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Afghanistan's Qoshtepa Canal and Water Security in Central Asia

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Cover photo: A bridge across an early portion of the Qoshtepa Canal in the Kaldar District of Balkh (Mazar Sharif) Province, 2024.

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Acronyms

AACS	Adroit Associates Consulting Services
bcm	billion cubic meters
CABAR	Central Asian Bureau for Analytical Reporting
FAO	Food and Agriculture Organization
GDP	Gross domestic product
ICWC	Interstate Commission for Water Coordination
ISAF	International Security Assistance Force
mcm	million cubic meters
NDC	National Development Corporation
PBC	Public Benefit Corporation
RFE/RL	Radio Free Europe/Radio Liberty
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
USSR	Union of Soviet Socialist Republics

Foreword

Notwithstanding America's disastrous withdrawal from Afghanistan following a long, costly, and largely unsuccessful intervention there, the United States continues to have national interests at stake in the country. Those interests require continued attention, argue Center for the National Interest Senior Fellow Andrew Kuchins and his coauthors, and possibly even limited forms of engagement with Afghanistan's Taliban, who rule in Kabul following America's abandonment of its two-decade effort to remake Afghan politics, economics, and society. Intense geopolitical competition across Central Asia raises the potential costs should the United States wholly turn from Afghanistan and its neighborhood.

In this context, Afghanistan's massive Qoshtepa Canal project poses both challenges and opportunities. To stimulate agricultural production and economic development in northern Afghanistan—and to leave their literal mark on it, with an irrigation system visible from space—the Taliban authorities are pursuing a decades-dormant dream in excavating the extensive canal network. Yet they are doing so in a manner that might both fuel conflict with states downstream along the strained Amu Darya River and contribute to further environmental degradation across a region already scarred by the Soviet Union's highly destructive irrigation mega-projects.

Kuchins et al. thus assert that U.S. effort to facilitate technical assistance to the Qoshtepa Canal project, and to encourage regional diplomacy, could provide an opportunity for the incoming Trump administration to strengthen America's influence in Central Asia, to reduce the risks of destabilizing conflict, and to mitigate the impacts of a poorly constructed canal, including excessive water loss and soil salinization. Their report provides a valuable and timely assessment of the Qoshtepa Canal project and presents significant recommendations for U.S. policy.

Paul J. Saunders
President, Center for the National Interest

Executive Summary

The Qoshtepa Canal, currently under construction in Afghanistan on the Amu Darya River, will dramatically affect the availability of water for irrigation and drinking in one of the world's most water-scarce regions—Central Asia. In addition to their already existing water challenges, the Amu Darya River basin and Central Asia are experiencing a far more rapid rate of climate change than the global average. The interim authorities of Afghanistan face major financial, technical, and diplomatic challenges to complete the canal in an efficient, sustainable, and peaceful manner.

The region cannot afford for this canal to be as poorly designed and constructed as Soviet canals on the Amu Darya, which decades after their construction continue to impinge on regional water security. The Soviet historical legacy also excludes Afghanistan from essential water-sharing agreements. It is urgent that Washington and multilateral development institutions engage with Afghanistan and its neighbors to view the Qoshtepa Canal in the broader geographical and historical context of the Amu Darya River basin and take action on this basis. This will require US leadership to adjust its current approach of isolating Afghanistan. Despite the attendant challenges, the canal project represents an extraordinary opportunity for Washington to contribute to a positive legacy of regional development and peaceful cooperation. U.S. engagement would also offer Washington greater influence in a region dominated by Russia and China.

The canal is by far the largest development project undertaken in the history of Afghanistan, and it is intended to demonstrate—to Afghanistan and the world—the interim authorities' ability to manage a large infrastructure project that will reduce poverty, increase arable agricultural land, and enhance food security. The planned canal is 287 km long and 8.5 m deep with an average width of 100 m, and it is expected to open more than 1.2 million acres of farmland and create about 200,000 new jobs. Construction of the main canal, involving up to 5,000 workers and 4,000 earth movers and trucks, is progressing rapidly and has entered its second phase. Most reports speak of a six-year timetable for canal creation, but the overall project, including all the branch, secondary, tertiary, and distributive canals and water regulatory/distributary structures required for actual irrigation, will take significantly longer to fully complete.

In many ways, the Qoshtepa Canal represents for Afghanistan's de facto authorities a bold new vision for a peaceful, verdant, prosperous, and self-sufficient country. Of course, the Taliban were not the first to explore this project, but they have enthusiastically embraced it. The canal represents part of the Taliban's political effort to build support from the population. However, given the current isolation of the interim authorities of Afghanistan, it is extremely unlikely that the canal will be constructed in a reasonably sustainable fashion, or that conflict between Afghanistan and its downstream neighbors—Uzbekistan and Turkmenistan—will be satisfactorily resolved, without such assistance.

Recommendations

1. The United States should use the opportunity of this critical project to engage the interim authorities of Afghanistan. This is essential to ensure construction of a well-engineered canal that maximizes efficient water use in Afghanistan. If the United States supports the project in principle, or at least does not seek to block it, there is a higher likelihood that the multilateral development banks—like the World Bank, the European Bank for Reconstruction and Development, and the Asian Development Bank—will support the project financially, technically, and diplomatically.

2. The United States should work with multilateral development institutions to ensure that they or other responsible actors provide the interim authorities of Afghanistan technical assistance, including consultancy services, not only for the construction of the canal itself but also for construction of the much broader irrigation system that it will support. Afghanistan lacks enough technically trained personnel to handle the complex construction of the canal and establish a modern national water management system. A core problem is the lack of highly trained hydraulic engineers, many of whom have left Afghanistan since the Taliban takeover. Some critical ministries and government agencies that in other countries might be headed by technocrats are in Afghanistan headed by mullahs.

3. The United States should convene its allies and partners to support diplomacy around regional water-sharing including Afghanistan. Minimally, the parties to such an agreement should include Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. There are numerous such transboundary agreements adjudicating water sharing in many river basins around the world, and their experience can help frame this new agreement.

4. Washington should also work with its allies, partners, and multilateral institutions to provide downstream states, specifically Turkmenistan and Uzbekistan, with additional investment and technical assistance to improve their own irrigation systems using Amu Darya waters. International assistance is now supporting their transition to move away from raising mostly very water-intensive crops, but far more resources and effort are required. This assistance must also address regional water pricing that is critical to promote less water use per capita. The promise of significantly increased financial and technical support also provides incentives for Turkmenistan and Uzbekistan to reach a water-sharing agreement with Afghanistan.

While the incoming Trump administration faces many foreign policy and national security challenges across multiple regions, a failure to engage in Afghanistan and Central Asia on water security increases the likelihood of regional instability, conflict, governance failures, and global terrorist groups using the territory to undermine broader U.S. interests. Given the rapid acceleration of glaciers melting across Central Asia, this may be the last chance to prevent ongoing environmental, economic, social, and regional security challenges from reaching genuinely catastrophic proportions.

These recommendations constitute a piece of a broader regional development strategy with global implications. Afghanistan and its Central Asian neighbors border three of Washington's most challenging global actors: China, Russia, and Iran. There is no question that Central Asian states seek broader and more diversified U.S. engagement in the region to hedge against the overweening influence of Beijing, Moscow, and Tehran. Supporting the construction of the Qoshtepa Canal, a regional water-sharing agreement, and more sustainable water-use practices should be an integral piece of Washington's strategy to contain increased influence of China, Russia, and Iran with Afghanistan and its Central Asian neighbors.

Introduction

The Qoshtepa Canal, currently under construction in Afghanistan on the Amu Darya River, will dramatically affect the availability of water for irrigation and drinking in one of the world's most water-scarce regions—Central Asia. In addition to their already existing water challenges, the Amu Darya River basin and Central Asia are experiencing a far more rapid rate of climate change than the global average. The interim authorities of Afghanistan face major financial, technical, and diplomatic challenges to complete the canal in an efficient, sustainable, and peaceful manner.

The region cannot afford for this canal to be as poorly designed and constructed as Soviet canals on the Amu Darya, which decades after their construction continue to impinge on regional water security. The Soviet historical legacy also excludes Afghanistan from essential water-sharing agreements. It is urgent that Washington and multilateral development institutions engage with Afghanistan and its neighbors to view the Qoshtepa Canal in the broader geographical and historical context of the Amu Darya River basin and take action on this basis. This will require US leadership to adjust its current approach of isolating Afghanistan. Despite the attendant challenges, the canal project represents an extraordinary opportunity for Washington to contribute to a positive legacy of regional development and peaceful cooperation.

Six months after regaining control of Afghanistan, in March 2022, the interim authorities of Afghanistan reinitiated the Qoshtepa Canal project on the Amu Darya River, also known as the "Nile of Central Asia." Initial plans for the canal date back to the 1970s, and it was to be built with Soviet assistance. This did not happen. In 2018, the United States Agency for International Development (USAID) commissioned a feasibility study for the project, and the Ghani government built the first 7 km of the canal before being thrown out of power in August 2021 by the Taliban, a group now referred to in official parlance as the "interim authorities of Afghanistan."

