteristics of rivers, i.e., where and how they flow, determine their relevance not only for domestic affairs, but also for international politics. According to recent studies, approximately 40% of the global population faces the problem of water stress, which means that the index of annual per capita freshwater availability varies from 1,000 to 1,700 cubic meters.[1] It occurs against the general background of the steadily growing exploitation of water resources: for nine decades of the last century mankind has increased water consumption from river basins sixfold.[2] Under the circumstances of water stress and increasing demand for water supplies, states are predisposed to regard access to and control over water systems as "a matter of national security," which, in turn, contributes to discord and clashes between co-riparian countries. Currently, almost every region has its volatile water issues on the political agenda. In the case of Central Asia, the conflict is very much evident.

In international politics, managing water conflicts has become a focus in the states' political agenda. Miriam Lowi in her writing identified water conflicts as "low politics" and war as the "high politics," while in contemporary times it has become appropriate to refer to a global "high politics of water."[3] The systematic study of conflict and cooperation between states over riparian resources has developed as a discipline in international relations. According to 21st-century research scholars, conflict and cooperation can coexist in any given international river basin,[4] and scholars have emphasized how critical inter-disciplinary perspectives can further the understanding of transboundary water politics. This in-built interdisciplinarity, along with relatively recent academic attention, makes the study of water resources an extremely challenging and exciting matter, as many avenues must still be explored or discovered. This paper will discuss the two aspects that can provide important insights in the analysis of the transboundary water relations between states.

(1) The interrelation between domestic politics and international relations in the context of water disputes.

(2) The requirement of multilateral, rather than bilateral cooperation among the Central Asian countries in the context of water dispute.

The Central Asian region is located in the middle of the Eurasian continent and comprises five republics: Turkmenistan, Kazakhstan, Uzbekistan, Kyrgyzstan, and Tajikistan. The region is abundantly rich in natural resources with large reserves of natural gas, coal, freshwater resources, and oil. These resources are, however, distributed unequally within the region. While Uzbekistan, Turkmenistan, and Kazakhstan are full of energy resources, Kyrgyzstan and Tajikistan have abundant freshwater resources. It is the rivers that define relations among the Central Asian states. Under the former Union of Soviet Socialist Republics (U.S.S.R.), the upstream states, namely, Kyrgyzstan and Tajikistan, which have an abundance of water, would release some from their reservoirs in the spring and summer to generate electricity and irrigate crops both on their land and in the downstream republics. In turn, the downstream republics, Kazakhstan, Uzbekistan, and Turkmenistan would reciprocate the favor and provide gas and coal for their neighbors each winter. However, with the disintegration of the U.S.S.R., this streamlined system suffered a complete collapse.

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[1] See: A. Swain, "Water Scarcity as a Source of Crises," in: *War, Hunger, and Displacement*, ed. by W. Nafziger, F. Stewart, R. Väyrynen, Oxford University Press, New York, 2000, p. 179.

[2] See: World Resources Institute in collaboration with the United Nations Environmental Program, "The United Nations Development Program and the World Bank," *World Resources 2000-2001*, Oxford University Press, New York, 2000, p. 104.

[3] Quoted from: F. Menga, "Domestic and International Dimensions of Transboundary Water Politics," *Water Alternatives*, Vol. 9, Issue 3, 2016, p. 704.

[4] See: J. Allan, N. Mirumachi, "Why Negotiate? Asymmetric Endowments, Asymmetric Power and the Invisible Nexus of Water, Trade and Power that Brings Apparent Water Security," in: *Transboundary Water Management Principles and Practice*, ed. by A. Earle, A. Jägerskog, J. Öjendal, Earthscan, London, Washington DC, USA, 2010, pp. 13-26.

Political Geography: Rivers' Origin and Transit Routes

Today Kyrgyzstan and Tajikistan face constant blackouts and hope to build huge dams to provide for their energy needs.[5] After the collapse of the U.S.S.R., due to lack of regional dialog and cooperation among the Central Asian republics, numerous conflicts occur in the region. One area of conflict that deserves attention relates to river waters. Regional cooperation on the management of water is both a complex and multifaceted issue. The two rivers, Syr Darya and Amu Darya, are the key sources of water in Central Asia. The Amu Darya originates in Tajikistan and flows along the border between Uzbekistan and Afghanistan, going further to Turkmenistan before it returns to Uzbekistan and discharges into the Aral Sea. It spans 2,540 km and has a catchment area of 309,000 sq. km, making it Central Asia's largest river. Its vast drainage system extends through Afghanistan, Iran, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.[6] Tajikistan contributes 80% of the flow generated in the Amu Darya river basin, followed by Afghanistan (8%), Uzbekistan (6%), and Kyrgyzstan (3%). Turkmenistan and Iran together contribute around 3%.[7]

Meanwhile, the Syr Darya originates in the Tian Shan Mountains in Kyrgyzstan and flows for 2,212 kilometers west and north-west through Uzbekistan and southern Kazakhstan to the northern remnants of the Aral Sea. Its total length is around 2,800 km. Around 20 million people inhabit this river catchment area, which covers around 400,000 sq. km. The natural run-off pattern, with annual flows of 23.5-51 cubic kilometers, is characterized by a spring/summer flood that usually starts in April and peaks in June or July. Reservoirs regulate around 90% of the Syr Darya's mean annual flows.[8]

