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EDITED BY
Mara Tignino,
University of Geneva, Switzerland

REVIEWED BY
Christina Leb,
World Bank Group, United States
Stefano Burchi,
International Association for Water Law (AIDA), Italy

*CORRESPONDENCE
Dinara Ziganshina
✉ dinara.ziganshina@gmail.com

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Water infrastructure in Central Asia: legal and institutional frameworks

Dinara Ziganshina[1,2]*

[1]Scientific Information Center of Interstate Commission for Water Coordination in Central Asia, Tashkent, Uzbekistan, [2]Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Tashkent, Uzbekistan

This article examines existing arrangements for the operation, maintenance and construction of water infrastructure of interstate use in Central Asia. The Central Asian countries take diverse approaches to joint management of key water infrastructure of interstate use, with some country owned facilities operated by regional organizations, some owned and operated by the country of location with operation and maintenance cost shared with another country and others owned, operated and funded by the country other than country of location. This diversity is due to the need to accommodate to new political, socio-economic and technical circumstances after gaining independence in 1992. The findings suggest that achievements on coordinated management of water infrastructure largely built in the Soviet time should be further strengthened in terms of better financial and technical mechanisms. It is also important to agree on region-specific provisions on prior notification procedures in cases of proposed use on transboundary rivers that might have a transboundary impact and on the joint and mutually beneficial construction of new facilities of interstate use.

KEYWORDS

water infrastructure, Central Asia, international law, transboundary waters, joint operation and management

1 Introduction

The water infrastructure of Central Asia consists of hundreds of reservoirs, dams, pumping stations, irrigation and drainage networks, canals and hydroelectric facilities, which are located on or use water from transboundary rivers. Some of this infrastructure is unique, such as the world's highest rockfill Nurek dam (300 meters) on the Vakhsh river in Tajikistan; the Karakum canal (1100 km) supplying water from the Amudarya to Turkmenistan is among the world's longest canals; the Karshi canal and cascade of pumping stations with the world's highest water lifting height located in Turkmenistan and Uzbekistan; as well as the extensive irrigation and drainage network for one of the largest irrigation project in the Hunger Steppe in Kazakhstan, Tajikistan and Uzbekistan (Dukhovny and de Schutter, 2011).

Since the existing water infrastructure was mostly constructed in the Soviet time, after gaining their independence in 1992 the Central Asian countries had to negotiate the new ownership rights on water infrastructure of interstate use and rearrange the conditions of their joint or coordinated operation and maintenance. The resultant arrangements contribute to the overall cooperative framework established by the countries to peacefully manage transboundary waters in the region.

This paper will explore the existing multilateral and bilateral arrangements related to the joint or coordinated management of water infrastructure in Central Asia. It will start

with a multilateral agreement that was reached in 1992 with respect to joint management of shared water resources and the operation of river basin organizations. Then, it will turn to bilateral agreements on the shared operation of water infrastructure in the lowlands of the Amudarya between Turkmenistan and Uzbekistan and on the Chu and Talas rivers between Kazakhstan and Kyrgyzstan as well as recent facility-specific arrangements on the Orto-Tokoy/Kasansai reservoir and the Andijan/Kempirabad reservoir between Kyrgyzstan and Uzbekistan and the Farkhad dam between Tajikistan and Uzbekistan. In the next section, the paper will explore the state practice of the Central Asian countries with respect to proposed water infrastructure projects that might have a transboundary impact. It will describe recent plans for joint construction and operation of hydropower projects in the Zarafshan river between Tajikistan and Uzbekistan as well as a trilateral arrangement between Kazakhstan, Kyrgyzstan and Uzbekistan on the Kambarata-1 HPP in the Naryn. Finally, the paper will draw lessons from the countries' experiences and propose ways for further improvement.

2 Multilateral arrangements on water infrastructure in Central Asia

In 1992, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan signed an agreement on cooperation in joint management on utilization and protection of water resources from interstate sources and established the Interstate Commission for Water Coordination in Central Asia (ICWC or Commission) to work collectively on transboundary water management (Almaty, 1992).