The canal is by far the largest development project undertaken in the history of Afghanistan, and it is intended to demonstrate—to Afghanistan and the world—the interim authorities' ability to manage a large infrastructure project that will reduce poverty, increase arable agricultural land, and enhance food security. The planned canal is 287 km long and 8.5 m deep with an average width of 100 m,[1] and it is expected to open more than 1.2 million acres of farmland and create about 200,000 new jobs. Construction of the main canal, involving up to 5,000 workers and 4,000 earth movers and trucks, is progressing rapidly and has entered its second phase. Most reports speak of a six-year timetable for canal creation, but the overall project, including all the branch, secondary, tertiary, and distributive canals and water regulatory/distributary structures required for actual irrigation, will take significantly longer to fully complete.

In many ways, the Qoshtepa Canal represents for Afghanistan's de facto authorities a bold new vision for a peaceful, verdant, prosperous, and self-sufficient country. Of course, the Taliban were not the first to explore this project, but they have enthusiastically embraced it. The canal represents part of

1 The canal's width starts at 152 m and gradually decreases to 64 m at the end. Thus, the average width can be said to be 100 m.

the Taliban's political effort to build support from the population. They have launched a major public relations campaign about the canal, which is encapsulated in a 27-minute video produced in early 2024 after the first phase of the project concluded (TOLOnews 2024). The background of the video shows dozens of excavators and trucks, just a fraction of the 3,500 such earth-moving vehicles engaged in the project, digging and moving dirt in fast motion (Figure 1-2), seemingly to demonstrate that this is a vast and modern infrastructure project for the benefit of the entire country. Breathtaking shots emphasize the majestic vastness of the canal and its transformation of the landscape.

Figure 1. Deserted areas in the north of Afghanistan at the very beginning of Qoshtepa Canal construction.

Source: TOLOnews 2024 (2:49).

Figure 2. Deserted areas in the north of Afghanistan at the very beginning of Qoshtepa Canal construction.

Source: TOLOnews 2024 (4:52).

In a location devoid of any body of water, the Taliban has branded the canal effort as a multi-ethnic workforce pulling together to contribute to the development of a new Afghanistan. Taliban chief spokesman Zabihullah Mujahid summarized the significance of the canal in an interview with Nikkei Asia in December 2023:

> "The construction of the Qoshtepa Canal is taking place at a time when Afghanistan is facing numerous economic challenges as the country wakes up from four decades of war, with unemployment rates at their peak... In such times, this project represents a great source of hope for all our countrymen (Nasar 2023)."

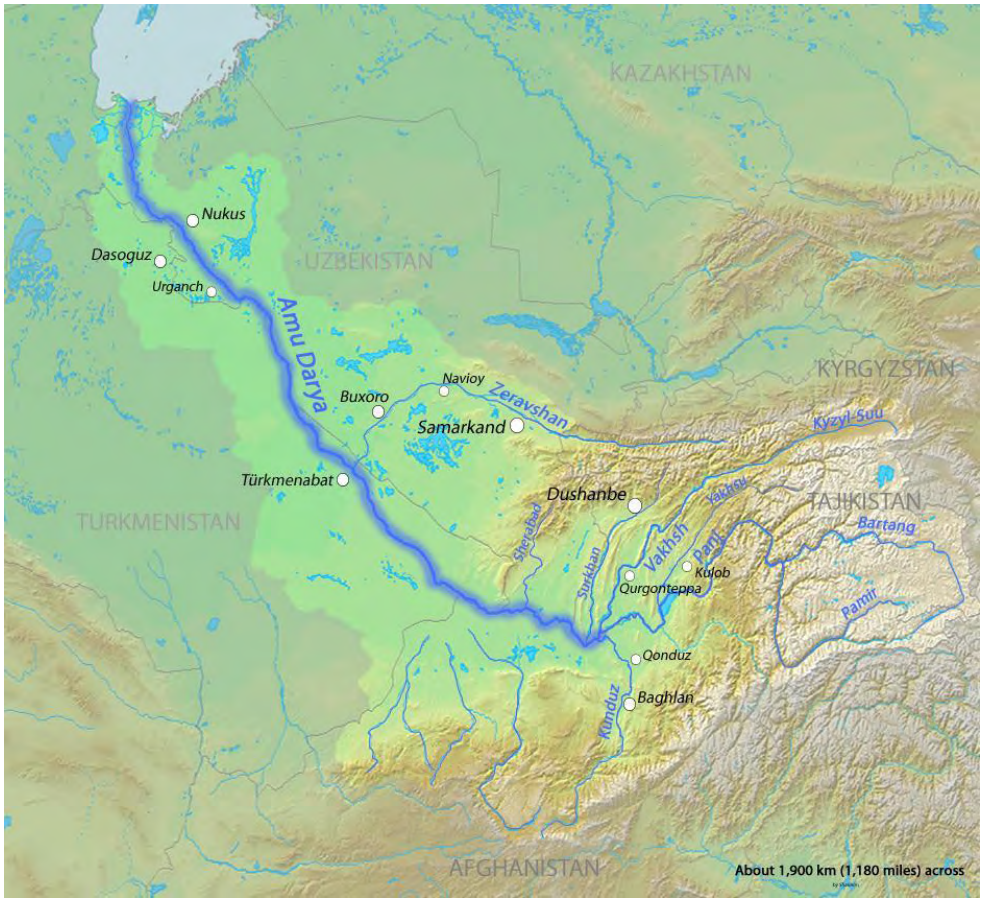
This report looks at the Qoshtepa Canal in depth and from multiple perspectives—historical, geopolitical, technical, environmental, and legal—and makes the case that the United States and multilateral institutions must engage with the project to ensure its success. Section 2 of the report describes the canal project's geographical context. Section 3 looks at its national and regional context and notes some of its risks (for the region) and potential benefits (for Afghanistan). Section 4, on geopolitics and water security, suggests how Afghanistan's relations with the Soviet Union—in particular the Soviet-backed coup that ousted Mohammad Daoud—influenced the fortunes of the canal. Section 5 provides detail on earlier canal projects in the region undertaken by the Soviet Union; these have had

detrimental environmental impacts and offer a kind of "how-not-to" guide for Qoshtepa Canal construction. The return of the canal to Afghanistan's development agenda after a decades-long hiatus is discussed in Section 6, while Section 7 looks at legal issues, including water-sharing agreements with downstream neighbors, and technical questions, including risks of salinization and sedimentation. The report concludes with recommendations for financial, technical, and diplomatic assistance from the United States and multilateral development institutions. Given the current isolation of the interim authorities of Afghanistan, it is extremely unlikely that the canal will be constructed in a reasonably sustainable fashion, or that conflict between Afghanistan and its downstream neighbors will be satisfactorily resolved, without such assistance.

The Geographical Context of the Qoshtepa Canal

The Amu Darya River (Figure 3) originates from the Hindu Kush and Wakhan regions in the Pamir Highlands of Afghanistan, Tajikistan, and Kyrgyzstan. The Amu Darya basin is one of four significant basins in Afghanistan (the others being the Helmand/Hari-Rud, the Panj, and the Kabul). Its tributary, the Panj, is shared with Tajikistan, and the basin itself is located downstream in the vicinity of Uzbekistan and Turkmenistan. Before the near-disappearance of the Aral Sea over the last 60 years, the Amu Darya waters flowed into the Aral Sea, where the river came to an end. Now, that flow is barely a trickle when it reaches the old Aral Sea territory.

Figure 3. Map showing Amu Darya.



Source: Wikipedia 2010.

Figure 4 is a schematic map of the Amu Darya that shows the starting point for the Qoshtepa Canal, major Soviet-era canals in the region (notably the Karakum Canal), and canals currently under construction. The map also illustrates the relative flow levels of the Amu Darya: the intake point—the start of the main canal—is located nearly at the peak flow point of the river. In addition, the map indicates the shrinkage of the Aral Sea into three entities: a seasonal lake and the Southern and Northern Aral Seas.

Figure 4. Map of significant water withdrawal for irrigation in the Aral Sea basin.

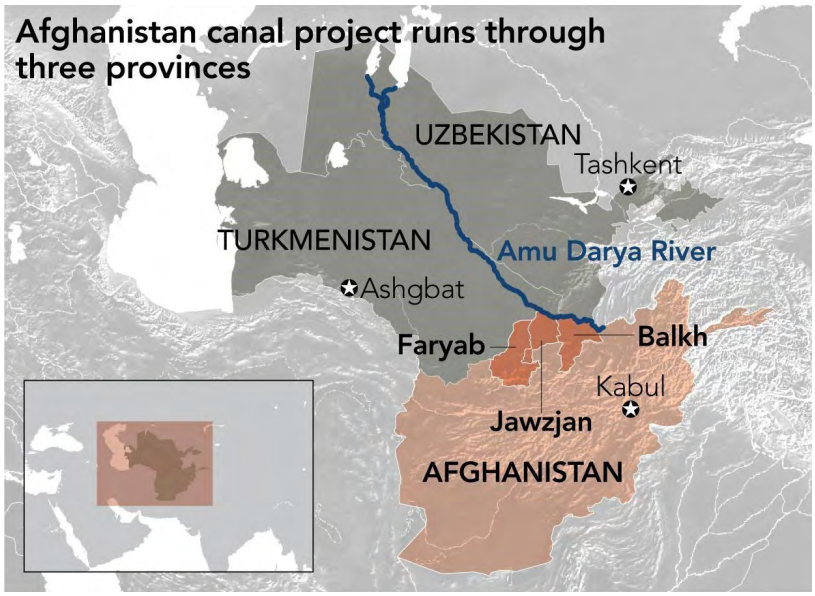
Source: Modified after UNEP et al. 2011, 15.

