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MEGA DAMS, CANALS AND PIPELINES: WATER AS PART OF LARGE GEOPOLITICAL CHESS GAMES

Transboundary rivers are increasingly a diplomatic card, and water is increasingly gaining a 'transactional' economic nature. Dams in the Nile, a diversion canal in Afghanistan and oil/gas fields in the Mesopotamia Marshes are three of the current critical hotspots where geopolitical and geo-economic forces act as both the cause and outcome of water conflicts.

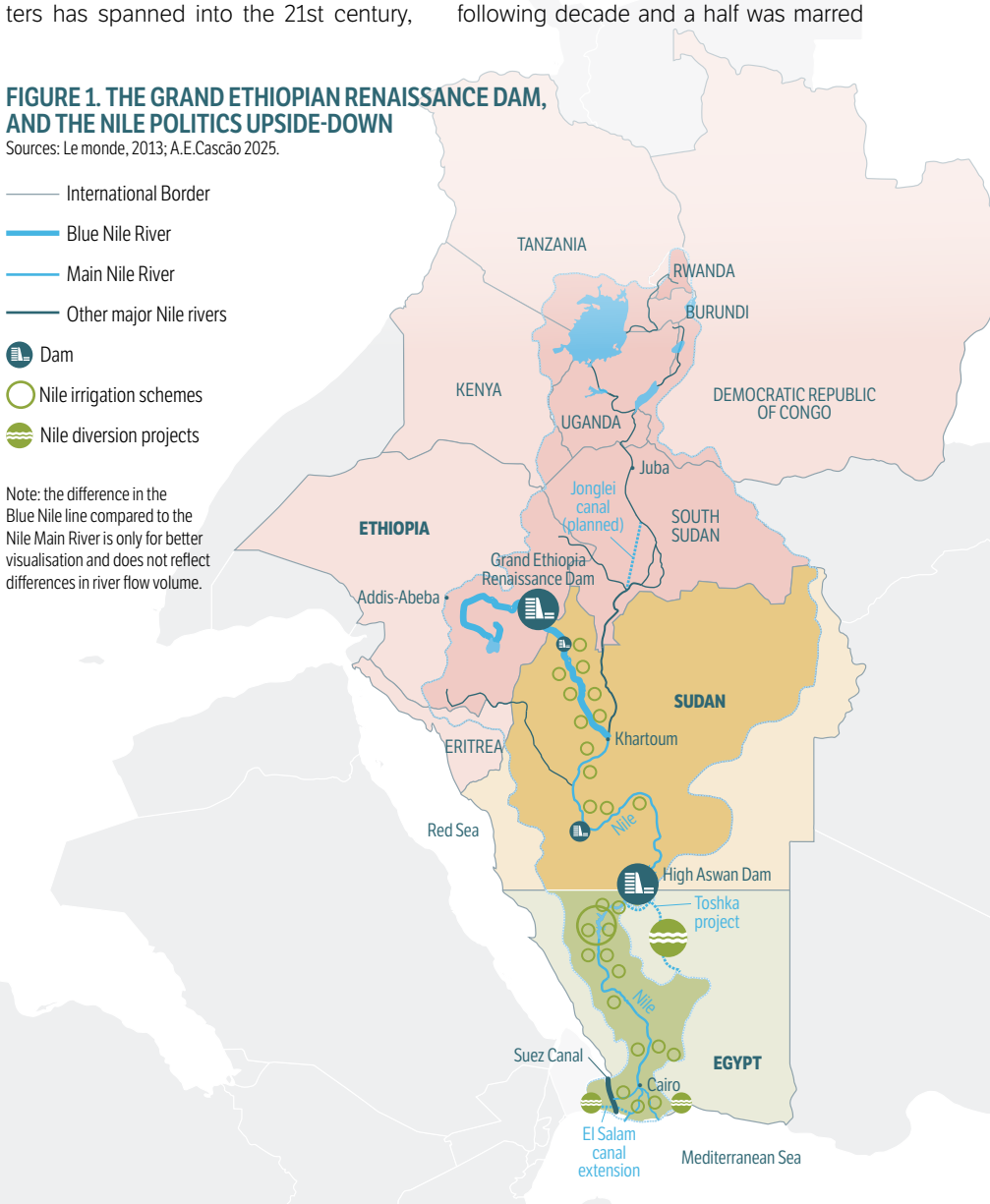
Water is both a natural and a political resource. The management of international rivers is recurrently and profoundly shaped by geopolitical and geo-economic factors. These dynamics are increasingly evident as ongoing regional and global shifts are driving governments to leverage their water resources for strategic advantage. Several countries are pursuing mega-projects not only for national economic development but also to project political power within and beyond its borders. Transboundary rivers are increasingly a diplomatic card deployed in regions such as the Nile, Middle East and Western/Central Asia.

