



Policy Brief

Water sector financing in Kazakhstan

By

Aliya Assubayeva

March 2023

Disclaimer

The CAREC Institute (CI) working paper and policy brief series is a forum for stimulating discussion and eliciting feedback on ongoing and recently completed projects and workshops undertaken by CI staff, consultants or resource persons. The series deals with key economic and development issues, particularly those facing the CAREC region, as well as conceptual, analytical, or methodological issues relating to project/program economic analysis, and statistical data and measurement.

This policy brief is an output of the CAREC Institute's recently completed research project "Water Infrastructure in Central Asia: Promoting Sustainable Financing and Private Capital Participation."

The views expressed in this policy brief are the views of the author and do not necessarily reflect the views or policies of the CAREC Institute, its funding entities, or its Governing Council. The CAREC Institute does not guarantee accuracy of the data included in this paper and accepts no responsibility for any consequences of its use. The terminology used may not necessarily be consistent with the CAREC Institute's official terms.

By making any designation of or reference to a particular territory or geographical area, or by using country names in the policy brief, the author did not intend to make any judgment as to the legal or other status of any territory or area. Boundaries, colors, denominations, or any other information shown on maps do not imply any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

This work is available under the Creative Commons Attribution 3.0 IGO license (CC BY 3.0 IGO) <https://creativecommons.org/licenses/by/3.0/igo/>. By using the content of this paper, you agree to be bound by the terms of this license. This CC license does not apply to other copyright materials in this paper. If the material is attributed to another source, please contact the copyright owner or publisher of that source for permission to reproduce it. The CAREC Institute cannot be held liable for any claims that arise as a result of your use of the material.

Central Asia Regional Economic Cooperation (CAREC) Institute
No. 376 Nanchang Road, Urumqi, Xinjiang, the PRC, Postcode: 830000
f: +86-991-8891151

[LinkedIn](#)

km@carecinstitute.org

www.carecinstitute.org

An analysis of the water sector financing landscape in Kazakhstan has revealed institutional fragmentation in financing. Water service providers bear operating, maintenance, rehabilitation, and investment expenses partially covered by water tariffs and public funds (transfers, taxes), but a considerable financing gap remains. The Committee of Water Resources estimates that approximately 925 billion tenge is required to rehabilitate and reconstruct water infrastructure in Kazakhstan. Improvement of water sector financing in Kazakhstan requires a multifaceted approach, including improving government effectiveness and coordination in the allocation of available public funding in the water sector, conducting water infrastructure asset assessment and identifying the financing gap, revising unified water tariffs for irrigated agriculture, and strengthening enabling environment to attract private investments and innovative financing mechanisms, particularly climate-resilient water infrastructure.

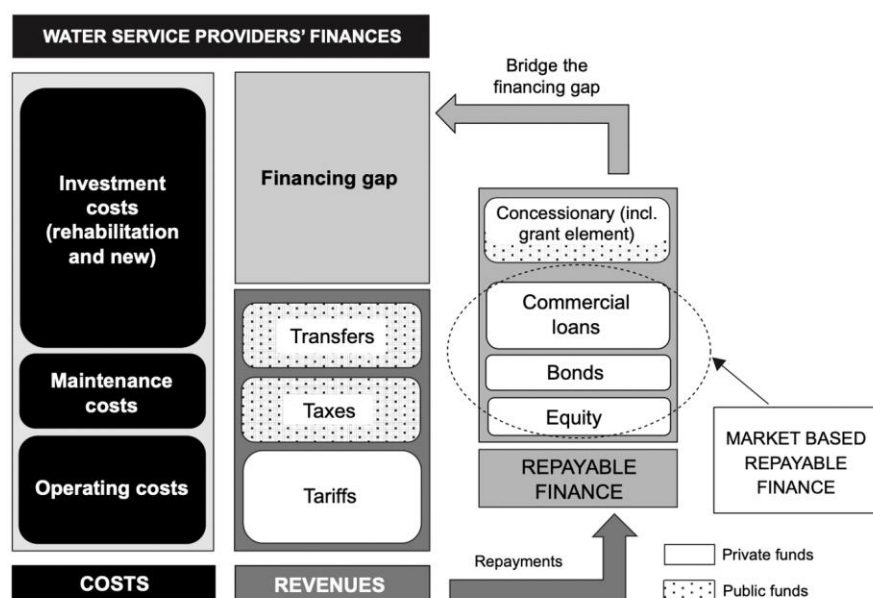
This policy brief explores the water sector financing landscape in Kazakhstan by reviewing public funding, analyzing water tariffs, and providing policy recommendations to improve the water sector financing. *This policy brief is based on the national report “Water Sector Financing in the Republic of Kazakhstan” by Assubayeva (2023), which is a part of the project report “Water Infrastructure in Central Asia: Promoting Sustainable Financing and Private Capital Participation” by Abdullaev and Akhmedov (2023).*