The Qoshtepa Canal project is located in a very strategically important region in three northern provinces of Afghanistan: Balkh Province, where it starts, and Jawzjan and Faryab Provinces, where the Amu Darya River marks the border of Afghanistan with Uzbekistan and Turkmenistan (Figure 5). These three provinces, whose combined population is 3.33 million (out of the country's total population of nearly 43 million),[2] are home to significant minority ethnic groups, including Tajiks, Uz-

2 Worldometer, "Countries in the World by Population" (accessed October 10, 2024), https://www.worldometers.info/world-population/population-by-country/.

beks, Sunni Hazara, and others, and they have presented governance challenges for many different governments in Kabul. In the late 1990s, this was the base of much of the Northern Alliance, which supported the International Security Assistance Force (ISAF) in bringing down the Taliban government in 2001. Northern Afghanistan, especially the area a bit north of the first intake point of the planned canal route on the very porous Afghan-Tajik border, has served as a haven for Islamic State–Khorasan (IS-K) and other transboundary terrorist groups (Pannier 2022, 6).

Figure 5. Three northern provinces where the Qoshtepa Canal will transport Amu Darya waters to previously nonarable land for irrigated farming.



Source: Nasar 2023.

The National and Regional Significance of the Qoshtepa Canal

The project has a long history dating back at least to the 1970s, but it was paused in 1978, after the Soviet Union supported a coup to overthrow President Daoud of the Republic of Afghanistan and before the Soviets fully invaded Afghanistan in December 1979. The Soviet–Afghan War of the 1980s led to the collapse of the country's governance, which contributed to the degradation of land and water resources; only half of arable land is now cultivated each year due to water shortages, and 11 percent of the country has no access to water (Thompson et al. 2015, 143). This current reality is in stark contrast to the Afghanistan of the 1970s, when the country was not only food sufficient but also one of the world's largest exporters of dried fruits and nuts.

Afghanistan was not tapping the waters of the Amu Darya significantly from the 1970s onward. But the Soviet Central Asian republics were exploiting scarce water resources, and in such an unsustainable manner as to create one of the greatest environmental catastrophes of our time: the drying up of the Aral Sea that once straddled the border between Kazakhstan and Uzbekistan. The Soviet Union's shortsighted policies—that is, the intensive cultivation of cotton that still consumes 92 percent of the extracted water of the Amu Darya, the construction of large-scale irrigation canals in the arid part of Central Asia that began in the 1930s, and a decades-long concealment of the Aral Sea disaster by authorities—turned the world's fourth largest inland sea mostly into a barren desert and made its full restoration virtually impossible. This is not the kind of experience that anyone would wish to see replicated with the Qoshtepa Canal.

Like earlier canal projects, the Qoshtepa Canal will have a significant impact on Amu Darya flow. According to the 2019 USAID feasibility study for the project, the Qoshtepa Canal was to irrigate 1.2 million acres of land annually, use up to 13.02 billion cubic meters (bcm) of water would have to be extracted from the Amu Darya. However, only 49 percent of the total land available in the surrounding area is estimated to be arable (AACS Consulting 2019, 60); hence, the actual annual water extraction would be around 6.37 bcm. It should be noted that this figure has no comprehensive study behind it and is a rough estimation of the irrigation demand based on the potential arable area. But analyzing these numbers, and excluding nonarable lands such as saline and sand dune–dominated lands, it appears that the Qoshtepa Canal might divert 8–17 percent of water from the Amu Darya,[3] which is lower from the earlier and most quoted estimate of 20 percent (Shih 2023).

Although the canal will potentially reduce poverty and improve food security in Afghanistan, it raises serious concerns for downstream Central Asian neighbors like Turkmenistan and Uzbekistan. The canal would divert Amu Darya water away from these states—water they have relied on for decades to grow water-intensive cotton, fruits, vegetables, and grass for livestock. These downstream states already suffer from significant water shortages; for example, there have reportedly been some days

3 This range is calculated by dividing the two estimates for water extracted, 6.37 bcm and 13.02 bcm, by total renewable water in the Amu Darya basin water, 78 bcm.

when no tap water was available in the Turkmen capital of Ashgabat (RFE/RL 2022). Turkmenistan and Uzbekistan (as well as Afghanistan) suffer disproportionately from the climate change effects that are making Central Asia drier and hotter (Haag et al. 2019). Hence the quest for water security, and thus food security, in the region will only get more intense in the near future.

For Afghanistan, the concern is that the Qoshtepa Canal, which is unlined like earlier Soviet canals in Central Asia, could result in disastrous soil salinization and alkalinization. The earlier canals caused large-scale soil salinization as the groundwater levels exfiltrated to the surface through saline soil. The water pushed the salt to the surface and became salinized itself. Salinization in the region has significantly reduced the benefits of water for irrigation and drinking and is ongoing; despite efforts to reduce soil salinization in Central Asia, a study shows that it increased by about 7 percent from 1990 to 2018 (Measho et al. 2022). In Afghanistan, salinization and alkalinization could turn fertile agricultural land or rangeland into saline land where vegetation can hardly grow due to salt accumulation on the surface. A related risk is that during dry periods, accumulated fine salt particles can be blown by wind to other regions, further harming agricultural productivity in the region.

Not surprisingly, the Taliban are stressing the canal's potential benefits rather than any risks it poses. Domestically, the Qoshtepa Canal is a statement to ethnic minorities in Afghanistan that the Taliban support improving the quality of life of all their citizens, not just the Pushtun majority; to the outside world, it is meant to signal that contemporary Afghanistan can manage large infrastructure projects and stand up for its national interests. These domestic political and geopolitical security contexts are very significant for the project, and the government conducts many public relations activities around them (Hossain 2024). At a ceremony marking the completion of the first phase of the canal project, Mullah Abdul Ghani Baradar, the deputy prime minister for economic affairs, reassured his audience, "The Islamic Emirate intends to pay serious attention to agriculture and managing water, as we witness its good example in taking steps in the building of the Qoshtepa Canal" (Yazidani 2023).

Whatever its reception domestically, the canal poses serious geopolitical challenges for Afghanistan that will have to be resolved. Most obviously, Afghanistan will face potential conflicts with downstream neighbors, whose access to water may be depleted. In addition to Turkmenistan and Uzbekistan, Kabul will have to engage with Kazakhstan and Kyrgyzstan as parties to any new water-sharing agreement.

The Soviet invasion of Afghanistan in December 1979 launched a tragic period of nearly ceaseless civil conflict in Afghanistan that caused massive damage to the country's economy and infrastructure and that largely froze its development plans. Soviet-era water-sharing agreements on the Amu Darya excluded Afghanistan, as did agreements ratified by Central Asian statesin 1992, after their independence. This exclusion heightens the regional shock effect of the Qoshtepa Canal as a late-developing piece of water security infrastructure in the region.

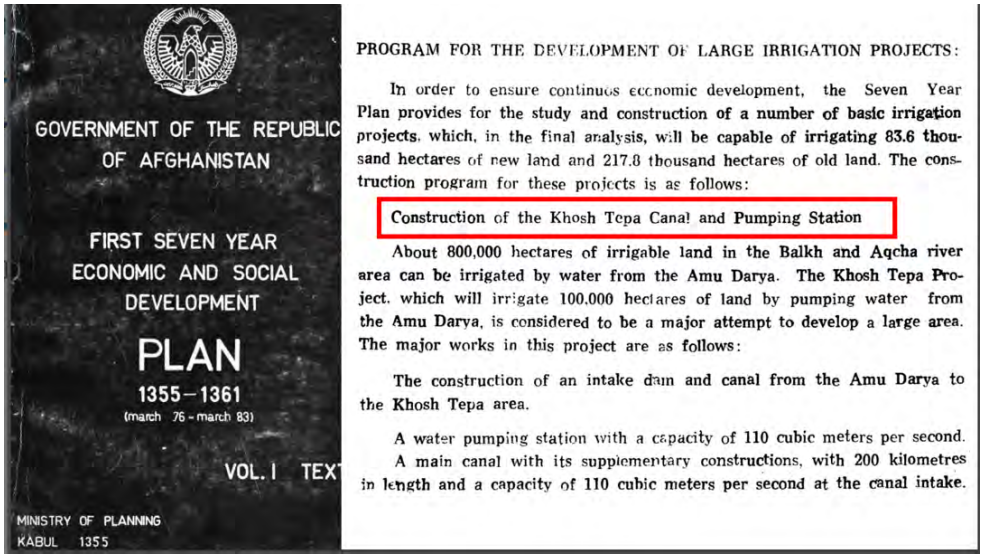
Afghanistan today is something of a Rip Van Winkle in the region. While many of its development plans went into hibernation for more than 40 years, those of the countries around it did not, and much else changed as well. The Soviet war in Afghanistan created the first wave of global jihadists in the Muslim world. The collapse of the Soviet Union in 1991 reduced Moscow's great power role in the region, as Tajikistan, Turkmenistan, and Uzbekistan took the place of the USSR on Afghanistan's border. China's influence in Central and South Asia grew dramatically, while Iran, once Washington's staunchest regional ally in Southwest Asia, morphed into one of Washington's biggest security challenges. In this very different global environment, the Qoshtepa Canal has reemerged as a top national and economic development priority for Afghanistan, one that could revitalize the agricultural sector and restore food security to the country.

