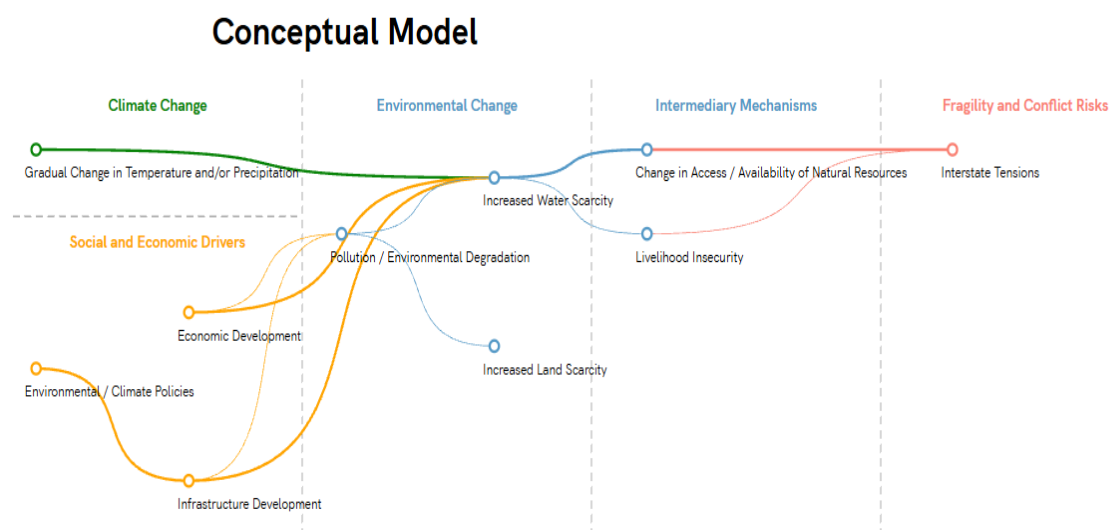


The Qosh Tepa Canal and water scarcity in Central Asia

Source: https://climate-diplomacy.org/case-studies/qosh-tepa-canal-and-water-scarcity-central-asia#fact_sheet_toc-conceptual-model

Afghanistan is constructing a canal that would divert a significant portion of the Amu Darya for agriculture in its arid north. Afghanistan's tumultuous history has thus far prevented large-scale water abstraction from the Amu Darya. Instead, its (downstream) neighbours have shared the river among themselves and are now facing the prospect of significantly less water from this already over-used river reaching them. If no agreement can be reached on how the water is shared, this could lead to conflict.



HISTORY

The Amu Darya is critical to the economies and livelihoods of four nations across water-stressed central Asia. Afghanistan's Qosh Tepa Canal, designed to divert water from the river to its arid northern provinces, is expected to be operational by 2028 and to significantly squeeze the prevailing water use patterns in Uzbekistan and Turkmenistan. Whereas Afghanistan perceives the canal as a legitimate development tool for a country historically excluded from proportionate access to the river's potential benefits, downstream Uzbekistan and Turkmenistan have, over many decades, built key parts of their political economies around using the full extent of the Amu Darya's water resources (Sabonis-Helf 2026). A sudden change in access to this water without an institutional mechanism for dealing with the consequences could destabilize the region.

The path and current usage of the Amu Darya

The Amu Darya originates in the Hindu Kush and Pamir Mountains, running along the borders of Tajikistan, Afghanistan, and Uzbekistan, passing through Turkmenistan, and finally re-entering Uzbekistan until it reaches the remains of the Aral Sea. Diversionary projects have resulted in a situation where very little water reaches the Aral, contributing to the shrinking and salinization of the sea (Micklin 2016). Despite its upstream position, Afghanistan uses an extremely small portion of the river at approximately 2 per cent (Ibraimov & Ali 2023, Ilkhamov 2023). Its tumultuous modern history has so far left it unable to develop extensive water distribution infrastructure and has resulted in the country not taking part in regional negotiations on usage. Tajikistan, Uzbekistan, and Turkmenistan together account for the vast majority of the river's usage, with the latter two taking the greatest share (Ilkhamov 2023). Uzbekistan and Turkmenistan's water usage is primarily directed to their extensive cotton monocultures, initially established during the Soviet era (Adylbekova 2023, Ibraimov & Ali 2023). Cotton is a heavily water-demanding crop, and the demand is aggravated by the outdated agricultural techniques employed in the region, techniques entrenched by systems of corruption and exploitation (Ilkhamov 2023). Tajikistan's upstream position and relative lack of arable land leave it less at risk of impact by the canal, but its hydropower projects make it a key player in any usage negotiations.