Improving water sector financing is essential for advancing water security, which includes achieving universal access to safe and affordable drinking water along with adequate sanitation, improving water resources use efficiency and management, but also investing in climate-resilient water infrastructure under the growing threats of extreme weather events. Water security is fundamental for achieving food, energy, and environmental security. However, aging water infrastructure built in the 1960s-1980s faces challenges due to growing consumption, leakages, water losses, and extreme weather events damaging water infrastructure and affecting water supply and quality. Outdated irrigation systems, with water losses in some irrigation systems reaching about 40%, hinder water-scarce Kazakhstan (Tokayev, 2020). Although agriculture contributes only 5.1% of GDP with 15% of total employment in agriculture, annual freshwater withdrawal in agriculture constitutes over 60% of the total freshwater withdrawal (World Bank, 2022). Furthermore, the government plans to restore the total irrigated agriculture area from 1.6 million ha to 2.2 million ha by 2025 (Brekeshev, 2021). However, improving the efficiency of irrigated agriculture is hindered by the degradation of irrigation and drainage systems, as well as the deterioration of the ecological and reclamation state of irrigated lands. Water supply and wastewater treatment infrastructure are also deteriorating, with some variation among cities. According to EBRD (2018), **“on average, 60% of the country’s water supply and 70% of its wastewater disposal systems are aging and need a replacement”** (p.4). Improving water use effectiveness and lowering water losses are essential in Kazakhstan because roughly half of the surface runoff originates outside the nation.

WATER INFRASTRUCTURE RELIES MAINLY ON PUBLIC BUDGETS DUE TO EQUITY, AFFORDABILITY, AND SAFETY CONCERNS. As a public good, water is considered a free or low-cost resource, leading to excessive consumption and depletion of resources (Tecco, 2008). Investment in water, sanitation, and wastewater infrastructure requires high upfront costs and long payback periods. The water sector has traditionally relied on public funding, such as government transfers, subsidies, grants, tariffs, fees, and low-interest loans, mainly managed by public authorities. However, public water service providers often have limited

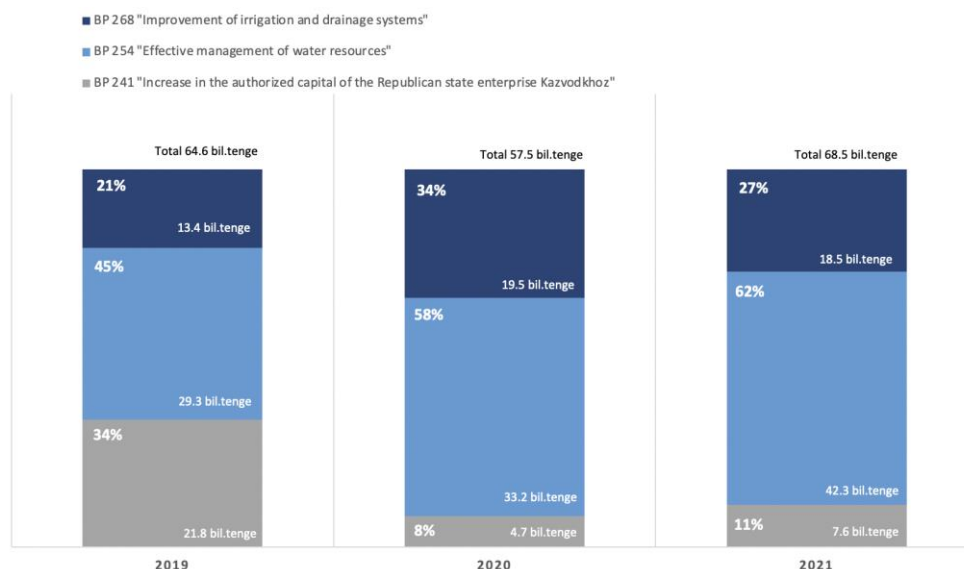
capacity to mobilize private finance and low creditworthiness to obtain long-term loans from commercial lenders (OECD, 2011; Hahm, 2019; Akhmouch & Kauffmann, 2013). In 2010, the OECD presented a financing framework for water and sanitation investments. Figure 1 demonstrates that *water service providers encounter operating, maintenance, and investment costs partially covered by tariffs and public funds (transfers, taxes), but there is still a significant financing gap. To bridge this gap, various repayable finance mechanisms are required, such as private funds (equity finance, debt finance, commercial loans), concessionary loans from development finance institutions, along with reducing costs and increasing public funding.*