Geopolitics, the Plans for the Qoshtepa Canal, and Soviet-Afghan Relations During the Cold War

After the creation of Pakistan in 1947, the number one security concern for Afghanistan was conflict with Islamabad over Pushtunistan. The Soviet Union perceived the vulnerability of its Central Asian republics through potential US encroachments in Afghanistan via its key regional allies, Iran, and Pakistan. In December 1955, Soviet Premier Nikolai Bulganin and Party Leader Nikita Khrushchev traveled to Kabul to sign major agreements with Prime Minister Mohammed Daoud for military aid and economic assistance.

The Qoshtepa Canal project was first conceived by Prime Minister Daoud in the 1950s, but there was no progress on the project until Afghanistan developed its Seven-Year Plan (March 1976 to September 1983; see Figure 6), which was after Daoud emerged as the first president of the Republic of Afghanistan in the 1970s. Construction of the canal was planned on the basis of a long-term loan commitment from the Soviet Union.

Figure 6. Appearance of Qoshtepa irrigation canal project in Afghanistan's first Seven-Year Economic and Social Development Plan, 1976.


GOVERNMENT OF THE REPUBLIC OF AFGHANISTAN

FIRST SEVEN YEAR ECONOMIC AND SOCIAL DEVELOPMENT

PLAN

1355–1361

(march 76 - march 83)

VOL. I TEX

MINISTRY OF PLANNING

KABUL 1355

PROGRAM FOR THE DEVELOPMENT OF LARGE IRRIGATION PROJECTS:

In order to ensure continuos economic development, the Seven Year Plan provides for the study and construction of a number of basic irrigation projects, which, in the final analysis, will be capable of irrigating 83.6 thousand hectares of new land and 217.8 thousand hectares of old land. The construction program for these projects is as follows:

Construction of the Khosh Tepa Canal and Pumping Station

About 800,000 hectares of irrigable land in the Balkh and Aqcha river area can be irrigated by water from the Amu Darya. The Khosh Tepa Project, which will irrigate 100,000 hectares of land by pumping water from the Amu Darya, is considered to be a major attempt to develop a large area. The major works in this project are as follows:

The construction of an intake dam and canal from the Amu Darya to the Khosh Tepa area.

A water pumping station with a capacity of 110 cubic meters per second.

A main canal with its supplementary constructions, with 200 kilometres in length and a capacity of 110 cubic meters per second at the canal intake.

Source: Government of the Republic of Afghanistan 1976.

In his brilliant account of Afghan foreign policy through 1978, Abdul Samad Ghaus (1988, 84) refers to planned irrigation dams with canal systems to be located from Qizil Qala (Sher Khan Bandar on

the Amu Darya) in Balkh in northern Afghanistan to Kabul. Between 1964 and 1968, at the request of Afghanistan, Soviet specialists developed plans for the irrigation of Afghanistan's northern provinces, and an initial agreement on a feasibility study for the canal project was concluded between the parties in 1976. The Qoshtepa Canal construction was an essential part of Daoud's development plan, and on November 26, 1976, the Afghan Ministry of Water and Electricity and the USSR Selkhoz Prom Export reached an initial agreement for a feasibility study of the canal under a grant from the USSR of Rub 2 million (about US$2.8 million at the official exchange rate of the time).[4]

In 1973, after 10 years out of politics, Mohammed Daoud had become president of the newly established Republic of Afghanistan thanks to a military coup. The Afghan military and the Soviet-supported socialist People's Democratic Party of Afghanistan played key roles in the coup, and Moscow was satisfied with the return of Daoud as leader of Afghanistan. However, Daoud was no socialist; rather, he was an Afghan nationalist, a modernizing reformer, and the most popular political figure in the country. He also shared the long-standing Afghan skepticism of Russian intentions. Nonetheless, because of the imminent threat from Pakistan and the reluctance of the US to supply arms to Afghanistan (until the fall of the shah, Pakistan and Iran were the two US anti-Soviet regional pillars), Kabul had to rely on Moscow for security assistance. As Ghaus points out in his history of the time, this reliance came at a high price:

> "It became increasingly clear that the Russians aimed beyond the narrow limits of the status quo in the region; otherwise, they would not have busied themselves so assiduously in penetrating Afghan army cadres and establishing their network of subversion in a friendly country from which they had nothing to fear" (Ghaus 1988, 144).

In addition to supplying arms and training for military forces, the Soviet Union was also Afghanistan's largest source of economic assistance. President Daoud's new Seven-Year Plan for economic development was very ambitious, and his government sought and received funds and technical assistance from a diversity of sources, including the United Nations, the World Bank, the US, European states, and others. But over the course of the Daoud presidency, the Afghan government grew increasingly impatient with the Soviet refusal to consider supporting other major projects, including the construction of an oil refinery at Angot in northern Afghanistan, exploitation of the Mes Aynak's copper resources in Logar Province, and the development of the Hajigak iron ore reserves in the central Hindu Kush (Ghaus 1988, 166). In general, the Soviets sought to negotiate colonial-style deals where natural resources were extracted from Afghanistan and shipped to the USSR for processing.

This imperial style was unacceptable to Daoud, and his concerns about Soviet influence in the Afghan military were growing, as was his dissatisfaction with socialists in his government (Ghaus 1988, 163). In response, the Afghans sought to engage more with US and other Western assistance sources while continuing to improve relations with Pakistan, Iran, and others. Nevertheless, Kabul remained very solicitous of the Kremlin, as throughout the Cold War there remained a sense of vulnerability to invasion from the north. However, in what turned out to be Daoud's final trip to Moscow in August 1977, relations between him and Soviet leader Leonid Brezhnev broke down. In a discussion involving both full delegations, Brezhnev, who was visibly very ill at the time, insisted that Afghanistan expel Western

4 Based on an anonymous source's email with one of the authors, May 3, 2024.

workers and experts from the northern part of the country. Daoud was deeply offended by this perceived violation of Afghan sovereignty and coldly replied,

> "We will never allow you to dictate to us how to run our country and whom to employ in Afghanistan. How and where we employ foreign experts will remain the exclusive prerogative of the Afghan state. Afghanistan shall remain poor, if necessary, but free in its acts and decisions" (quoted in Ghaus 1988, 179).

At this point, we cannot ascertain whether one of the projects engaging Western aid workers that Brezhnev referred to was the Qoshtepa Canal, but it is entirely possible, as this was the top development priority in northern Afghanistan at the time. The scant available evidence suggests that Brezhnev and Company had no interest in seeing an Afghan canal diverting water from the Amu Darya, where neighboring Soviet republics Turkmenistan and Uzbekistan were benefiting from the mighty river's waters for cotton cultivation. It would appear that the Kremlin's policy was to show support for the canal but to slow-roll the project. The Soviets might also have had a political motive for this policy—that is, they might not have wanted to see northern Afghanistan more prosperous than their own Central Asian republics, a situation that could have arisen if the Amu Darya had fed a canal in Afghanistan at the expense of Central Asian Soviet republics. Unfortunately, Afghanistan's archives of state papers from the period of Daoud's presidency in the 1970s were destroyed, so it is difficult to be certain on some questions regarding Kabul's development projects and negotiations with Moscow. For the purposes of this report, the authors have not been able to examine Soviet archives that might provide answers.

In April 1978, eight months after the Brezhnev–Daoud showdown in Moscow, the Soviet military and Afghan army supported the People's Democratic Party of Afghanistan in a coup in Kabul that left the president and many of his closest advisors dead. The coup was a prelude to the full Soviet invasion of Afghanistan 20 months later. Prior to the coup, Daoud had made significant progress in negotiating a normalization of relations with Pakistan, and this may have played into the Kremlin's calculations; the Soviets knew that if Kabul and Islamabad established bilateral ties, a large reason for giving preference to Soviet military support would be removed. After Daoud's assassination, the Afghan–Pakistan diplomatic negotiations fizzled, and Afghanistan's sovereignty and development goals went up in smoke. It would be nearly another 40 years before the Qoshtepa Canal would once again take its place as a high-priority development project for Afghanistan.

This historical narrative brings into sharp relief the truly tragic nature of the Soviet-led coup against the Daoud government in 1978 and the crushing blow of the full Soviet invasion the next year. Daoud understood that for Afghanistan to thrive, it had to be connected to its neighbors through stable borders, strong trade, and investment flows in licit goods. This was the vision of Afghanistan as the "heart of Asia," a vision he pursued to improve diplomatic and economic ties with other countries. At a state dinner shortly before Daoud's death, held at the Shalimar Gardens in Lahore, Pakistani leader General Zia read a Dari poem by Pakistan's poet laureate Allama Iqbal expressing this concept:

"The continent of Asia made of water and clay is but one body
In that body, the heart is the Afghan nation
The destruction of that nation will result in the destruction of Asia
The prosperity of that nation will bring about the prosperity of Asia
As long as the head remains free, the body will be free,
Otherwise, it will become like a straw on the path of the wind"
(quoted in Ghaus 1988, 44).