Besides, 20 other transboundary rivers in the region include the Ili and the Irtysh, which flow between China and Kazakhstan.[9] China shares the Tarim with Kyrgyzstan, as well as others that have their sources in Kyrgyzstan and flow into China. Afghanistan is the upstream state for the Murghab and the Tedzhen, which it shares with Turkmenistan. The Chu, Talas, and Assa rivers flow through Kyrgyzstan and Kazakhstan. Lastly, the Atrek runs between Turkmenistan and Iran.[10]

Theoretical Dimension: Water Crisis in Central Asia

There are many popular theoretical approaches to comprehend the water conflict in Central Asia. Among the more applicable approaches in International Relations Theory is the liberal approach, which suggests that resources should be managed collectively for the common good of all nation states. The approaches relevant to Central Asia in terms of the water dispute are as follows:

1. The territorial sovereignty approach favors upstream states, which are deemed to have no obligations to any other states. In the context of this approach it is difficult to resolve the existing issues because upstream countries will make decisions that suit their interests.

[5] See: D. Trilling, "Water Wars in Central Asia," *Foreign Affairs*, available at [https://www.foreignaffairs.com/gallerys/2016-08-24/water-wars-central-asia], 24 August, 2016.

[6] See: K. Wegerich, "The New Great Game: Water Allocation in Post-Soviet Central Asia," *Georgetown Journal of International Affairs,* Vol. 10, No. 2, Summer/Fall 2009.

[7] See: P. Micklin, "Managing Water in Central Asia," Royal Institute of International Affairs, London, 2000, p. 7.

[8] See: Th. Bernauer, T. Siegfried, "Climate Change and International Water Conflict in Central Asia," *Journal of Peace Research*, Vol. 49, No. 1, January 2012, pp. 227-239.

[9] See: S. Peyrouse, "Flowing Downstream: The Sino-Kazakh Water Dispute," *China Brief*, Vol. 7, Issue 10, 2007.

[10] See: J. Allouche, "The Governance of Central Asian Waters: National Interests Versus Regional Cooperation," *Disarmament Forum*, available at [https://www.peacepalacelibrary.nl/ebooks/files/UNIDIR_pdf-art2687.pdf], 2007.

Map

Study Area in the Irrigated Lowlands of the Amu Darya and Syr Darya Rivers

Источник: [http://www.cawater-info.net/projects/lavacca_e.htm].

2. The territorial integrity approach emphasizes the right of each nation to enjoy its sovereignty and not to be subject to the predation by other states. This requires an upstream riparian state to consult with downstream states to a certain extent; that effectively requires their permission to extract or change the quality of water.

   These two approaches are extreme ones in that they grossly favor either upper- or lower-riparian states, but are alike in that they may be seen to suit a realistic view of irreconcilable interstate competition. To that extent, a regional/world order dictated by a hegemonic state that is able and willing to disregard the views and needs of its neighbors drives the second approach.

3. The Equitable Utilization approach is based on the concept of equal rights for each riparian state. This does not mean that each must have an equal share. It is based on Karl Marx's principles which states: "From each according to his ability, to each according to his needs." The principle of equitable utilization is relatively simple to apply to an aspect of utilization such as navigation rights, because every nation can enjoy the full freedom of navigation rights without affecting another's rights until such time that the volume of traffic becomes unsustainable. Therefore, far more intensive negotiations are required to satisfy Art 5 of the U.N. Watercourses Convention[11].

4. The approach that entails common management of watercourses aims for equitable utilization through long-term engagement of all interested parties. It is often difficult to fulfill the need to transcend nationalism and sovereignty issues, therefore, this approach proves suitable in the context of the neo-liberal theory of international relations. It highlights the fact that nations need to cooperate with each other in terms of complex interdependence.[12] The neo-liberal concept examines the ways in which interstate relations are formed through negotiations and interactions at various levels that may spin-off other benefits that are typified by the liberal approach to interstate relations.[13]

Clearly an analysis of all four approaches makes it evident that cooperation is a compulsion for the CARs in the long term. If the CARs aim to promote their interests related to water and energy resources they have to come together and focus on multilateral arrangements rather than bilateral ones.

Soviet Period

During the Soviet Union period, Central Asia was oriented towards the larger-scale needs of the then-existing Soviet economy because the country was aware of the geostrategic and geopolitical importance of the region. At that time, water management was highly centralized[14]. The agricultural sector was considered the backbone of the economy. Each republic specialized in the produc-

[11] "Art 5 of the U.N. Watercourses Convention seeks to achieve 'optimal and sustainable utilization' across the broad range of factors under Art 6; these include population dependency, social and economic needs of the state and the availability and cost of alternative sources," see: [https://www.iucn.org/sites/dev/files/un_watercourses_convention_-_users_guide.pdf], 2012.