Two separate basin water organizations (BWO) for the Amudarya and Syrdarya were appointed as executive bodies of the Commission. Key water infrastructure of interstate significance has been transferred to BWOs for joint operation under the conditions of provisional use, preserving the ownership rights of respective countries for facilities located on their territories.

BWO Amudarya operates and maintains 84 hydraulic structures (of which 36 head river water intakes), 169 gauging stations and 386 km of interstate canals transferred to its balance sheet by Tajikistan, Turkmenistan and Uzbekistan. Also, it controls water distribution by the Dangara facility on the Vakhsh and the Karakum canal and the Tuyamuyun facility on the Amudarya, which are operated and maintained by the respective riparian countries. Four territorial units of BWO Amudarya were established to operate and maintain water intake facilities and interstate canals along river reaches - Upper Darya Administration in Kurgan-Tyube, Tajikistan (eight water intakes), Middle Darya Administration in Turkmenabad, Turkmenistan (nine water intakes), Amudarya Inter-Republican Channels Administration in Urgench, Uzbekistan (11 river water intakes, 52 hydraulic structures on main canals), and Lower Darya Administration in Takhiatash, Karakalpakstan (Takhiatash facility and number of water intakes from the river and canals).

BWO Syrdarya operates and maintains 198 hydraulic structures out of which 21 are located on the main channels of the Naryn, Syrdaya, Karadarya and Chirchik rivers, including among others Uchkurgan waterwork on the Naryn, Kuyganyar waterwork on the Karadarya, Verkhnechirchikskiy waterwork on the Chirchik river, Dustlik canal, and the head of Big Fergana canal. Under the BWO Syrdarya's mandate are also 165 km of collector and drainage networks, 250 vehicles and machinery as well as 3200 hectares of water protection zone. The organizational structure of the BWO Syrdarya includes: Gulistan mobile mechanized column, Gulistan self-supporting transport enterprise, Auxiliary farm in Gulistan (Uzbekistan), Uchkurgan mobile mechanized column in Uchkurgan (Uzbekistan), the Hunger Steppe Department of Hydroelectric Complexes and the "Dustlik" Canal in Gulistan, the Narsh-Karadarya Department of Hydroelectric Complexes and Canals in Andijan (Uzbekistan), the Upper Chirchik Department of Hydroelectric Complexes in Chirchik (Uzbekistan), the Department of the Charvak Reservoir in Charvak (Uzbekistan) and the Department of the Toktogul Reservoir in Tashkumyr (Kyrgyzstan).

The Central Asian countries committed to finance the activities of BWOs, including the operation and maintenance of infrastructure, on a shared basis (Almaty, 1992). As a rule, the riparian countries allocate funds for the operation and maintenance of the water infrastructure of interstate significance located on their respective territories. Being the largest water user in the region, Uzbekistan pays the largest share for operation, maintenance and reconstruction works. The funds are disbursed regularly but they are not enough to keep up with the rapidly aging infrastructure reconstruction and modernization needs.

3 Bilateral arrangements on water infrastructure in Central Asia

The Central Asia countries also achieved some progress in co-managing and co-sharing the water infrastructure of interstate significance on a bilateral basis. This section will review the most prominent examples of cooperation.

3.1 Turkmenistan and Uzbekistan in the lower reaches of the Amudarya

As early as in 1996 Turkmenistan and Uzbekistan agreed on the ownership rights for water management facilities of interstate use and for the land areas under these facilities as well as specified the conditions of their joint operation and cost sharing.

It was agreed that all water management facilities and organizations of the Karshi and Amu-Bukhara canals and the Tuyamuyun reservoir, including Ozerniy and Daryalyk collecting drains, Makhankul' collecting drain, Karshi/Southern collecting drain, located in Turkmenistan belong to Uzbekistan, while the lands under these facilities remain in the exclusive property of Turkmenistan. Uzbekistan pays Turkmenistan annually a fixed sum 11 million US dollars for land use (Ashgabat, 1996; Chardjev Agreement, 1996). The water facilities of interstate significance are operated in accordance with international norms and legislation of the country which owns the lands (Chardjev Agreement, 1996, Article 5). The reconstruction and operation of interstate collectors, technical solutions for the operation of irrigation systems, the

construction of drainage and spillways are implemented jointly (Ibid, Article 6). The county of location ensures the security and protection of the facilities belonging to another party on a paid basis (Bukhara, 2004). The countries also granted privileged access to their respective territories for the personnel and machineries serving the water management facilities of interstate use in the border areas (Ibid, Tashkent, 2008).