Figure 1 Financing framework for water sector investments



Source: OECD (2010)

The analysis of the water sector financing was conducted on the 2019-2021 budgets of the Ministry of Ecology, Geology, and Natural Resources (hereafter Ministry), focusing on the Committee for Water Resources responsible for water policy formulation and implementation across Kazakhstan. The Committee is tasked with several strategic areas, including *strategic goal 3.2, “Improvement of water resources use efficiency.”* This strategic goal aims *to reduce water losses, restore irrigation infrastructure, and improve the drinking water supply.* The implementation of strategic goal 3.2 is mainly carried out through three key budget programs (BP): BP 241 aims to increase the authorized capital of the Republican State Enterprise Kazvodkhoz, BP 254 focuses on effective management of water resources, and BP 268 aims to improve irrigation and drainage systems. Figure 2 illustrates the budget allocation for BP 254 increased from 29.3 billion tenge in 2019 to 33.2 billion tenge in 2021, while the budget allocation for BP 241 decreased from 34% of the budget of strategic goal 3.2 in 2019 to 11% in 2021. The budget allocation for BP 268 varied, constituting 21% in 2019, 34% in 2020, and 27% in 2021. Moreover, some budget programs consist of several subprograms, and a more detailed analysis can be found in Assubayeva (2023). **Figure 2 Budget allocation for strategic goal 3.2 in 2019-2021**



Source: Assubayeva (2023)

In addition to three core budget programs, there are BP 267 and BP 131, which address other tasks set by the Ministry. Moreover, distributed budget programs, such as BP 101 from the Ministry of Foreign Affairs to cover expenses for representation purposes of official delegations and BP 105 from the Ministry of National Economy to fund the construction of hydraulic structures, mainly for developing a feasibility study on the construction of reservoirs. Additional government reserve funds can be allocated for urgent expenses (109, 133). For example, the funding of budget program 109 was allocated to cover the services of electricity exchange with the Kyrgyz Republic and the Republic of Tajikistan and for the reconstruction and restoration of hydraulic structures in 2019-2021. This financing structure indicates **institutional fragmentation in the water sector financing in Kazakhstan that requires better governance and coordination.**

Kazakhstan is currently transitioning from sectoral state programs to national projects integrating multiple sectors, levels, and actors. Among ten national projects for 2021-2025, three of them address water resources management and water infrastructure. The national project "Green Kazakhstan" aims to address environmental challenges, including ecosystem conservation of the Balkhash Lake and the North Aral Sea, to improve water productivity, and to reduce water losses by reconstructing irrigation canals, digitalizing channels, and constructing new reservoirs. The national project "Strong Regions - the Driver of the Country's Development" is designed to ensure equal access to essential services and transport connectivity of the country, both between regions and within regions, including rehabilitation and construction of water supply and sewerage networks. The national project for the agro-industrial complex aims to introduce water-saving technologies (up to 450 thousand hectares by 2025), improve water supply subsidization, and construct a plant for modern irrigation systems production. The total budget allocated for these projects in the water sector and infrastructure is approximately 1.6 trillion tenge, with almost half coming from the republican budget, 12% from local budgets, and 37% from private investments (Assubayeva, 2023, Table 5). However, the sources of private investments remain unclear, posing implementation risks, particularly in the region's current macroeconomic and political situation. Additionally, the implementation of national projects involves multiple ministries, state

agencies, and the private sector, highlighting the *importance of cross-sectoral communication, coordination, and collaboration*.