[12] Complex Interdependence is a theory which stresses the complex ways in which as a result of growing ties, the transnational actors become mutually dependent, vulnerable to each other's actions and sensitive to each other's needs. Complex Interdependence is defined as: "An economic transnational concept that assumes that states are not the only important actors, social welfare issues share center stage with security issues on the global agenda, and cooperation is as dominant a characteristic of international politics as conflict," available at [https://pdfs.semanticscholar.org/6149/df52c27a3fd2e175e8e8556e0bea89405aaa.pdf], 2 February, 2015.

[13] See: Wing Commander David I. Stewart raf, "Water Conflict in Central Asia—Is There Potential for the Desiccation of the Aral Sea or Competition for the Waters of Kazakhstan's Cross-Border Ili and Irtysh Rivers to Bring about Conflict; and Should the UK be Concerned?" *Defence Studies*, Vol. 14, Issue 1, 2014.

[14] See: J. Allouche, "Géopolitique de l'eau en Asie centrale : de la colonisation russe à la conférence internationale d'aide à l'Afghanistan (1865-2002)," *CEMOTI, La question de l'enclavementen Asie centrale*, Vol. 35, 2003, pp. 123-154.

tion of specific commodities. Accordingly, the agricultural sector in the region was modernized to increase the output of these commodities. Moreover, an increase in agricultural production was based primarily to increase the arable land area and the amount of water used for irrigation. The area of arable land increased due to irrigation facilities, and since 1950 the acreage of irrigated land has almost tripled. The number of irrigation canals and the amount of water drawn from rivers for irrigation increased substantially, although many of the irrigation systems were poorly designed, with much water wastage.

The Soviet leadership attempted to modernize agricultural production in the region through hydropower generation projects, which aimed at self-sufficiency in food resources. As a result, the infusion of technology into the region transformed it and also focused on the other regional resources, namely oil, water, and gas, that remained untapped. The Soviets focused on the expansion of arable land to enhance agricultural output, generate electricity through hydropower resources and build massive hydraulic projects throughout Central Asia. Records show that over 1,200 dams were built during the Soviet era. For instance, among them is the Nurek Dam, which is the second largest dam in the world. As a result of modernization, Central Asia was transformed from a land of poverty to a prosperous area through the use of agricultural irrigation. Further developments resulted in diversion of the Syr Darya and the Amu Darya, which flowed in this territory and fed the Aral Sea.

Moreover, massive amounts of freshwater from glaciers in the Tajikistan and Kyrgyz Republic mountain ranges were diverted downstream to Uzbekistan, Kazakhstan, and Turkmenistan. In the Soviet period, dams that were located in the basins of transboundary rivers were used for hydropower generation, which resulted in an integrated Soviet structure for allocation of energy resources.[15] This approach towards regional water resource management had inevitably paved the path towards irreversible environmental damage.

Almaty Agreement 1992

Since 1991, water has emerged as a major cause of dispute among CARs. Due to the absence of a central planner to solve this dispute, all the newly independent CARs were compelled to conclude voluntary cooperative agreements because they did not want to jeopardize agricultural irrigation in the process of political transition. Therefore, the five CARs hurriedly signed the Almaty Agreement in 1992 only a few weeks after the disintegration of the Soviet Union. The objective of the agreement is to cooperate in regard to joint water resource management and conservation of interstate sources of river water. Highlights of the agreement are as follows:

1. The necessity of the approved and organized solution of the problems of joint management of water of interstate river water sources, and further pursuance of agreed policy of economic development and raising the peoples' standard of living;
2. Equal rights and responsibility for providing rational use and protection of water resources;
3. Joint use of water resources on the basis of common principles for the whole region and equitable regulation of their consumption.

While this agreement enabled the CARs to agree on the joint management and ownership of regional water resources, these states individually retained their sovereign control over industrial goods, electric power, and crops.[16]

[15] See: "Central Asia: Border Disputes and Conflict," International Crisis Group, 2002, p. 8.

[16] *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 on Utilization and Protection of Water Re-*

As signatories to the Almaty Agreement, the CARs had chosen to retain the Soviet allocations, which meant that most of the region's water resources were allocated to downstream states. However, this would leave the upstream countries with bare minimum access to the water generated in their territory. Moreover, the 1992 Almaty Agreement made no provision for Afghanistan in spite of the fact that around 6% of the flow within the Aral Sea Basin was generated in its territory. After the Agreement had been signed, Kazakhstan, Uzbekistan, and Turkmenistan realized that their allocation of water was not appropriate for the future planned expansions in agriculture. Kyrgyzstan argued that not only was it denied fair access to water that flows from its territory, but it was also expected to pay for the maintenance of reservoirs and dams that controlled the flow of the Syr Darya. Meanwhile, the downstream countries, especially Uzbekistan, reaped the benefits.[17]

Limitations of the 1992 Almaty Agreement

The only joint agreement that all five countries signed is the 1992 Almaty Agreement. There are a lot of discussions on its present status. The key issue is how the upstream countries have been denied their fair share in the resource distribution of river waters. Now they have been increasing their domestic water use and reduced the amount sent to the downstream countries. There is a crucial need to update this five-country agreement, especially as it has the potential to ensure the maintenance of regional stability. Another important factor in play is climate change: the region's main glaciers are shrinking, decreasing the overall water supply to the region. These factors highlight the need for the CARs to acknowledge the need to maintain existing water levels to ensure their future requirements.