In the Footsteps of the Soviet-Era Irrigation Projects in Central Asia

Two major Soviet-era "construction projects of the century," both located in present-day Turkmenistan, were designed to take Amu Darya River water to irrigate very arid land in the Karakum Valley: Stalin's Main Turkmen Canal (Yusupov et al. 1951, 144) and Khrushchev's Karakum Canal (Gerasimov 1978). Notably, while the Main Turkmen Canal was never completed, the construction of the Karakum Canal serves as a cautionary warning about prioritizing speed and cost over environmental considerations, which is the focus of our discussion in this section.

The decree of the Council of Ministers of the USSR on the construction of the Main Turkmen Canal—which was to be 1,100 km in length and extend from the Amu Darya to Krasnovodsk (Caspian Sea)—was issued on September 12, 1950, under Stalin's leadership. That is, the decree was issued while the "father of nations" was still alive and the cult of Stalin was exalted. The canal was expected to irrigate 1.3 million ha of land in the southern areas of the Caspian Plain of western Turkmenistan.

The principal labor force for the project, as for other large projects undertaken by Stalin, was prisoners, most of whom were serving time for embezzlement of state property and were forced to work in conditions of freshwater shortages and dysentery. However, despite the overabundance of workers (10,000 in 1952; see Dukhovny and de Schutter [2011, 162]) and the frantic pace of construction, the Main Turkmen Canal was not completed, and the project was shut down in 1953. The problem for the Main Turkmen Canal was threefold: (1) the canal was Stalin's idea, and when he died in 1953, the project lost its number-one sponsor; (2) the effort to link up the Amu Darya with the Caspian Sea was too ambitious; and (3) the economic rationale for doing so was weakened as Nikita Khrushchev, Stalin's successor, began liberating prisoners, the main workforce for the Main Turkmen Canal.

Stalin's desire to irrigate the Karakum Valley was shared by Khrushchev, who implemented the 1,400 km long Karakum Canal from the village of Basarga in the middle reaches of the Amu Darya. The canal is the primary source of fresh water in modern Turkmenistan and is fed by the Amu Darya. (Turkmenistan consumes 15,445 L of water daily per capita;[5] some four-fifths of its territory is covered by desert; and 1.7 million ha are irrigated, 1 million of them by the Amu Darya ([Ahmad and Wasiq 2004, 28]).

Shortly after the 1959 launch of the first stage of the Karakum Canal (a 400 km segment reaching from the Amu Darya to the Murghab), and before the start of the second stage (a 144 km segment reaching to the Tejen River), the Aral Sea had already begun to shrink dramatically. By the completion of the canal's fourth phase, the Amu Darya no longer reached the Aral Sea, instead filling Turkmenistan's dried-up Sarykamysh River.

The republican newspaper *Turkmenskaya Iskra (The Turkmen Spark)* noted the rapid speed of the canal's construction: "Through the gap penetrated by buckets, at first timidly, and then faster and faster the water rushed down the canal to Tejen" (Annaorazov 2024). Pressured by the dictates of the

5 Worldometer, "Water Use by Country" (accessed October 18, 2024), https://www.worldometers.info/water/.

seven-year plan, the Soviet authorities hurried to implement the project in the shortest possible time; the second stage of the Karakum Canal project was originally to have lasted five years (1960–1965) but was later reduced to only two years.

Moreover, the canal was implemented by the most primitive *narodnaya stroika* ("people's construction method") due to lack of funds (Annaorazov 2024).[6] The danger that the Karakum Canal banks would rupture was already evident during its construction. To save money, the Soviet authorities used a crude method of "flattening" during construction, an approach they had used at a number of other large reservoirs in Soviet Turkmenistan. The "gentle unreinforced wave-resistant slopes both on the reservoirs and in the canal itself" were cheap (Gerasimov 1978, 19) and were designed based only on theoretical calculations. The waterproofing of the project was carried out in the earthen canal using the most outdated materials, such as clay and sand, which were broken into small pieces and distributed on the walls and bottom of the canal. Because it lacked a concrete lining, the Karakum Canal became covered with silt over time, and in early 2023 it burst, leaking 100 million cubic meters (mcm) of water into the dried sand (Turkmen.news 2023). The Karakum Canal wastes 18 percent of the total 10–12 bcm of water it annually brings to the central part of Turkmenistan due to infiltration into the saline soil, which has led to massive agricultural land salinization in Turkmenistan. According to a 2020 FAO report, 68 percent of the total irrigated area in Turkmenistan was impacted by soil salinization (FAO, 2020). As of 2011, roughly 50 percent of arable land was affected by salinization and waterlogging, compared to 25 percent a decade earlier; in turn, crop yield showed a decrease of 20–30 percent (UNECE 2012, 105).

One reason for high soil salinization was the absence of drainage canals to transport the excess water from irrigation fields containing high concentrations of salts. Even now, Central Asia continues to combat soil salinization, which occurs as salt is blown by strong seasonal winds from one region to another, at times even reaching Afghanistan.

Over the years, the Karakum Canal became both a large-scale water management infrastructure of the Soviet Union[7] and a symbol of the "cotton curse" of modern Central Asia: from 1965 to 1980, in Uzbekistan alone, the Soviet Union built about 170,000 km of canals to irrigate 4.2 million ha of land, largely for the purpose of growing cotton (Weinthal 2002, 6), and it invested Rub 12.3 billion in water management and land reclamation—twice the amount of funding allocated to the entire region in 1945–1965 for the same purpose (Dukhovny and de Schutter [2011, 192]).

Table 1. Rate of commissioned irrigated lands in Soviet Central Asia

Period	Rate (million ha per year)
1960s	1+
1970s	Up to 6.8
1980s	Up to 7.9

Source: Dukhovny and de Schutter 2011, 186.

Soviet Central Asia continued to increase its cotton production quotas, even as the Aral Sea continued to shrink. In the early 1980s, the Soviet Union produced 9 million tons of cotton, making it the fourth largest producer in the world (Grabish 1999).

Thus, as Erika Weinthal (2006, 73) maintains, the planned economy of the Soviet Union became synonymous with cotton monoculture even as it demonstrated the destructive

6 The implied meaning of "people's construction method" emphasizes using high numbers of laborers to compensate for machinery and technology.

7 The task of turning Central Asia into a guarantor of cotton independence for the Soviet Union began in 1933; continued in 1966 (23rd Communist Party Congress) as part of a program to intensify crop yields; and then continued further in chemical land reclamation.

impact of political power on the environment. Cotton produced in Uzbekistan and Turkmenistan continues to this day to deplete the resources of common transboundary rivers. The "great construction projects" of the Soviet era finally changed the course of the Amu Darya, reducing by half the water in one of the region's largest arteries.

Central Asia, virtually a colonial periphery far from the imperial capital in Moscow, was developed in a very lopsided manner, with a near singular focus on providing the USSR with a valuable cash crop, cotton. This mono-development was managed without regard for conservation of water resources and caused great environmental damage to the region, which persists to this day. The most powerful legacy for Central Asia has been the loss of 90 percent of the territory of the Aral Sea, formerly the fourth-largest inland body of water in the world.

The Return of the Qoshtepa Canal to Afghanistan's Development Agenda

The Qoshtepa Canal did not return as a high-priority agenda item for Afghanistan until 2017 under President Ashraf Ghani. In 2018, Kabul signed an agreement with USAID for a feasibility study of a new Qoshtepa Canal to divert waters of the Amu Darya and open huge new areas of agricultural land. Three years after the agreement was signed, both the Americans and the Ghani government were gone from the scene. If this sequence of events sounds familiar, it is because they recall events of the 1970s, when President Daoud signed an agreement for a Soviet feasibility study on the canal and—along with his government—was gone three years later. Fortunately, however, the feasibility study was completed in 2019.

In a 2004 report entitled *Water Resource Development in Northern Afghanistan and Its Implications for the Amu Darya Basin*, the World Bank refers to studies of the Qoshtepa irrigation systems carried out in the 1950s and again in the late 1980s; these led to a development plan for nearly 1 million ha, but this remained unrealized due to lack of funds (Ahmad and Wasiq 2004, 21). It must be said that compared to these earlier iterations, the current Qoshtepa Canal project is larger—in the dimensions of the canal, amount of water intake from the Amu Darya, and size of the irrigated area. It also differs in the method of water flow into the canal and location of water uptake from the Amu Darya River.