Until 2020, the maintenance and operation of all facilities belonging to Uzbekistan under this arrangement was funded through the budget of the Ministry of Water Management. Starting from 2020, these waterworks are maintained through local budgets, except for the Amu-Bukhara Canal, which continues to be financed through the central budget of the Ministry of Water Management.

In 2021, Turkmenistan and Uzbekistan agreed on joint actions to construct an impervious curtain on the Sultan Sanjar dam of the Tuyamuyun reservoir with a view of improving water supply in the lower reaches of the Amudarya. It was agreed that Uzbekistan will implement and finance these construction works, with Turkmenistan contributing sand soil and lump clay deposited from its lands in the Tuyamuyun reservoir area (Ashgabat, 2021).

3.2 Kazakhstan and Kyrgyzstan on the Chu and Talas

Starting from 1996, Kazakhstan and Kyrgyzstan have been cooperating in the operation of water management facilities on the Chu and Talas rivers, first, at interdepartmental level and since 2000 on the basis of an intergovernmental agreement (Astana, 2000). A number of water management facilities owned by Kyrgyzstan, namely Orto-Tokoy Reservoir, By-Pass Chu canals from the Bystrovskaya HHP to the city of Tokmok, Western and Eastern Big Chu canals and related structures, the Chumysh Hydrosystem on the Chu river and Kirov Reservoir on the Talas river, received an intergovernmental status and special regulation in the 2000 Agreement.

Kyrgyzstan owns and operates these facilities, while the costs associated with their operation and maintenance and other agreed activities are shared by the countries proportionally to the amount of water received (Ibid, Article 4). Annual maintenance costs are defined and approved at regular meetings of the Chu-Talas Water Commission. Vehicles, equipment, raw materials and other objects necessary for the operation and maintenance of water management facilities of intergovernmental status are tax-exempt (Ibid, Article 11).

Currently the two countries are negotiating the possibility of amending the 2000 Agreement in order to address discrepancies in financing reparation and reconstruction works. The Kyrgyz legislation requires mandatory tender procedures for reparation and restoration works at irrigation facilities but water management organizations of Kazakhstan undertake their part of reparation and reconstruction at interstate facilities without tenders and according to Kazakh legislation they are not allowed to transfer funds to Kyrgyzstan in order to implement these works on their behalf.

3.3 Kyrgyzstan and Uzbekistan in the Fergana valley

On 6 October 2017, Kyrgyzstan and Uzbekistan agreed on the interstate use of the Orto-Tokoy/Kasansai reservoir in Ala-Buka district, Dzhalal-Abad province in Kyrgyzstan (Tashkent, 2017). The Orto-Tokoy/Kasansai reservoir serves mainly agricultural irrigation purposes. Until 2017, the reservoir was operated, maintained and funded by Uzbekistan (from the budget of the Ministry of Water Management). According to the new agreement, Kyrgyzstan operates, maintains and ensures the safety of the facility and releases water from the reservoir within the agreed limits; while Uzbekistan shares operation and maintenance costs and funds other agreed costs proportionally to the amount of water it receives (Ibid, Article 2). All expenses are tax-exempt. The operation and maintenance costs are estimated in line with Kyrgyz regulations and financed by the countries on a quarterly basis. The scope of repair and maintenance works is determined by a working group composed of representatives of the parties.

Another critical water management infrastructure jointly managed by Kyrgyzstan and Uzbekistan is the Andijan/Kempir-Abad reservoir constructed on the Karadarya river in 1983 to provide stable water supply to the population and economic sectors of Kyrgyzstan and Uzbekistan. After the collapse of the USSR, the reservoir was at the forefront of a border dispute between two independent countries. On 3 November 2022, Uzbekistan and Kyrgyzstan signed an agreement on settling different parts of the Kyrgyz-Uzbek border and an agreement on joint management of water resources of the Andijan/Kempir-Abad reservoir (2022 Agreement on the Andijan reservoir).