Despite the 1992 Almaty Agreement, the CARs still face tension over river water management. The key areas of tension among the CARs are listed below.

1. Lack of coherent water management
2. Failure to abide by or adapt water quotas
3. Non-implemented and untimely barter agreements and payments
4. Uncertainty over future infrastructure plans
5. There is no representation of agricultural or industrial consumers, non-governmental organizations or other parties[18].

The agreement further reinstated the need for cooperation. But this agreement, as well as the annual agreements for release of water in exchange for fossil fuels and electricity, had proven to be ineffective. It could not arrest the increasing orientation towards power production through the Toktogul operation.[19] The fact, however, is that rising nationalism and competition over water resources in the parched Central Asia has impeded the development of a regional alternative to the Soviet-era water management system. The old system survived because of the strong central authority of the former U.S.S.R. Now the three lower but militarily powerful riparian states—Uzbekistan, Kazakh-

sources from Interstate Sources, available at [http://www.icwc-aral.uz/statute1.htm], 18 February, 1992.

[17] See: B. Janusz-Pawletta, M. Gubaidullina, "Transboundary Water Management in Central Asia," *Cahiers d'Asie centrale*, Vol. 25, 2015, available at [http://journals.openedition.org/asiecentrale/3180], 2015.

[18] See: "Central Asia: Border Disputes and Conflict," p. 8.

[19] "The Toktogul Dam in Kyrgyzstan was built on the Naryn River (tributary of the Syr Darya) during the 1970s as a central piece of the Soviet Union's efforts to conquer nature in its drive to modernize Central Asia; and served to control the inter-annual variability of water resources and to ensure that there would always be sufficient water for irrigation. The Toktogul dam became fully operational in the late 1980s. It is one component of a cascade of five hydroelectric stations downstream, which all together produce 90% of Kyrgyzstan's power. As the dam regulates transboundary water flows, it has caused several frictions among Central Asian countries," see: [https://ejatlas.org/conflict/toktogul-dam-kyrgyzistan].

stan, and Turkmenistan—wield the threat of force against the small and weak Kyrgyzstan and Tajikistan, which are the sources of the Syr Darya and the Amu Darya, respectively.

Long-Term Framework Agreement

In March 1998, three CARs, namely Kazakhstan, Kyrgyzstan and Uzbekistan, entered into a Long-Term Framework Agreement (LTFA), which recognized explicitly that the year-on year irrigation water storage had a cost that needed to be compensated, either in cash or through a barter exchange of fossil fuels and electricity. But, generally, the supply of fossil fuels fell short of the agreed quantities and quality of water among the CARs. For instance, Kyrgyzstan was compelled to increase the discharge of water in winter as the downstream riparian states received lower levels of water flows because the source glaciers remain frozen. Whereas during the monsoons, the downstream states did not require the agreed volumes of water compared to the summer discharge levels. As a result, this affected the export of electricity and the commensurate quantities of fossil fuels, which was transferred from Uzbekistan and Kazakhstan to Kyrgyzstan. The latter was exposed to a severe risk in meeting the winter demand for power and heating. To reduce this risk, Kyrgyzstan reduced summer releases to 45% on an average of the annual discharge and there was an increase to 55% in the winter releases during the 1990s.[20]

Importantly, conflicts among the CARs arose not in relation to water allocation, but in relation to the shift from operating the Toktogul reservoir for downstream irrigation in the summer months to winter releases in order to increase the availability of energy upstream (hydropower). The barter of water for energy production did not change the regional allocation of water, only the timing of releases. In addition, Kyrgyzstan began to demand payment from the downstream states—Kazakhstan and Uzbekistan—for the use of water from its reservoirs. However, pressure from the United States Agency for International Development (USAID) resulted in the establishment of a barter agreement.[21]

Failure of Long-Term Framework Agreement

Regional cooperation efforts deteriorated further when the countries failed to conclude annual agreements in 2003 and 2004. To some extent, this can be attributed to above-average precipitation in those years, but more fundamentally, the collapse of the agreement system was due to a change in Uzbekistan's position on a decisive unilateral stance. It has been expressed most explicitly in the decision to construct a series of re-regulating reservoirs. Uzbekistan is currently proceeding with the design of new water storage capacity of the Karamansay reservoir (0.69 BCM), as well as the construction of the Razaksay (0.65-0.75 BCM) and Kangkulsay (0.3 BCM) reservoirs. These facilities together with the natural reservoir in the Arnasai depression (0.8 BCM) will provide an additional storage with the volume of approximately 2.5 BCM.[22]

The impact of Uzbekistan's decision has been substantial for Kyrgyzstan and Kazakhstan. The Kyrgyz challenge is that even when conducted in the non-cooperative 'power mode,' production is

[20] See: *Water Energy Nexus in Central Asia—Improving Regional Cooperation in the Syr Darya Basin*, Europe and Central Asia Region, The World Bank, Washington D.C., available at [http://siteresources.worldbank.org/INTUZBEKISTAN/Resources/Water_Energy_Nexus_final.pdf], January 2014.