During Hamid Karzai's rule, the Qoshtepa project remained a government priority, but it was set aside because opposition from downstream Central Asian states made the US reluctant to support it.[8] Throughout the most recent war in Afghanistan and especially after the surge of US forces in Afghanistan in 2009, the United States was extremely dependent on the Central Asian states for the transit of soldiers and materials to Afghanistan. The establishment of the Northern Distribution Network in 2009 to support the US surge made Uzbekistan's significance as part of transit corridors second only to Pakistan's.[9] Hence, the reluctance of US officials to be enthusiastic about the Qoshtepa Canal.[10]

Only in 2018, after the logistical supply demand had dramatically decreased with US troop withdrawals, did the US government express support for the canal under the US-backed Afghan government of Ashraf Ghani. During the second attempt at the project, USAID conducted feasibility studies for irrigation infrastructure, including 500,000 ha of land, 270 km of canals, and several dams (USAID 2018). At that time, USAID also identified agriculture as the most important source of livelihood for Afghans, as more than 80 percent of the population and 90 percent of the impoverished lived in rural areas. Construction work on the canal was initiated in the first half of 2021, and according to satellite images, 7 km had been built before the Ghani government fell to the Taliban in August 2021.[11]

8 In May 2024, one of the authors had this point confirmed by former Afghan government officials who served during the Karzai and Ghani administrations after 2002.

9 For more on the Northern Distribution Network and Uzbekistan's role, see Kuchins et al. (2009).

10 Based on authors' discussions with former Afghan officials, May 2024.

11 Based on a discussion with Najibullah Sadid (hydraulic engineer, associate researcher), Karlsruhe, April 30, 2024.

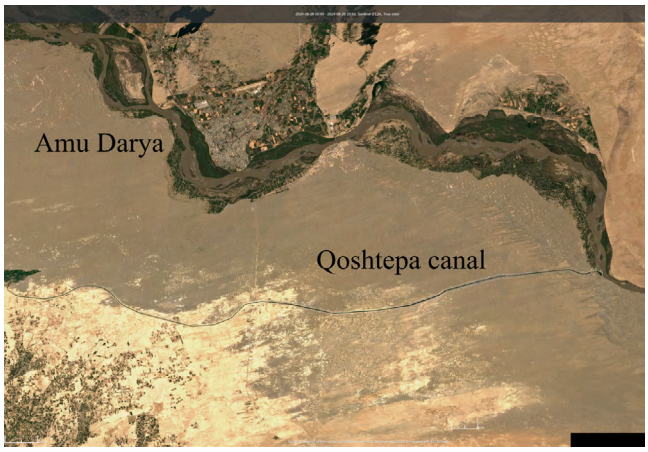
Six months after the fall of Kabul, in March 2022, the interim authorities of Afghanistan resumed the construction of the Qoshtepa Canal. Satellite imagery provided by US-based Planet Labs PBC confirmed the rapid progress in construction of the canal, and by October 2023, just a year and a half after starting construction, the interim government had completed the first 108 km of the planned 285 km.

Notably, the first section of the project was completed without technical or financial support from foreigners. The Afghan Ministry of Finance promised to cover the cost of canal construction—priced at US$1.5 billion, according to the AACS 2019 feasibility study—from the country's domestic revenues. These have increased as a result of the government's fight against corruption and tax evasion. The World Bank estimates that the project's first phase was financed from reserve funds and that the canal alone accounted for 51 percent of Afghanistan's total development expenditures (Waheed et al. 2023, 38).

The AACS 2019 feasibility study projected that the main canal, all its sub-canals for irrigation, and land preparation for agriculture would be completed in 16 years. However, the interim government of Afghanistan projects that work on the main canal, to be carried out in three phases, will be complete and the canal operational by 2028, or about six years in total. Even acknowledging that the Ghani government had completed 7 km of the canal before the takeover by the Taliban in August 2021, the projected pace is a very rapid one.

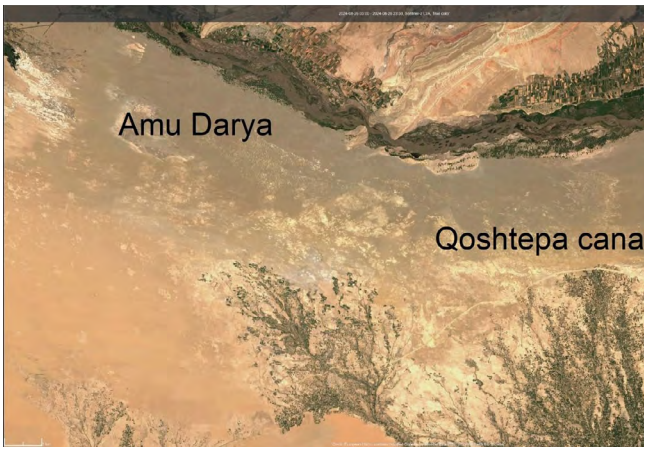
The first phase of the canal, spanning 108 km, was implemented within just a year and a half after the start of construction (Figure 7) at a cost of over Af 8 billion, a sum supplied from the state budget and equivalent to US$115 million. This section was inaugurated in October 2023. As this report is being written (October 2024), the second and final phases, which span an additional 177 km, are currently underway at a rapid pace (as shown in Figure 8).

Figure 7. Sentinel-2 satellite image showing first phase of construction, with work starting in Kaldar District in Balkh Province, bordering Tajikistan. This section of the canal is also partly filled by groundwater seeping into it during the excavation due to higher groundwater levels close to Amu Darya.



Source: Modified Copernicus Sentinel data [2024]/ Sentinel Hub.

Figure 8. Sentinel-2 satellite image showing the progress of the Qoshtepa Canal in August 2024. The image shows the second and final phases of the main canal in Balkh, Jawzjan, and Faryab Provinces in northern Afghanistan.



Source: Modified Copernicus Sentinel data [2024]/ Sentinel Hub.

For the past two and a half years, virtually all the press coverage of the canal—both Afghan and foreign—has focused on the six-year period to complete the 285 km main canal. However, the milestones for completing the Qoshtepa Canal project (Table 2) suggest a very different time frame for fully operationalizing the canal.

Theoretically, the main canal could be operationalized as soon as the intake infrastructure work is completed, and based on the current pace of progress that could be as soon as 2025. The official website of Afghanistan's National Development Corporation (NDC) reports progress on the intake structure at 50 percent; and Abdul Rahman Atash, the CEO of NDC, speaks of some water to be released to the main Qoshtepa Canal as soon as next year (2025) (Niazi 2024).

But the flow of water from Amu Darya into the main canal does not mean full-capacity water consumption, as water release into the main canal can also impact downstream (AACS Consulting 2019, 45), largely due to seepage from the canal bed. The 2019 feasibility study estimates 22 percent water loss in the first 40 km of the canal and 8 percent loss for the rest of the canal. Agricultural use of water at this stage will not be significant because the sub-canals that should transport water to the fields are not there, and agricultural fields are not yet ready for farming. The forecast is for an additional 10 years before the entire system is complete and Afghanistan can make full use of the new waters derived through the canal system (AACS Consulting 2019, 154). This extended time frame for completion alleviates some of the urgency for Afghanistan to reach a new political agreement with its Central Asian neighbors over water use in the Amu Darya basin.

Table 2. Main Qoshtepa Canal milestones indicated in feasibility study report.

Structure	Quantity, length	Progress or status
Main canal	One canal, 285 km	Under excavation
Main canal's intake structure	One	Under construction
Branch canals	Two canals, 37 km and 45 km	Not yet started
Secondary canals	27 canals, each 7 km to 22 km	Not yet started
Tertiary canals	182 canals	Not yet started
Quaternary canals	3,395 canals, each irrigating 30 to 60 ha	Not yet started
Drainage canals	692 km	Not yet started
Pump stations	23 solar-powered pump stations for non-gravity irrigation	Not yet started
Hydraulic structures (cross-regulator)	42	Not yet started
Hydraulic structures (head-regulator)	311	Not yet started
Hydraulic structures (main canal drop structure)	46	Not yet started
Water intake structures for tertiary canals	3,395	Not yet started

Structure	Quantity, length	Progress or status
Water intake structures for drainage canals	13,577	Not yet started
Hydraulic structures (drainage canal drop structure)	224	Not yet started
Bridges (highway, community)	56	Two of 56 constructed; one under construction

Source: AACS Consulting 2019.

Significantly, the Afghan government, demonstrating its self-reliance, is implementing the second and final phases using funds from the sale of coal to Pakistan.[12] In doing without technical and financial support from outside sources, the government is continuing its approach for the first phase. The final phase involves the construction of smaller irrigation canals for existing and new agricultural fields in Jawzjan, Faryab, and Balkh—the densely populated provinces of northern Afghanistan that border Central Asia. Table 2 shows the large number of branch, secondary, tertiary, quaternary, and drainage sub-canals, as well as hydraulic infrastructure, that will have to be constructed after the main canal is completed.

Local authorities claim that the Qoshtepa Canal project is set to revolutionize Afghanistan's agriculture (TOLOnews 2022), allowing the country to become self-sufficient in wheat and to export other crops. Given the widespread drought and low rainfall characteristic of Afghanistan's highland and arid weather, constructing the canal is likely to increase wheat yields significantly. Such improvement could help prevent further contraction of the Afghan agricultural sector, which according to the World Bank declined by 6.6 percent in 2022 (Waheed et al. 2023, 6). As the agricultural sector accounts for 36 percent of the country's GDP (Waheed et al. 2023, 6), this decline poses a risk to Afghanistan's already fragile economy and its efforts to recover from the shocks of a long war and persistent poverty—and highlight's the canal's importance.