The 2022 border agreement hands over 4,957 hectares of the reservoir area and 19.5 hectares for the maintenance and protection of the dam to Uzbekistan and 1,019 hectares of pasture land to Kyrgyzstan as compensation. Kyrgyzstan also received 12,849 hectares in the Govasoy area as compensation for the unbuilt Kempir-Abad canal on the left bank of the Andijan reservoir, with a commitment not to build hydro-technical and other facilities that impede the natural flow of the Govasoy river, and not to allow technical water pollution (President of Uzbekistan's Web-Site, 2022).

The 2002 agreement on water management establishes a 24-person joint commission – lead by the heads of the national water agencies - to manage the water supply from the reservoirs (Ibid, Article 2). Uzbekistan is entrusted to operate, maintain and ensure the safety of the reservoir, and release water within the limits agreed with Kyrgyzstan (Ibid, Article 4). It will also maintain the water level in the reservoir at a level not higher than 900 meters horizontally, ensure free access and use of the water of the reservoir by the citizens of Kyrgyzstan (animal watering, irrigation, fishing), and commit not to install engineering and technical structures around the reservoir (Ibid, Article 5). Kyrgyzstan will ensure the establishment of water protection zones and compliance with this protection regime (Ibid, Article 5).

3.4 Tajikistan and Uzbekistan on the Syrdarya

The Farkhad Hydroscheme put in operation in 1948 on the Syrdarya occupies 22 km near the Khudjand city in Tajikistan and the Syrdarya province in Uzbekistan. The reservoir of Farkhad HPP irrigates the lands of the Hunger (Uzbekistan and Kazakhstan) and Dalverzinskaya (Uzbekistan and Tajikistan) steppes.

For years the Farkhad dam has been a bone of contention between Tajikistan and Uzbekistan, both countries claiming this border area. In 2018, this long-lasting border and water management issue has been finally settled.

On 9 March 2018, Tajikistan and Uzbekistan signed a 49-year agreement that set cooperative measures between two countries for the stable operation of the Farkhad dam, while not defining the ownership of the facility or the land where the facility is located (Dushanbe, 2018). It was agreed that Tajikistan will provide access to the facility for the authorized representatives of Uzbekistan and allow import and export of transport, machinery, equipment and materials required for the stable operation of the facility. Tajikistan will also ensure the security and protection of the facility (Ibid, Article 3).

As reported on mass media, on 17 August 2018, through exchange of diplomatic notes, Tajikistan and Uzbekistan agreed that the territory on which the Farkhad dam is located will belong to Tajikistan, and the facility itself will be the property of Uzbekistan. The facility will be guarded by the Tajik side, and Uzbekistan will be responsible for its maintenance (CABAR.Asia, 2021).

4 Joint construction of new water infrastructure

The need for new water infrastructure has been raised by all Central Asian countries, with Kyrgyzstan and Tajikistan aiming at the use of their largely untapped hydropower potential (Tajikistan possesses vast amount of hydropower resources (40GW), of which about 10% (4,326 MW) has been developed. Hydropower potential of Kyrgyzstan is estimated at 18,500 MW, and its installed capacity is about 2,950 MW) and Kazakhstan, Turkmenistan and Uzbekistan searching for structural solutions to secure stable water supply to reduce their dependency on upstream dam release regimes within their borders, despite an unfavorable topography. Although several treaties between the Central Asian countries refer to the need to coordinate the construction of new water infrastructure that may have a transboundary impact (e.g., Bishkek, 1998), the countries were rather reluctant so far to comply with these provisions in good faith. But in the recent years, a more cooperative attitude toward coordinated and even joint development of water infrastructure is evident as illustrated below.

4.1 Tajikistan and Uzbekistan to construct two HHPs on the Zarafshan

In October 2016 Tajikistan officially started the construction of the Rogun HPP (3600 MW 13,000 GWh) on the Vaksh river, despite disagreements from Turkmenistan and Uzbekistan. After Shavkat Mirziyoyev took the presidential office in December 2016, Uzbekistan softened its position and proposed Tajikistan to construct and operate the Rogun HPP jointly. Tajikistan did not accept the offer and proposed to jointly build two HPPs on the Zarafshan.