[21] On 17 March, 1998, the governments of Kazakhstan, Kyrgyzstan, and Uzbekistan adopted an interstate agreement on use of water and energy resources of the Syr Darya river basin.

[22] See: K. Abbink, L.Ch. Moller, S. O'Hara, "The Syr Darya River Conflict: An Experimental Case Study," University of Nottingham, available at [https://www.econstor.eu/bitstream/10419/67965/1/49675923X.pdf], 2005.

insufficient to cover domestic winter electricity demand. In the absence of a regional agreement, the Kyrgyz government must aim to cover this deficit through a combination of domestic reforms and construction of new power-generating facilities—both of which represent daunting challenges. Kazakhstan, which had otherwise pursued a cooperative strategy towards Kyrgyzstan, has had to come to terms with the fact that this strategy ultimately depended on Uzbek willingness to cooperate. Since the latter was not upcoming, Kazakhstan has shown a renewed interest in the construction of re-regulating reservoirs in its own territory. Plans exist to construct a 3 BCM reservoir (Koksarai) near Shymkent at a cost of $200 million, although no final political decision has been made to initiate construction.[23]

The fundamental problem for the interstate agreements has been one of trust. Short of military action there are no other means to enforce a contract between sovereign republics which are generally suspicious of each other. If Kyrgyzstan discharges additional water in summer, it must trust the downstream riparian states to deliver fossil fuels in winter, otherwise it will face a severe problem of not being able to meet its energy demand in the subsequent winter.[24]

National Water Policies: Implication for Water Conflict

After collapse of the U.S.S.R., most of the CARs would like to expand the acreage of irrigated land in their territories. Tajikistan has increased its irrigated area by 200,000 hectares, and it intends to expand this area further. Both upstream states in Central Asia are more concerned with increasing their hydropower capacity. At the opening of the Second South Asian Electricity Trade Conference in 2006, the Tajik president recalled that the total capacity of the functioning of hydroelectric power plants in Tajikistan amounted to a meager 3.2% of the hydro energy resources and stated that this share should be increased. The Tajik government relaunched the Soviet hydroplant projects on the Vakhsh River at Sangtuda and Rogun. The Rogun plant started in the 1980s, but stopped when the Tajik civil war started. Massive floods in 1993 subsequently destroyed most of what was already built.

Earlier Uzbekistan had objected to the construction of the Rogun dam, particularly the final stage 335 meters high, as it claims it would give Tajikistan control of the flow of water to Uzbekistan's Qashqadaryo and Surxondaryo provinces. The first two stages of the project will deny Tajikistan full control of the river as live storage will be below 40% of the mean annual flow and the Vakhsh River comprises only 25% of total Amu Darya flow. According to Reuters, on 9 March, 2018, Uzbekistan withdrew its objections to the construction of the world's tallest dam in Tajikistan on the river shared by the two CARs, as their presidents indicated after a meeting. Tajik leader Imomali Rakhmon told reporters after meeting Mirziyoyev: "We share the view that the existing hydropower facilities and those under construction will help resolve the region's water and power issues. In this regard, we welcome Uzbekistan's support for the development of hydropower facilities in Tajikistan, including Rogun." Mirziyoyev, in turn, said Uzbekistan would seek to boost the share of hydropower in its consumption by purchasing it from Tajikistan. "We will never leave our neighbors without water," Rakhmon reassured him.

Importantly, the land and water rights are also a point of concern in relations with its neighbors for Tajikistan. There have been several low-level disputes on the Kyrgyz-Tajik border, specifically in the Tajik enclave of Vorukh in Kyrgyzstan and Ferghana Valley. The tensions were thought to have been resolved after low-level talks and the June 2001 agreement between the Kyrgyz province of Batken and Tajik province of Sughd. In 2003, however, many incidents were reported on the border, and the Vorukh enclave still seems to be the point of discord for both governments.

[23] See: Personal communication with Leonid Dmitriev, Kazgiprovodhoz, Almaty, 15 December, 2004.

[24] See: K. Abbink, L.Ch. Moller, S. O'hara, op. cit.

Kyrgyzstan's condition is more critical, at least in the relation with downstream states. Control of the strategic water infrastructure is an essential stake in its relations with the downstream states. According to media reports, in 1996, Uzbekistan threatened to resort to military force to seize the Toktogul reservoir and dam on the Kyrgyz section of Syr Darya if Kyrgyzstan attempted to alter the existing distribution policy. The Kyrgyz government would like to increase its hydropower generating capacity with the Toktogul II project. However, the downstream countries object, since they believe that Kyrgyzstan already releases too much water from the current dam during the winter period and not enough during the summer (cotton fields in Uzbekistan and Kazakhstan were flooded in the winters of 1993, 1998 and 2001). In 2001, an official meeting on water allocation was held, but no agreement was reached.