In addition to improving agricultural output, the Qoshtepa Canal would create jobs. According to the World Bank's Agricultural Sector Review, irrigated farmland could create up to 60 percent more jobs per hectare than rain-fed farmland. Even with available water, "shifting from wheat to production of some horticultural crops could triple or even quadruple, the labor input (employment) per hectare" (World Bank 2014b, 8).

Currently, nearly 16 million people, or almost 50 percent of the population, struggle to acquire sufficient food, while unemployment has led a new group of people to face hunger and malnutrition. In response, the World Food Programme has launched an urgent appeal to the global community to support the Afghan people.[13] Despite the grim reality that unemployment has doubled since the Taliban assumed power (Waheed et al. 2023, 23), the Prime Minister's Office for Economic Affairs of Afghanistan reported in 2022 that the first phase of the Qoshtepa Canal project was already employing 5,000 Afghan workers (Deputy PM for Economic Affairs 2022). The number of jobs created once the canal is completed is expected to be much larger.

12 This information comes from various sources.

13 World Food Programme, "Afghanistan," https://www.wfp.org/emergencies/afghanistan-emergency.

Meanwhile, the latest official statistics indicate that the Afghan population is growing by 1 million annually (Melis and Zuliani 2023, 8). Out of the total population, now estimated to be over 43 million, about 60 percent live in rural areas and are mainly dependent on the country's agricultural economy. This situation highlights the need for continued development of the agriculture sector to support the livelihoods and food security of millions of people in Afghanistan.

Finally, by implementing the Qoshtepa project independently, the Taliban are doing more than pursuing economic goals and seeking to solve social problems. They are trying to strengthen their regional power and, at the very least, prompt neighboring states to recognize their political ability and the legitimacy of their authority, as evidenced by Kabul's constant informal talks with Central Asian governments. The Taliban's formation of provincial security forces to safeguard the canal[14] and their pledge to defend it also demonstrate their view of the canal as essential for the country's prosperity and sovereignty. The message is that no foreigners will prevent Afghanistan from pursuing its reasonable national interests (Yaazdani 2023).

14 The area of the canal designated for protection by the security forces extends from the intake construction in Kaidar District of Balkh down to Faryab Province, where canal construction has just begun. See Ministry of Interior Affairs–Afghanistan (@moiafghanistan), "An equipped security detachment has been established to ensure the safety of the Qoshtepa Canal," X, November 15, 2023, https://x.com/moiafghanistan/status/1724713699661812223.

Legal and Technical Perspectives on the Qoshtepa Canal

The current allocation of water from the Amu Darya River basin for agriculture is a legacy of the Soviet Union's Protocol 566 of December 3, 1987. This instrument, established by the Ministry of Land Reclamation and Water Management of the USSR, set the limit of total annual withdrawal from the Amu Darya by the four Central Asian signatories—Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan—at 61.5 bcm (see Table 3). This total assumed annual withdrawal by Afghanistan of 2.1 bcm (Ahmad and Wasiq 2004, 33–34).

Table 3. Water distribution limits in the Amu Darya basin.

Destination	Limit (bcm/year)	Share of total use (%)
Uzbekistan	29.6	48.2
Turkmenistan	22.0	35.8
Tajikistan	9.5	15.4
Kyrgyzstan	0.4	0.6
Total for basin	61.5	100
Allocations downstream of the Kerki gauging site		
Uzbekistan	22.0	50
Turkmenistan	22.0	50

Source: Ahmad and Wasiq 2004, 34.

Afghanistan, which currently withdraws approximately 2.5 bcm from the Amu Darya, was not party to Protocol 566. Not surprisingly, Moscow did not include Afghanistan in the agreement, as it was fighting a war there at the time the agreement was formalized.

In 1992, after the USSR was no more and the Central Asian countries had gained independence, a new agreement was signed by the Aral Sea Basin countries: the Agreement on Cooperation in the Management, Utilization, and Protection of Interstate Water Resources, known as the *Almaty Agreement*. This agreement commits the signatories to adhere to the principles of water allocation agreed upon during the Soviet era, to exchange information, and to collaborate on joint research. The Almaty Agreement created the Interstate Commission for Water Coordination (ICWC) with the mandate to govern the interstate allocation of water resources in the Amu Darya and Syr Darya Rivers. The Nukus Declaration, adopted at a conference of the Central Asian Heads of State in 1995, affirms that the Central Asian states recognize the earlier signed water management agreements and pledge to continue to implement

them. Current allocations are agreed semiannually among the four countries within the framework of the ICWC (World Bank 2014a). All of these subsequent agreements also excluded Afghanistan from the negotiations; because Kabul is not a signatory, it has no obligation to abide by them.

International law is applicable to the Amu Darya and assumes voluntary use of international watercourses.[15] It does not oblige Afghanistan, which was excluded from the Almaty Agreement, to comply with annual water use restrictions. Moreover, the downstream countries of the Amu Darya (initially the Soviet Union, and later Turkmenistan and Uzbekistan) favored considering the water of the Amu Darya basin as national wealth and ignoring threats to water security in the region.

Exclusion of Afghanistan from the Central Asian water treaty paved the way for extensive modification of the banks of the Amu Darya River (i.e., reinforcement of the natural banks bordering with Afghanistan by Tajikistan, Turkmenistan, and Uzbekistan). These modifications left the Afghanistan side of the Amu Darya exposed to significant erosion, so that large fertile agricultural and housing areas were worn away and became part of the river. People in these areas were displaced to other regions, including south of the Amu Darya banks in a desert full of sand dunes (Mahmoodzad et al. 2023), e.g., in the Khamab and Qarqin Districts of Jawzjan.

The Aral Sea basin water-sharing arrangements stemming from Protocol 566 in 1987 are anachronistic not only because they exclude Afghanistan but also because the Aral Sea itself has almost completely disappeared in the 33 years since the Soviet collapse. As was pointed out earlier in this report, the coming of the Qoshtepa Canal is a late-developing shock for regional water sharing in the Amu Darya basin. From this perspective, the urgency is not for a new Aral Sea Basin agreement but for an Amu Darya basin agreement. It is virtually impossible that the southern portion of the former Aral Sea territory fed by Amu Darya waters can be revived. Kazakhstan has made modest progress in the Northern Aral Sea area, but this is not relevant for Amu Darya water. The key countries required for an Amu Darya basin agreement include Afghanistan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Since the start of the most recent attempt to build the Qoshtepa Canal by the interim authorities of Afghanistan, the Amu Darya has been the subject of somewhat contentious regional governmental discussions and press commentary, and there has been concern that the canal's completion could lead to increased regional conflict. The environmental coalition Rivers without Boundaries (2024) estimates that the completed canal could divert up to 20 percent of the Amu Darya's water flow to irrigate agricultural land in northern Afghanistan, exacerbating water scarcity throughout Central Asia. The countries downstream of the Amu Darya, whose economies are closely linked to income from agriculture and especially cotton production, will be hardest hit by the canal's construction.[16] Still, these concerns may be exaggerated; according to a recent study by Busch et al. (2023, 11), even if the Qoshtepa Canal diverts 25 percent of the water from Amu Darya, it will reduce Uzbekistan's GDP by only 0.7 percent beyond 2030.

International experts are very concerned about outdated methods of canal construction and the Taliban's efforts to minimize the cost of project implementation by digging a ditch with excavators without lining the canal by geotextile and concrete to reduce the losses (*The Economist* 2023). An article in CABAR.Asia finds that the methods used will significantly increase the probability of water

15 For the relevant law, see "UN Convention on the Law of the Non-navigational Uses of International Watercourses," International Water Law Project, May 21, 1997, https://internationalwaterlaw.org/documents/intldocs/watercourse_conv.html.

16 Agriculture accounts for 17 percent of Uzbekistan's GDP and 10 percent of Turkmenistan's GDP.

losses through soil seepage (Adylbekova 2023). There is also concern that the launch of the canal will increase soil salinization, and that further implementation of the agro-industrial complex by Afghans will spoil large areas of land and increase the amount of salt water in the lower reaches of the Amu Darya (Ibraimov and Ali 2023).

The canal is being dug into very sandy soil, particularly in its first phase, and is not being lined with geotextile and concrete to avoid seepage losses. Unlined canals not only waste fresh water through seepage into the saline soil but (as explained above) also cause salinization of agricultural land by pushing the salts of the soil onto the surface, as groundwater levels rise once the canal is filled with water.

As the Amu Darya transports large amounts of sediments throughout the year, sedimentation is another concern. The canal's lack of a desilting structure to reduce sediment entry could lead to sediment deposition in the canal and decrease its efficiency. The excavated soil from canal construction is currently being dumped along the canal without taking proper soil stabilization measures. The wind drives the disturbed soil and sand back into the canal, allowing sediment deposition and weed growth, which in turn reduce the canal's efficiency in conveying water and can cause erosion of its banks.