In 2021, Tajikistan and Uzbekistan signed an agreement on the establishment of a joint stock company and on conducting feasibility study for construction and operation of two HPPs in the Zarafshan river basin (Ministry of Energy, 2021). The construction of the hydropower plants will have two stages: 1st stage-construction of the 140-MW Yavan HPP to generate 800 million kWh a year (tentative cost - US$282 million); and, 2nd stage-construction of the 135-MW Fandaryo HPP to produce 600 million kWh a year on average (estimated cost - US$270 million). The construction will be financed through loans and grants of international financing institutions and also through own funds that will form the shared capital of the joint stock company.

4.2 Trilateral arrangements to jointly construct Kambarata-1 on the Naryn

As part of the state visit of the President of Kyrgyzstan Sadyr Japarov to Uzbekistan in March 2021, the countries agreed to prepare a joint investment project for the construction of the Kambarata HPP-1 on the Naryn (1860 MW, reservoir: 5.4 bln m^3, 5.6 bln kWh/year), which was a controversial project for many years. In May 2022, Kazakhstan also announced its plans to participate in the construction of Kambarata-1 (24KG, 2022). In January 2023, Kazakhstan, Kyrgyzstan and Uzbekistan approved a road map on the joint construction of Kambarata HPP-1, including the update of its feasibility study (KUN.UZ, 2023).

These actions are fully in line with the 1998 Environmental Cooperation Agreement between Kazakhstan, Kyrgyzstan and Uzbekistan that requires that the countries cooperate in the coordination of actions on building new facilities in the frontier zone as well as facilities that may have transboundary adverse effect irrespective of their geographical location [Article 2 (*з*)] and also conduct joint environmental assessments for the facilities that might have transboundary impact [Article 2 (π)].

5 Lessons learned and the way forward

Coordinated actions on the construction, operation and maintenance of the water infrastructure of interstate use are at the core of transboundary water cooperation in Central Asia.

The Central Asian countries take diverse approaches to joint management of key water infrastructure of interstate use. Some water facilities are operated by regional organizations (BWO Amudarya and BWO Syrdarya), while owned and co-funded by the riparian countries. Others such as facilities on the Chu, Talas and Kasansai rivers are owned and operated by the country of location (Kyrgyzstan) with operation and maintenance cost shared with another country proportionally to water allocation limits (Kazakhstan or Uzbekistan respectively). Finally, there are also water management facilities that are owned, operated and funded

by the country other than the country of location (Uzbekistan on the lower reaches of the Amudarya and the Farkhad dam).

These diverse and customized arrangements emerged to fit specific political, economic and technical circumstances and needs. For example, customized and cross-issue solutions were required for the Andijan /Kempir-Abad reservoir and the Farkhad dam, both for years being a bone of contention between countries claiming this border area. These agreements marked a significant achievement in peacefully settling Central Asia's borders and water management issues. Given the complicated political, socio-economic and technical conditions, it was impossible and counterproductive to take a standardized, one-size-fits-all approach.

Institutionalized cooperation on water infrastructure prevails in the region. To ease interactions, the riparian countries established a number of joint bodies, starting from the multilateral commission (ICWC) regulating transboundary water use and managing key water infrastructure on the Amudarya and Syrdarya to bilateral joint bodies such as the commission on the lower reaches of the Amudarya, the Chu-Talas Water Commission, the working group on the Orto-Tokoy/Kasansai reservoir.

Still, much more can be done to enhance shared governance of water infrastructure. For instance, there is room for improvement of financial arrangements between the countries, given that only the Turkmen-Uzbek agreements clearly specify the amount and scheme of payments. Technical guidance or the formula for calculating costs agreed by the countries could facilitate the work of the joint commissions and allocation of funds from state budgets.