Water and agriculture in Afghanistan's northern provinces

Afghanistan is a heavily agriculture-dependent nation, and the withdrawal of international development assistance, freezing of state assets, and sanctioning of the de facto Taliban government have left it particularly vulnerable to food insecurity (IPC 2025). Water shortages are also prevalent, with significant portions of Afghanistan's arable land currently uncultivated due to lack of water (IPC 2025, Kuchins et al. 2024). The Qosh Tepa Canal is being constructed to deliver water to the northern provinces, primarily Balkh, Jawzjan, and Faryab, all of which are particularly challenged by water shortages (Faqiryar 2024, Kuchins et al. 2024).

Construction of the canal

The Qosh Tepa canal is not a new project. It was first proposed in the 1970s under the government of Mohammad Daoud Khan and revived under the Ashraf Ghani government, with feasibility studies conducted by USAID in 2020 and the first seven kilometres built shortly before the 2021 Taliban takeover (Kuchins et al. 2024, Rao & Nazari n.d.). The de facto government has approached the project as a national priority, seeing its potential to increase arable land and thereby reduce poverty, enhance food security, and boost the legitimacy of their claim to government. Construction has progressed rapidly and the canal may be complete by 2028 or earlier (Kuchins et al. 2024). Subsidiary irrigation infrastructure will take longer to construct. Estimates of how much water the canal is likely to divert vary widely but seem to converge around some 20 per cent of the Amu Darya's total flow (Ilkhamov 2023, Kuchins et al. 2024, Overland et al. 2025). The construction methods of the canal are relatively crude, with earthen walls and an unlined floor, similar to canals built in Uzbekistan and Turkmenistan during the Soviet era (Ilkhamov 2023).

Risks and benefits of the canal

The canal will likely be transformative for agriculture in Afghanistan's north, with potentially sizable impacts on food security, economic growth, and poverty reduction (Kuchins et al. 2024). Uzbekistan and Turkmenistan will experience a significant reduction in available water, potentially triggering an acute crisis for their agricultural sectors if not adequately prepared for.

Unreliable construction methods are also likely to have serious consequences. In 2023, a section of wall in a completed part of the canal appears to have collapsed, spilling water for around a month and saturating around 30 square kilometres of ground (Eurasianet 2024). There are also serious concerns about the lack of a concrete lining. While substantially cheaper and faster to build without, the lack of a lining will lead to soil infiltration and possible salinization of the surrounding land as increasing groundwater levels push salt to the surface (Ilkhamov 2023). This could cause serious and potentially irreversible long-term damage to Afghanistan's agricultural capacity.

Climate change

Climate change further aggravates the situation, affecting both the supply and usage of water in the region. The Amu Darya is fed primarily by glacial melt in the Hindu Kush and Pamir mountains. As climate change-induced rising temperatures intensify the speed of this melt, glacial reserves will decline and could diminish the long-term volume of the river's flow (Overland et al. 2025). Glacial melt also serves to stabilize the river's flow, allowing for a level of consistency and reliability which rainfall patterns do not provide, particularly as they become more erratic due to climate change (Overland et al. 2025). Rising temperatures and reduced rainfall are requiring increasing levels of irrigation for agriculture, raising demand for water from the river (Faqiryar 2024). Without a comprehensive agreement on water usage that accounts for future climate change-driven supply and demand pressures, these dynamics are likely to become an additional source of tension and disagreement.

Actors

Actor	Participation	Functional group	Geographical scale
De facto Taliban government of Afghanistan	 	Public	Internal national
Government of Uzbekistan	 	Public	External
Government of Turkmenistan	 	Public	External
Government of Tajikistan	 	Public	External
International Fund for Saving the Aral Sea (IFAS)		Civil Society	External
Interstate Commission for the Aral Sea (ICAS)		Public	External
Interstate Commission for Water Coordination of Central Asia (ICWC)		Public	External

 Conflict Party
  Resolution Facilitator

CONFLICT RESOLUTION

The diplomatic conversation around the canal has moved beyond whether or not it should be constructed to whether or not a framework to handle the changes it will bring can be established before it goes into operation. There are openings for a positive resolution, but they will require tactful diplomacy.

Current treaty framework and its limitations

The existing treaty framework has its basis in Soviet-era water sharing agreements, the 1992 Almaty Agreement, and the establishment of the International Fund for Saving the Aral Sea (IFAS), the Interstate Commission for the Aral Sea (ICAS), and the Interstate Commission for Water Coordination of Central Asia (ICWC) as mediating bodies (Kamil 2021). Afghanistan was party to none of these, and its non-inclusion leaves the de facto authorities free to act without treaty constraints, while its upstream position allows them to do so with relative impunity.