By 2040, the Amu Darya's waters will be depleted by another 3 km^3 due to water withdrawal by Afghanistan, in addition to the predicted decrease by 2.6 km^3 due to climate change. Such developments could potentially destabilize Uzbekistan's relations with Turkmenistan and both countries' ties with Afghanistan. In September 2023, at a meeting of the founding countries of the International Fund for Saving the Aral Sea, Uzbek leader Shavkat Mirziyoyev urged Central Asian states to study the construction of the Qoshtepa Canal, "which is not bound by any obligations" with Central Asian countries but which could "radically change the water regime and balance in Central Asia" (President of the Republic of Uzbekistan 2023). To date, however, no official objections to the Qoshtepa Canal have come from Afghanistan's Central Asian neighbors (though Turkmenistan has demanded that Afghanistan use a "science-based approach to water withdrawal from transboundary rivers" and employ "highly qualified personnel" capable of properly managing the canal) (Akhal-Teke 2024). Both Turkmenistan and Uzbekistan have a number of other interests that require the cooperation of Kabul, such as the Turkmenistan-Afghanistan-Pakistan-India gas pipeline and the extension of the Uzbek-Afghanistan rail link to Pakistan. Hence they are for now reluctant to take a position directly opposed to Afghanistan (Duffy 2023).

Conclusions and Recommendations

After nearly 70 years of discussions and planning of multiple governments in Kabul, the Qoshtepa Canal is being constructed in northern Afghanistan. This critical infrastructure, which will affect access to water for irrigation for millions of farmers in an increasingly water-deprived part of the world, is essential for the future prosperity of Afghanistan. The country's top priority should be building an efficient and well-engineered canal, but there is reason to think that Afghanistan on its own may not be able to do this. Central Asia has already suffered several generations of water shortages, mainly because of poorly constructed irrigation infrastructure, soil salinization, and excessive reliance on cotton planting. Moreover, climate change is making Central Asia dryer and hotter at a rapid pace. Ensuring that the canal is constructed to appropriate standards and with due regard for the health of the environment is vital.

To achieve this end, the following steps are recommended:

1. The United States should use the opportunity of this critical project to engage the interim authorities of Afghanistan. This is essential to ensure construction of a well-engineered canal that maximizes efficient water use in Afghanistan. If the United States supports the project in principle, or at least does not seek to block it, there is a higher likelihood that the multilateral development banks—like the World Bank, the European Bank for Reconstruction and Development, and the Asian Development Bank—will support the project financially, technically, and diplomatically.

2. The United States should work with multilateral development institutions to ensure that they or other responsible actors provide the interim authorities of Afghanistan technical assistance, including consultancy services, not only for the construction of the canal itself but also for construction of the much broader irrigation system that it will support. Afghanistan lacks enough technically trained personnel to handle the complex construction of the canal and establish a modern national water management system. A core problem is the lack of highly trained hydraulic engineers, many of whom have left Afghanistan since the Taliban takeover. Some critical ministries and government agencies that in other countries might be headed by technocrats are in Afghanistan headed by mullahs.

3. The United States should convene its allies and partners to support diplomacy around regional water-sharing including Afghanistan. Minimally, the parties to such an agreement should include Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. There are numerous such transboundary agreements adjudicating water sharing in many river basins around the world, and their experience can help frame this new agreement.

4. Washington should also work with its allies, partners, and multilateral institutions to provide downstream states, specifically Turkmenistan and Uzbekistan, with additional investment and technical assistance to improve their own irrigation systems using Amu Darya waters. International assistance is now supporting their transition to move away from raising mostly very water-intensive crops, but far more resources and effort are required. This assistance must also address regional water pricing that is critical to promote less water use per capita. The promise of significantly in-

creased financial and technical support also provides incentives for Turkmenistan and Uzbekistan to reach a water-sharing agreement with Afghanistan..

While the incoming Trump administration faces many foreign policy and national security challenges across multiple regions, a failure to engage in Afghanistan and Central Asia on water security increases the likelihood of regional instability, conflict, governance failures, and global terrorist groups using the territory to undermine broader U.S. interests. Given the rapid acceleration of glaciers melting across Central Asia, this may be the last chance to prevent ongoing environmental, economic, social, and regional security challenges from reaching genuinely catastrophic proportions.

The massive challenges Central Asia faces in managing water security are laid out by Eric Rudenshiold (2023) in a Caspian Policy Center report entitled "Is It Too Late to Save Central Asia?" An affirmative answer to this question seems premature. But the region must act now to reorient regional water-use policies in a more sustainable and equitable manner if it is to prevent major catastrophes.

Part of the necessary reorientation involves major changes in regional water pricing. Regional states must make significant policy changes to promote a more integrated water-use system and to take advantage of large-scale assistance from the international donors starting right now with the Qoshtepa Canal project. While the canal system is not expected to be fully operational (meet its maximum designed capacity) for another 14 years, action is needed now, since building an efficient canal, negotiating a new regional water-sharing agreement, and revising current water-use practices are all significant challenges that will be difficult to implement.

The situation requires a "first mover" to unlock the involvement of Western and other states as well as international multilateral assistance institutions. The United States is well fitted to play this essential role, which need not entail officially recognizing Afghanistan, but does require engaging the country's de facto authorities. Afghanistan has never indicated it is against such assistance with the canal. No doubt there are some hardliners in Kabul wary of international engagement, but the authors' sources suggest a broader openness on this question.

Some may reasonably question why Afghanistan, as an upstream state, would desire to sign water-sharing agreements with downstream neighbors that could constrain its use of water. It is also reasonable to question why the Taliban—or Turkmenistan or Uzbekistan, for that matter—would be willing to trust foreigners' assistance, which would necessarily be of long duration—that is, for at least a decade. Corruption will also present a huge challenge for any donor institutions seeking to implement plans for a project of this scale. Fortunately, the multilateral development banks have extensive experience in working in very difficult governance structures. Conditionality and transparency will be critical at every step.

Afghans have rightly earned a reputation for being fiercely independent amidst a group of neighboring states that have at different times sought to constrain, if not eliminate, Afghan sovereignty. It would be foolhardy indeed not to acknowledge that the steps proposed above face tremendous headwinds. It is also necessary to keep in mind the domestic political context in Afghanistan and the canal's implementation as an independent project of the Afghan state under the rule of the Taliban. Nevertheless, there are domestic officials known to the authors of this report who recognize the technical difficulties of going it alone. In our view, leaders in Kabul and in Central Asia will ultimately act in a pragmatic fashion in the face of a genuinely growing crisis in their midst.

On October 29, 2024, TOLO news published an article summarizing an interview with Ismatullah Irgashev, Uzbekistan's Special Representative for Afghanistan, who revealed the two countries had established a bilateral joint commission on issues around the Qoshtepa Canal. He noted that two meetings had already taken place, and a third is scheduled in early November. Irgashev also said,

> "It's important to note that Afghanistan and the Afghan people have the right to make use of the Amu Darya's waters as a primary matter. In this regard, there are no concerns or challenges. The key issue is how much water should be drawn from the Amu Darya. Here, the interests of all countries using the Amu's water resources must be taken into account, and a third issue is that the water level in the Amu Darya varies each year. This means that in one year, the water level may rise, while in another, it may decrease (Shinwari 2024).

These bilateral talks mark a promising diplomatic step, but it will be imperative for them to be multilateralized soon to discuss a regional water sharing agreement. These talks will be lengthy, complicated, and controversial, but they are essential.

It is also reasonable to have doubts about the other half of the equation—the willingness of Washington to support a project that could help the Taliban economically and thus politically. Whether Washington likes it or not, however, the Taliban are the de facto authorities in Afghanistan, and there is little likelihood of this changing in the foreseeable future. To their credit, they have actually begun to carry out the largest development project in the history of Afghanistan, one that could potentially bring great benefits for millions of people. Very different Afghan governments over the past 50 years have supported some kind of Qoshtepa Canal. This is hardly a capricious endeavor pursued by some delusional dictator on a whim. Water security is now the greatest challenge for regional governments across Central Asia, and it does not take great imagination to see the downside risks for regional security and even global security if growing water security challenges for the region are not addressed comprehensively and with US support.

As the Qoshtepa Canal project proceeds, the political and social security of Afghanistan and Central Asia will be under tremendous threat, with the potential for massive state failures that reverberate far beyond the region. The United States failed to appreciate the magnitude of the terrorist threat in the late 1990s that led to 9/11. For Washington to step in to help mobilize financial and political support for the canal project would be a wonderful example of what Ashton Carter and William Perry (1999, 258) described more than a quarter of a century ago as "preventive defense": taking modest steps in cooperation with others that help prevent truly catastrophic worst-case scenarios. This need not be a high-profile policy initiative for the incoming administration; in fact, it is best if it is not. The US Congress would not be inclined to provide any financial assistance for the Taliban anytime soon, and, in fact, we are not recommending that now. We are, however, recommending quiet, behind-the-scenes support from the next administration to promote building a better Qoshtepa Canal, a new regional water-sharing agreement, and more regional technical assistance for more sustainable water usage practices in Central Asia at large.

These recommendations for the incoming Trump administration constitute a piece of a broader regional development strategy with global implications. Afghanistan and its Central Asian neighbors border three of Washington's most challenging global actors: China, Russia, and Iran. There is no question that Central Asian states seek broader and more diversified U.S. engagement in the region to hedge against the overweening influence of Beijing, Moscow, and Tehran. Supporting the construction of the Qoshtepa Canal, a regional water-sharing agreement, and more sustainable water-use practices should be an integral piece of Washington's strategy to contain increased influence of China, Russia, and Iran with Afghanistan and its Central Asian neighbors.

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