Like Tajikistan, Kyrgyzstan also wishes to expand irrigation, with possible increases in intake from the transboundary rivers in the Chu, Dzhalal-Abad and Osh provinces. This project has not yet been criticized by downstream countries, as the hydropower project remains their primary preoccupation. In fact, there has been some cooperation: in yet another new institutional arrangement, Kyrgyzstan and Kazakhstan have formed a Commission for the Chu and Talas Rivers, aimed at discussing better usage of transborder water resources.[25]

For Turkmenistan, the main objective is to ensure food security. The government formulated plans to irrigate 450,000 hectares through recycling runoff and drainage water. However, rapid population explosion in Turkmenistan (over 10% since 2000) resulted in increased use of water due to irresponsible usage, to the extent that Turkmenistan currently figures as the most inefficient user of water in the world, with its citizens and businesses using 13 times as much water per capita as the U.S. The other countries in the region are not far behind.[26]

Turkmenistan's relations with Uzbekistan are tense over water usage as both countries depend heavily on agriculture through irrigation and both rely entirely on the Amu Darya for this purpose. There have been persistent reports of Uzbekistan troops taking control of water installations on the Turkmen bank of the river by force, as well as military tensions along the Lebap-Bukhara border. Though these reports are not substantiated, they are indicative of the simmering tensions between the two states. The two countries have routinely engaged in mutual accusations of overuse and misuse of water supply. Tensions have been intensified by the complicated personal relationship between the Uzbekistan and Turkmenistan presidents.

Importantly, in July 2009, the President of Turkmenistan Gurbanguly Berdymukhamedov officially opened the construction of Altyn Asyr (Golden Age), an artificial lake created to solve some of the country's irrigation problems. It also heightened tensions among the CARs. Many reports suggest that it has the potential for an environment disaster in the future.[27]

Uzbekistan is the second largest cotton exporter in the world, selling more than 800,000 metric tons annually. Cotton, therefore, is the key source of hard currency for the Uzbek government and an essential component of state control over its population as the land tenure and cotton sales are very tightly managed by the quasi state or state bodies.[28] To ensure production, the Uzbek government would like to develop more irrigated areas to produce food surplus for export to neighboring states. For this purpose, Uzbekistan is trying to build more canals that would adversely impact the environmental situation.

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[25] See: "Central Asian Summit to Focus on Water Resources," RIA Novosti, 28 August, 2006; "Reviving CIS," *Times of Central Asia*, 24 August, 2006.

[26] See: P. Goble, "Water Conflicts Now More Explosive Than Ethnic Or Territorial Ones in Central Asia—OpEd," *Eurasia Review*, available at [https://www.eurasiareview.com/29092018-water-conflicts-now-more-explosive-than-ethnic-or-territorial-ones-in-central-asia-oped/], 29 September, 2018.

[27] See: Z. Baizakova, "Turkmenistan's 'Golden Age' Lake: A Potential Environmental Disaster," *The Foreign Military Studies Office (FMSO),* available at [https://aquadoc.typepad.com/files/report_golden_age_lake.pdf].

[28] See: "The Curse of Cotton: Central Asia's Destructive Monoculture," *ICG Asia Report,* No. 93, 2005.

In the case of Kazakhstan, it has conflicting relations over use of water with Uzbekistan. Kazakhstan has accused Uzbekistan of controlling the river's flow arbitrarily, which periodically affects agriculture in southern Kazakhstan. Thus, water rights and border issues are another area of concern. The demarcation of this border is unclear, and as reported by the International Crisis Group, "The border issue is of specific concern for Kazakhstan as the southern provinces are among the most heavily populated areas of this country and disagreements about arable lands, water and pastures in this area came at a time when the social tensions were already palpable due to high unemployment, economic recession and declining living standards."[29]

Regional Politics: Role of Funding Agencies

Water tensions among Central Asian states have adversely affected regional relations. After the collapse of the U.S.S.R., three Central Asian leaders left the Communist Party and continued the top-down governance model used during the Soviet era. The Constitution of Kyrgyzstan had established a parliamentary form of democracy. However, it has yet to be seen how effective these efforts will be in the future. Importantly, three republics—Kyrgyzstan, Kazakhstan, and Uzbekistan each have constitutions which state that water is a state resource. Moreover, the downstream countries have claimed that international rivers should be a common resource that all countries need to share. This illustrates the problem of whether or not water is a public good. Another element to this debate is whether to use domestic or international water law in order to find a resolution of the regional dispute. Various water agreements have been broken due to the reasons mentioned above. As these countries pursue often conflicting sovereign interests, the incentive to uphold any agreement remains weak. Moreover, lack of funding and enforcement mechanisms within the agreements further weakens their effectiveness.[30]

Two important institutions of cooperation, the Interstate Commission for Water Coordination (ICWC) and International Fund for Saving the Aral Sea (IFAS),[31] have been limited in their effectiveness in part because of the rivalry and conflict over the staffing patterns and questions that were biased towards Uzbekistan. There have been suspicions that because officials from Uzbekistan were heavily represented, these organizations favored its national interests. The dialog is thus hindered due to mistrust and competition. Further cooperation problems have been exacerbated by retaliatory actions, i.e., when Kyrgyzstan suddenly stopped water supplies to Kazakhstan from the Kirov reservoir in April 2010. Almost 80% of its total capacity is used by Kazakhstan for agricultural purposes alone. In June 2010, Uzbekistan reduced the passage of water from Kyrgyzstan to Kazakhstan in the cross-border Dostyk channel.[32]