Kazvodkhoz, a subsidiary company of the Committee for Water Resources, is responsible for the operation, maintenance, and safety of water facilities of republican significance, as well as the supply of irrigation and drinking water. Kazvodkhoz classifies water tariffs according to consumer groups, such as agricultural commodity producers, water utilities and budget organizations, electricity generating companies, releases (environmental, sanitary, and epidemiological), industrial enterprises, and others. Tariffs are also differentiated based on water supply methods, such as mechanized and gravity systems. From 2018 to 2022, water tariffs for all consumer groups on average increased by 43% for mechanized water supply systems and 39% for gravity water supply systems, except for farmers. Water tariffs for farmers increased by 33% for gravity water supply systems from 0.208 tenge/m³ in 2018 to 0.626 tenge/m³ in 2022 (more detailed information about the tariffs for water supply services can be found in Assubayeva, 2023, Table 6). While Kazvodkhoz has set a *single water tariff for the entire country, this may not be a rational tariff-setting approach, given the significant variations in hydrological, land, soil, climate conditions, and socio-economic development across regions and river basins*. To address revenue shortage and fund the reconstruction of outdated water infrastructure, Kazvodkhoz has borrowed loans from international financial institutions, including International Bank for Reconstruction and Development, European Bank for Reconstruction and Development, Islamic Development Bank, and Asian Development Bank.

The tariff policy for regulated water supply and wastewater services is mainly differentiated among consumer groups, with variations among cities. The groups include population (or residential), organizations maintained at the expense of budgetary funds, and other consumers, with some cities setting one or two tariffs for consumer groups. Tariffs for the population are set low to ensure availability and affordability. The water supply tariff depends on several factors, including central water supply availability, the water supply system's organization, public utility investments, the balance sheet of the public utilities, consumer metering devices availability, and other factors. A comparison of water supply and wastewater services tariffs in selected cities, including Astana, Almaty, Aktau, Atyrau, Karaganda, Kostanay, Ust-Kamenogorsk, Shymkent, reveals that the cost of a cubic meter of water for the population ranges from 48 tenge/m³ in Almaty to 108.33 tenge/m³ in Karaganda. Meanwhile, the cost of wastewater disposal and treatment services for the population ranges from 25.87 tenge/m³ in Almaty to 98.03 tenge/m³ in Karaganda. Further details on the tariff differentiations among selected cities are available in Assubayeva (2023) in Table 7. *Due to social concerns, the trend of high regulations from the national monopoly agency and low "willingness to charge" for water services remains in Kazakhstan*.

Policy recommendations

Improvement of water sector financing in Kazakhstan requires a multifaceted approach, including improving government effectiveness and coordination in allocating available public funding in the water sector, conducting water infrastructure asset assessment and identifying the financing gap, revising unified water tariffs for irrigated agriculture, and strengthening enabling environment to attract private investments and innovative financing mechanisms, particularly for climate-resilient water infrastructure.

Public funding will continue to play a significant role in the near future because of social and political constraints regarding the affordability and accessibility of water services to the population, as the government is committed to achieving the SDGs. *Improving the government's effectiveness in Kazakhstan's water sector* should address the institutional fragmentation of water sector financing, limited coordination among state organizations, ambiguous policy objectives, and the capacity of central, regional, and local governments. While information about the Ministry's budget and other ministries' budget programs is available, information about water infrastructure investment decisions, setting investment priorities, and ex-ante and ex-post investment evaluations are not readily available. The available public funding for the water sector should be strategically targeted, cost-effective, and efficiently allocated, especially when budgetary constraints and diverse demands from other sectors limit public funds.

A comprehensive water infrastructure asset assessment is needed to address the financing gap in the water sector. The Committee of Water Resources estimates that about 925 billion tenge is required to rehabilitate and reconstruct water infrastructure in Kazakhstan (Concept of the Draft Water Code of the Republic of Kazakhstan, 2022). However, limited information is available on how the financing gap was calculated, including whether it covers water infrastructure maintenance, operating, rehabilitation, and investment expenses. There is still low public awareness about the true costs of water infrastructure and its impact on health, well-being, economic growth, safety, and security.