Diplomatic openings and activity

Central Asian states find themselves in a challenging position, balancing domestic and international pressure to deny the Taliban recognition as the legitimate government of Afghanistan with the urgent need to coordinate on regional matters, particularly water usage. Uzbekistan and Turkmenistan have both signalled a willingness to engage on the issue, e.g., with

Uzbekistan sending a delegation to Afghanistan in 2023 (Eurasianet 2023, Ibraimov & Ali 2023). The inclusion of Afghanistan in a new water usage agreement or a reform of existing agreements will be complicated by the widely unrecognized status of its de facto government, as well as the latter's interest in not seeing itself constrained on water use.

The issue of water usage does not stand alone. Further diplomatic negotiations in the region around power, rail infrastructure, and gas also have relevance and may be part of a more comprehensive agreement (Adylbekova 2023) – as will the de facto authorities' interest in achieving recognition. By enhancing the basket of potential benefits to be shared (access to gas and transit fees, access to markets, access to water and electricity), the upstream-downstream asymmetries of a focus purely on water can in principle be transformed into mutually beneficial interdependencies.

Modernization and mitigation of usage and environmental damage

While a diplomatic resolution is critical, the situation could be eased even in the absence of an agreement by reforming existing water usage practices (Sabonis-Helf 2026). The current system of mass cotton monoculture, already responsible for the loss of the Aral Sea, will become even less sustainable with the opening of the canal. Diversification away from cotton and modernization of agricultural techniques would ease water consumption and create space for increased Afghan water use. While efforts to achieve these goals are underway in Uzbekistan and Turkmenistan, the deep institutionalization of the current practices makes this a difficult task (Ilkhamov 2023). Cotton remains an important cash crop, in part because it can be transported easily over poor roads without losing value (Sabonis-Helf 2026).

The canal's impacts could be further mitigated by improved construction techniques. Improvements in wall construction and the addition of a concrete lining would reduce water loss to ground infiltration, reduce the risk of catastrophic spills, and mitigate the risk of long-term salinization of arable land. These improvements are made difficult by the de facto Taliban government's financial difficulties as well as its difficulty in employing sufficient engineering capability.

Resilience and Peace Building

Treaty/agreement

Afghanistan has little incentive to respect the current water-sharing treaty framework to which it is not party. It is critical that a comprehensive agreement be reached regarding the phasing in of the Qosh Tepa Canal and future water distribution.

Environmental restoration & protection

The engineering of the canal creates significant risks for water wastage and environmental damage which could be mitigated by engineering cooperation and investment.

Improving resource efficiency

Current water usage for large-scale cotton monoculture is inefficient; improvements in agricultural technology and land-use reform would contribute to reducing overall water usage.

Resources and Materials

Adylbekova, O. (2023). Water Crisis Looming: Uzbekistan and Turkmenistan's Imperative for The Grand Afghan Canal. Central Asian Bureau for Analytical Reporting (CABAR).

Eurasianet (2023). Uzbekistan pursues mediation with Afghanistan over Qosh Tepa canal. [Access date: 22.05.2026].

Eurasianet (2024). Unexplained spill fuels concern about Afghan canal project. [Access date: 22.05.2026].

Faqiryar, J.N. (2024). Food-Climate Nexus in the North River Basin of Afghanistan: A Case Study of the Qosh Tepa National Irrigation Canal. Rumi Organization for Research. [Access date: 22.05.2026].

Ibraimov, B. & Ali, F. (2023). 'A lot of work for diplomats' in Central Asia as the Taliban build huge canal. Dialogue Earth. [Access date: 22.05.2026].

Ilkhamov, A. (2023). Implications for Uzbekistan's Water Supply of Qosh Tepa Canal Construction in Afghanistan. Central Asia Due Diligence (CADD).

IPC (2025). Afghanistan Acute Food Insecurity Analysis: September 2025 – September 2026. Integrated Food Security Phase Classification (IPC).

Kamil, I. (2021). Afghanistan, the Amu Darya Basin and Regional Treaties. Chinese Journal of Environmental Law, 5(1), 37–62.

Kuchins, A.C. et al. (2024). Afghanistan's Qoshtepa Canal and Water Security in Central Asia. Center for the National Interest.

Micklin, P. (2016). The Future Aral Sea: hope and despair. Environmental Earth Sciences, 75, 844.

Overland, I. et al. (2025). Afghanistan's Qosh Tepa irrigation project: implications for transboundary water management in Central Asia. Environmental Research: Water, 1(4).

Rao, S. & Nazari, M.Q. (n.d.). Large-scale Technical Feasibility Studies for the Qosh Tepa Canal Irrigation Project. Adroit Associates.

Sabonis-Helf, T. (2026) The 10% Solution: Central Asia's Water Challenges. Georgian Foundation for International and Strategic Studies- Estonia.