As far as donor agencies are concerned, the World Bank has initiated a comprehensive Central Asia Water & Energy Program (CAWEP) in the region in 2009, which aims to improve support to manage their water and energy resources. The CAWEP also aims to coordinate and leverage the contributions of other development partners, to provide critical technical support as well as financial resources for the program. Several development partners are currently involved in Central Asia, in both water and energy, including the Asian Development Bank (ADB), the Islamic Development

[29] "Central Asia: Border Disputes and Conflict," p. 8.

[30] See: D. Castillo, L.M. Izquierdo, G. Jimenez, M. Stangerhaugen, R. Nixon, "Water Crisis in Central Asia: Key Challenges and Opportunities," *Graduate Program in International Affairs / New School University,* December 2010.

[31] The basic institutional structure of the water management system in the Aral Sea Basin would appear to be organized around two principal agencies. The ICWC is the technical authority, regulating and supervising the allocation of water resources and related infrastructure. The IFAS is the political authority that guides and sanctions the work of the ICWC via principles and policies agreed upon by the member states," see: [https://www.waterunites-ca.org/themes/17-ifas-organizational-structure.html].

[32] See: D. Castillo, L.M. Izquierdo, G. Jimenez, M. Stangerhaugen, R. Nixon, op. cit.

Bank (IsDB), the European Commission (EC), Eurasian Development Bank, UNDP, UNECE, Germany (GTZ), Switzerland (SECO), U.K. (DFID), the U.S. (USAID), and the Aga Khan Foundation.[33]

The World Bank is discussing the CAEWDP with these and other potential partners in an effort to establish a multi-donor trust fund to support the core elements of the program. This partnership will build on the current joint energy activities, such as co-chairing with the Asian Development Bank (ADB) in the implementation of the Energy Action Plan of the Central Asia Regional Economic Cooperation Energy Sector Coordinating Committee for Central Asia. The World Bank is also partnering with a broad group of donors to support the work of the IFAS, coordinating the multilateral development banks' climate adaptation program for Tajikistan and a Regional Hydrometeorology Program across the region.

Some of the important results from the CAWEP include:

1. More than 13,000 farmers in Uzbekistan and Tajikistan were able to implement climate-smart solutions and improve their crop production with the support of the Climate Change Adaptation and Mitigation project in the Aral Sea Basin.
2. 87 weather stations and 19 river stations have been rehabilitated in Kyrgyzstan and Tajikistan, improving the accuracy of weather forecasting in these countries by up to 30% under the Central Asia Hydrometeorology Modernization project.
3. In Tajikistan, CAWEP helped to design the Nurek Rehabilitation project. Operational at only 77%, the Nurek Hydropower plant will undergo a major rehabilitation and increase winter power generation by 33 million kWh.
4. The Central Asia Youth for Water Network was established, which now connects students and practitioners from around the world, helping researchers to find solutions to the most pressing issues in their countries[34].

Recently, on 23 May, 2019, The European Union and the World Bank signed an agreement for a new €7 million grant to support water and energy security in Central Asia. The funding will contribute to the Central Asia Water & Energy Program. Along with the European Union, the Program is also supported by Switzerland and the United Kingdom's Department for International Development.

Although numerous agencies are active in the region, i.e., ADB, the World Bank, the U.S. Agency for International Development, the Canadian International Development Agency (CIDA) and the Swiss Development Commission, most of them, unfortunately, are in a transition period. Their objectives and principles as donor agencies are not very effective due to the lack of coordination and uniform approaches.

Upstream-Downstream Priorities

The current methodology of water allocation, based on the Soviet era rules, has not taken into account the emerging priorities of the independent CARs. For instance, Tajikistan and Kyrgyzstan often claim that the old rules of water allocation have limited the development of irrigation on their land, and that a reassessment of their future water allocation needs is required. The downstream countries complain that poor water quality in the lower and middle reaches of the Basins reduces agricultural production and also damages public health. Therefore, this merits re-mediation of the

[33] See: "Central Asia Energy—Water Development Program," available at [http://web.worldbank.org/archive/website01419/WEB/0__CO-12.HTM], 14 October, 2019

[34] Ibidem.

problem. Additionally, the growing water demands of Afghanistan may cause new tensions in the system of allocation of water. Today agriculture and energy sector policies of Central Asian governments have a huge impact on water management in the region, however, there is a lack of any effective and tangible mechanisms to coordinate the inter-sectoral issue within most CARs. To that extent not only are domestic inter-agency channels necessary in the CARs, but a similar regional mechanism also has to be established to ensure peace and prosperity.