Closing the financing gap requires a strategic policy to target the available public funding while expanding opportunities for private investment. Private sector participation in the water sector is highly dependent on water tariffs. According to EBRD (2018), Public Private Partnership contracts in the water utility sector can be feasible only in the large cities of Kazakhstan, however, under conditions *“if tariffs converge to commercially viable levels and are approved for a sufficiently long term to generate a cash flow that covers the utility firm’s operating costs and achieves the expected rate of return”* (p.21). Water tariffs should cover operation and maintenance costs and generate revenue but should also be affordable, and revisions of water tariffs should be regulated. For example, in 24 European countries, 95% of the population can pay water bills without facing affordability constraints (OECD, 2022). While in Kazakhstan, there is a lack of data and analysis about the affordability of water tariffs (including drinking water, wastewater, and irrigation) among the population. With growing water challenges, *unified water tariffs for irrigated agriculture should be reconsidered in Kazakhstan because of regional differences in climate, hydrology, and socioeconomic factors.*

Public-Private Partnership has been increasingly promoted as a way for governments to address infrastructure needs and improve water services. However, private sector involvement in the water sector is currently limited. The private sector pays close attention to *the adequate regulatory framework, proper enforcement of laws, and transparency of processes* (planning, financing, procurement, contractual design, and monitoring). Improving the enabling environment in the water sector could incentivize private funding and innovative financing mechanisms to close the financing gap and invest in climate-resilient water infrastructure.

References

- Akhmouch, A., & Kauffmann, C. (2013). Private-sector participation in water service provision: revealing governance gaps. *Water International*, 38(3), 340-352. <https://doi.org/10.1080/02508060.2013.793573>
- Assubayeva, A. (2023). National report “Water Sector Financing in the Republic of Kazakhstan” in project report “Water Infrastructure in Central Asia: Promoting Sustainable Financing and Private Capital Participation” by Abdullaev, I. and Akhmedov, Sh. CAREC Institute. In Annex: National Report—Kazakhstan. Available at: <https://www.carecinstitute.org/wp-content/uploads/2023/02/CI-Water-Financing-Report.pdf>
- Brekeshchev, S. (2021). Area of irrigated land to be increased to 3 million hectares by 2030 in Kazakhstan. Available at: <https://primeminister.kz/en/news/2030-zhyлга-deyin-kazakstanda-suarmaly-zherler-kolemi-3-mln-ga-deyin-zhetkiziledi-s-brekeshchev-594825>
- Concept of the Draft Water Code of the Republic of Kazakhstan (2022). Available at: <https://legalacts.egov.kz/npa/view?id=14246001>
- EBRD. (2018). Commercialising the utilities sector in Kazakhstan. Policy paper on infrastructure. Available at: <https://www.ebrd.com/documents/municipal-infrastructure/commercialising-the-utilities-sector-in-kazakhstan.pdf?blobnocache=true>
- Hahm, H. (2019). Current trends in private financing of water and sanitation in Asia and the Pacific. *Asia-Pacific Sustainable Development Journal*, 26(1), 67-83. ISBN: 978-92-1-120797-2
- OECD. (2010). Innovative Finance Mechanisms for the Water Sector. OECD Publishing, Paris, <https://doi.org/10.1787/9789264083660-en>
- OECD. (2011). Meeting the Challenge of Financing Water and Sanitation: Tools and Approaches, OECD Studies on Water. OECD Publishing, Paris, <https://doi.org/10.1787/9789264120525-en>
- OECD. (2022). Financing a Water Secure Future, OECD Studies on Water. OECD Publishing, Paris, <https://doi.org/10.1787/a2ecb261-en>
- Tecco, N. (2008). Financially sustainable investments in developing countries water sectors: What conditions could promote private sector involvement? *International Environmental Agreements: Politics, Law and Economics*, 8(2), 129-142. <https://doi.org/10.1007/s10784-008-9066-6>
- Tokayev, K.-J. (2020). President of Kazakhstan Kassym-Jomart Tokayev’s State of the Nation Address, September 1, 2020. Available at: https://www.akorda.kz/en/addresses/addresses_of_president/president-of-kazakhstan-kassym-jomart-tokayevs-state-of-the-nation-address-september-1-2020
- World Bank. (2022). World Development Indicators (2022). Annual freshwater withdrawals, agriculture (% of total freshwater withdrawals)- Kazakhstan. Available at: <https://data.worldbank.org/indicator/ER.H2O.FWAG.ZS?locations=KZ>