Also it is of paramount importance to agree on region-specific detailed provisions on prior notification procedures in cases of proposed use of transboundary rivers that might have a transboundary impact. As a part of customary international law, the Central Asian countries are obliged to exchange information, to conduct an environmental impact assessment, to give prior notification and to consult each other on possible effects of planned measures that may have a significant adverse effect. A number of treaties between the Central Asian countries refer to the need to coordinate the construction of new water infrastructure that may have a transboundary impact but none of these treaties specify the procedures for such consideration and coordination. Similarly, Kazakhstan, Kyrgyzstan and Uzbekistan expressed their intentions to conduct *joint* environmental assessments for the facilities that might have transboundary impact (e.g., Almaty, 1997); while the 2022 Turkmen-Uzbek agreement requires an *independent international expertise* and consent from all interested states of the river basin on any actions affecting the natural flow of the Amudarya transboundary river basin, including projects for the construction of new hydraulic structures (Tashkent, 2022). However, specific procedures for joint or independent international assessments have got to be agreed.

This work might also require the revision of the mandate of existing joint bodies. Thus, acknowledging the need for a coordinated approach to joint management of water resources of intestate sources, five Central Asian countries established in 1992 the ICWC but its mandate includes neither the consideration of new water infrastructures or conducting joint assessments of their possible impact (Statute of the Interstate Commission for Water Coordination of Central Asia, 1992). In 2008 the countries were discussing the possibility of expanding the tasks of the Commission to consider notifications on the planned construction of water facilities that might have transboundary impact, but the revised by-law was not approved (Statute of the Interstate Commission for Water Coordination of Central Asia, 2008).

In the absence of region-specific procedures on prior notification, the provisions of global conventions might be of relevance. Thus, the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997) – largely reflecting the customary norms of international law in this field - provides specific requirements for prior notification on planned measures and, where appropriate, consultation and negotiation. Article 12 of the 1997 UN Watercourses Convention requires that "[b]efore a watercourse State implements or permits the implementation of planned measures which may have a significant adverse effect upon other watercourse States, it shall provide those States with timely notification thereof." Since the determination of a likelihood of significant adverse effect is best made through an impact assessment, the results of environmental impact assessments are to be included in the package of notification documents (Article 12) (UN Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997). The 1997 UN Watercourses Convention leaves it to the riparian states to decide *how* to notify other international watercourse states either through diplomatic channels or through an institutional mechanism. It envisage a set of provisions on reply or absent of reply to notification (Articles 13–16) and establishes a six-month period within which the notified state is expected "to study and evaluate the possible effects of the planned measures and to communicate the findings" to the states implementing the measure (Article 13).

Finally, recent agreements on the construction and operation of two HPPs in the Zarafshan river basin between Tajikistan and Uzbekistan as well as on Kambarata HPP-1 on the Naryn between Kazakhstan, Kyrgyzstan and Uzbekistan are promising signs on possible mutually beneficial joint construction and operation of water infrastructure of interstate use. Given that Central Asia has no experience in the joint construction of water facilities yet, it is of paramount importance to learn from the best practice in other river basins, including on public-private partnership mechanisms. For example, the experience of the United States and Canada on the Columbia emphasizes the need for thorough prior assessments of benefits, a clear formula for equitable cost-benefit sharing, a strong and efficient institutional setup and legal framework, and public private partnership schemes that allow to raise funding from the public sector to cover capital costs. Similarly, the consortium of commercial creditors and international financing institutions, including the World Bank and ADB, together with strong governmental involvement ensured implementation of the Nam Theun 2 Multipurpose Hydropower Project in the Nam Theun River located in the Mekong River Basin in Laos, exporting power to Thailand.

Water infrastructure is a cornerstone of sustainable development of the Central Asian countries. It ensures access to drinking water, supports food and energy security, promotes

economic growth, and helps mitigate the impacts of climate change. By enhancing the legal and institutional frameworks for water infrastructure operation, maintenance and development, the countries will pave the way for a sustainable future for generations to come.

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References

24KG (2022). *Kazakhstan Plans to Participate in Construction of Kambarata-1*. Available online at: https://24.kg/english/234896

Almaty (1992). 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 sources. Available online at: http://cawater-info.net/library/eng/l/ca_cooperation.pdf

Almaty (1997). Agreement between the Government of the Republic of Uzbekistan and the Government of the Republic of Kazakhstan on cooperation in the field of environmental protection and rational nature management. Available online at: http://cawater-info.net/library/rus/uzbekistan-kazakhstan_1997.pdf (in Russian).