Financing Regional Water Management Projects

Several regional water management projects have been proposed for consideration for joint financing by governments of Central Asia. These include the Kambarata I and II dams in Kyrgyzstan, which is unable to finance this project alone and has proposed a regional consortium for joint financing. Also Kazakhstan has expressed an interest in participating in the consortium if the conditions are favorable. After joining the consortium, Kazakhstan will change its water management position and try to resolve the problem with the uppermost countries taking the interests of the downstream and upstream countries into account. This will enable it to exert control over the decisions of water management. Kazakhstan and Kyrgyzstan are both interested in involving Uzbekistan in the Kambarata consortium, but the direct benefits of being a part of the consortium for Uzbekistan are not as clear as those for Kazakhstan. On 23 November, 2017, Sapar Isakov, the Kyrgyz Prime Minister, announced that Uzbekistan intends to help build the Kambarata I hydropower power project on the Naryn River in the northern part of the Kyrgyz Republic.

Decisions regarding the investments in major water management systems affect the entire regional regime of water management and should be made with full participation of all the affected countries; otherwise it will undermine the trust and basis for cooperation in the regional sphere. Future management regimes adopted for the Amu Darya and Syr Darya must be based on a comprehensive evaluation of the options which include the upgrading of existing physical infrastructure and improved water management by the riparian states across the Basin[35].

Conclusion

Conflicts among the Central Asia republics over water are far more explosive than even conflicts among different ethnic groups or territorial disputes. Since 1998, none of new agreements on water have even reached the heads of state for signature, and none are currently under development. Askar Muminov, an eminent author, writes in Kazakhstan's *Central Asia Monitor* that the situation will lead to a major war among two or more regional countries within this century. At present, the regional states have been unable to come up with anything similar to the arrangement of Soviet times, ~~when the two water surplus republics provided~~ water ~~to the downstream ones in the summer in exchange for a reverse flow of energy in the winter~~.[36]

It is high time that all the countries negotiate with each other, since there are no longer any other options. Rafael Sattarov, a Kazakh political analyst, agrees, but is pessimistic about the prospects of an agreement anytime soon. At present, he says, talks are effectively frozen; and despite

[35] See: "Uzbek Interest Announced in Kambarata1 Project", *The Economist*, available at [http://country.eiu.com/article.aspx?articleid=756165059&Country=Kyrgyz%20Republic&topic=Economy&subtopic=Forecast&subsubtopic=Policy+trends&u=1&pid=1146175298&oid=1146175298&uid=1], 27 November, 2017.

[36] See: P. Goble, op. cit.

hopes and expectations, regime changes in some of these countries have failed to break the deadlock.[37]

However, a high level of political will is needed to achieve such cooperative water resource management, and that is the will that seems to be lacking in the Central Asian region. Government officials of Uzbekistan and Turkmenistan have often demonstrated a desire to handle water management systems and several other regional issues solely through development of bilateral agreements and arrangements. Yet a consensus is needed among the Central Asian presidents and high-level advisors for regional cooperation that can lead to increased stability, benefits, and security for each country. Regional development assistance can demonstrate the mutual economic advantages that can be derived from a multi-sectoral approach to the regional cooperation in the management of water resources. A new regional water-related cooperation paradigm is needed in Central Asia. Managers of the water sectors cannot solve issues of regional cooperation alone. It is the political leaders in the CARs who need to initiate such an approach, otherwise the industries involved will not be able to participate.

The preceding water management rules were based on the priority of irrigated agriculture and did not conform to the present power generation needs of the upstream states, namely Tajikistan and Kyrgyzstan. Attempts to resolve the problem on the basis of interstate energy barter has been moderately successful, despite the fulfillment of annual barter agreements. Renewed efforts are needed to prepare annual agreements in a stipulated timely manner; include compensation for storage services as well as flow regulation; develop multi-year schedules for compensation and gradually depart from the barter system to a monetized exchange among states.

Suitable and enhanced technology is essential in increasing agricultural production. But this does not promote or address regional cooperation, rather, by and large, a drop of water saved by the four Aral Sea Basin nations is viewed as one more drop for the expansion of agricultural production, rather than for draining it into the Aral Sea. Irrigation efficiency improvements in the upstream areas will not necessarily result in greater water flow to the Aral Sea, instead, the saved water would be diverted to the newly irrigated areas. In several cases, improvements in efficiency can generate significant economic advantages for participating nations through a regional approach to water resource management. The Central Asian states of Tajikistan, Kazakhstan, and Kyrgyzstan had expressed a strong desire to create new agreements that would satisfy the international norms on water sharing. But there is reluctance on the part of major riparian CARs (Uzbekistan and Turkmenistan) to discuss this issue.

Also, international donor agencies should try to promote a consensus at the Presidential or Prime Ministerial level over the principles of regional cooperation. In the Syr Darya Basin, Tajikistan, Kazakhstan and Kyrgyzstan already understand this approach, but only Uzbekistan remains unconvinced regarding the matter. In the Amu Darya Basin, the increased downstream water pressures in Uzbekistan and Turkmenistan, due to the upstream Afghan water diversions, may convince the countries to confront this problem with the required political will. The coordination between donors is desperately required in the Central Asian regional management activities related to river water. Though donor coordination cannot occur in the absence of government representatives, there is a dire need for a donor-led mechanism for information exchange and coordination.

[37] See: P. Goble, op. cit.