Ashgabat (1996). Agreement between the Republic of Uzbekistan and Turkmenistan on paid land use. Available online at: http://cawater-info.net/library/rus/uzb_tur_2.pdf (in Russian).

Ashgabat (2021). Additional Agreement to the Agreement between the Government of the Republic of Uzbekistan and the Government of Turkmenistan on paid land use. Available online at: http://cawater-info.net/bk/water_law/pdf/uzb_tur_2021-add.pdf (in Russian).

Astana (2000). Agreement on the use of water management facilities of intergovernmental status on the Rivers Chu and Talas. Available online at: http://www.cawater-info.net/library/eng/chu_talas_e.pdf

Bishkek (1998). Agreement between the Government of the Republic of Kazakhstan, the Government of the Kyrgyz Republic and the Government of the Republic of Uzbekistan on cooperation in the field of environmental protection and rational nature management. Available online at: http://www.cawater-info.net/library/eng/l/nature_use.pdf

Bukhara (2004). Agreement between the Government of Turkmenistan and the Government of the Republic of Uzbekistan on crossing the Turkmen-Uzbek border by persons servicing facilities, located on border areas. Available online at: http://cawater-info.net/library/rus/uzb_tur_3.pdf (in Russian).

CABAR.Asia (2021). *How are Negotiations on the Border Between Tajikistan and Uzbekistan Being Conducted?* Available online at: https://cabar.asia/en/?p=46356

Chardjev Agreement (1996). Agreement between the Republic of Uzbekistan and Turkmenistan on cooperation on water management issues. Available online at: http://www.cawater-info.net/library/rus/uzb_tur_1.pdf (in Russian).

Dukhovny, V. A., and de Schutter, J. (2011). *Water in Central Asia: Past, Present, Future*. London: Taylor & Francis Group.

Dushanbe (2018). Agreement between the Government of the Republic of Uzbekistan and the Government of the Republic of Tajikistan on cooperation to ensure the functioning Farkhad Dam.

KUN.UZ (2023). *Uzbekistan, Kyrgyzstan and Kazakhstan Approve a Plan for Construction of Kambarata HPP-1*. Available online at: https://kun.uz/en/news/2023/01/06/uzbekistan-kyrgyzstan-and-kazakhstan-approve-a-plan-for-construction-of-kambarata-hpp-1

Ministry of Energy (2021). *The Governments of the Republic of Uzbekistan and the Republic of Tajikistan Signed an Agreement on the Construction of Hydroelectric Power Plants in the Zarafshan River Basin.* Available online at: https://minenergy.uz/ru/news/view/1294

President of Uzbekistan's Web-Site (2022). *The President of Uzbekistan signed Laws on the Border With Kyrgyzstan and the Andijan Reservoir*. Available online at: https://president.uz/ru/lists/view/5745

Statute of the Interstate Commission for Water Coordination of Central Asia (1992). Available online at: http://icwc-aral.uz/statute12.htm

Statute of the Interstate Commission for Water Coordination of Central Asia (2008). Available online at: http://icwc-aral.uz/statute4.htm (accessed November 24, 2023).

Tashkent (2008). Agreement between the Government of the Republic of Uzbekistan and the Government of Turkmenistan on cooperation in the operation, repair and restorationof facilities belonging to Uzbekistan and Turkmenistan on the border areas. Available online at: http://cawater-info.net/amudarya-knowledge-base/pdf/uz-tm-2008.pdf (in Russian).

Tashkent (2017). Agreement between the Government of the Republic of Uzbekistan and the Government of the Kyrgyz Republic on the interstate use of the Orto-Tokoiskoye (Kasansai) reservoir in Ala-Buka district, Dzhalal-Abad province in the Kyrgyz Republic. Available online at: https://lex.uz/ru/docs/3601296 (in Russian).

Tashkent (2022). Agreement between the Government of Turkmenistan and the Government of the Republic Uzbekistan on the management, protection and rational use of water resources of the Amudarya river. Available online at: http://cawater-info.net/bk/water_law/pdf/uzb_turkm_2022.pdf (in Russian).

UN Convention on the Law of the Non-Navigational Uses of International Watercourses (1997). New York, NY (adopted 21 May 1997, in force 17 August 2014) 36 ILM 700.