Concurrently, water is being increasingly gaining a 'transactional' economic nature to generate financial revenue, such as massive energy production that could serve as a leverage for lucrative cryptocurrency mining. At the same time, oil and gas companies increasingly withdraw more water for its operations but drain wetlands while expanding its fields and pipelines. These projects come with significant socio-economic and environmental impacts, both actual and potential, but supposedly it pays off in political and diplomatic terms. Dams in the Nile, diversion canals in Afghanistan and oil/gas fields in the Mesopotamia Marshes are three of the current critical hotspots where geopolitical and geo-economic forces act as both the cause and outcome of water conflicts.

Grand Dams in the Nile and regional economic and security 'apparatus'

The Nile is the longest river in the world, and its 6, 650 km flows through the orders of 11 countries (Burundi, the Democratic Republic of the Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda). This means the Nile intersects several major regional political and security complexes, namely those of the Horn of Africa, the Red Sea, and the interlinked Middle East and North Africa (MENA) regions. The Nile has fascinated the world for centuries for its mighty power and for feeding ancient pharaonic civilisations. Moreover, in the 20th century the Nile became a key element of the state-building of modern Egypt, namely through the construction of multiple large dams, and therefore the Nile's centrality to its national security. Egypt's quasi-monopoly of the Nile waters has spanned into the 21st century, even though upstream countries such as Ethiopia contributes around 85% to the total amount of Nile waters. However, nothing lasts forever and the hydropolitical dynamics in the region have changed dramatically in 2011 when Ethiopia launched the mega known as the Grand Ethiopian Renaissance Dam (GERD). The launch itself was a symbolic watershed moment in the geopolitical chess game in the region, which triggered serious official and public concerns in Cairo. Nothing remained the same from then on. The following decade and a half was marred

FIGURE 1. THE GRAND ETHIOPIAN RENAISSANCE DAM, AND THE NILE POLITICS UPSIDE-DOWN
Sources: Le monde, 2013; A.E.Cascão 2025.



by heightened tensions, political posturing, even military threats, but also intense diplomatic exchanges, complex negotiation processes, and even a high-level international (failed) mediation process in Washington DC led by the first Trump administration. But what is all this about?

In September 2025, the Ethiopian government inaugurated the GERD eleven years after its announcement. What is in it for the Ethiopian government and people? In practical terms, it is a hydropower dam aimed at producing an outstanding amount of energy that can provide electricity for millions of Ethiopians and for the foreign-led industry expanding in the country. Because the amount of energy is substantial, it can also be exported to neighbouring countries, creating a potential regional energy hub. Despite its magnitude, the dam is not expected to have major impacts on Egypt and Sudan's water availability. Rather, it is politically that the dam is more momentous. For the first time in the history of the Nile, Ethiopia was able to build a large-scale dam without the approval of downstream countries, thus dictating the end of Egypt's hydropolitical monopoly of the Nile waters. [map shows the Nile upside down]

The GERD-related geopolitical chessboard extends beyond the Nile, its dams and water. In this last decade the Nile region has become increasingly 'absorbed' by regional and even international geopolitics and geo-economics. By the end of 2019, the construction of the GERD was well-advanced, and the first filling of the dam was about to take place in the summer of 2020. This symbolic momentum was a blow to the diplomatic pride of Egypt, especially because no final agreement was in sight although countries kept negotiating trilaterally throughout. At the same time, Sudan and Ethiopia were going through political regime transitions heavily supported by the US government, and Egypt was pleading US for an international mediation process for the GERD ahead of the first filing. It fit perfectly in time with the ample US campaign to redesign the Middle East region, including the adoption of the infamous Abraham Accords. The two negotiation processes were running in parallel. What was on the table? The 'carrots' were millions of dollars in debt relief, structural adjustment programs and support for the new political regimes in Addis Ababa and Khartoum; and renewed financial and military assistance flows for Egypt. The price tag: full endorsement of the Abraham Accords, and in the case of Sudan even recognition of the state of Israel for the first time. Ultimately, the Trump administration secured the Abraham Accords, and the GERD negotiations failed to produce final agreement to the extreme dismay of Egypt.

At the same time, the last decade has witnessed increasing interlinkages between the Nile and the Gulf regions, particularly with the United Arab Emirates and Saudi Arabia. These countries have been developing large-scale investments in several sectors in Sudan and Ethiopia, namely in commercial agriculture. In addition to their interests in fertile land and Nile waters, these countries have forged patronage and alliances in a region marked by ongoing volatile political dynamics, such as civil wars in Ethiopia and Sudan. Besides, one of the goals of the Gulf countries has been to guarantee strategic maritime security in the Red Sea, a major commercial route between Asia and Europe and a critical global chokepoint for oil and gas shipments. Furthermore, the Red Sea is of utmost importance for Egypt because of the massive revenues from the Suez Canal, and one could even say it is more strategic than the Nile itself. Ultimately, the Gulf's diplomatic and strategic clout has brought together the Nile and the Red Sea (supposedly separate) waters.

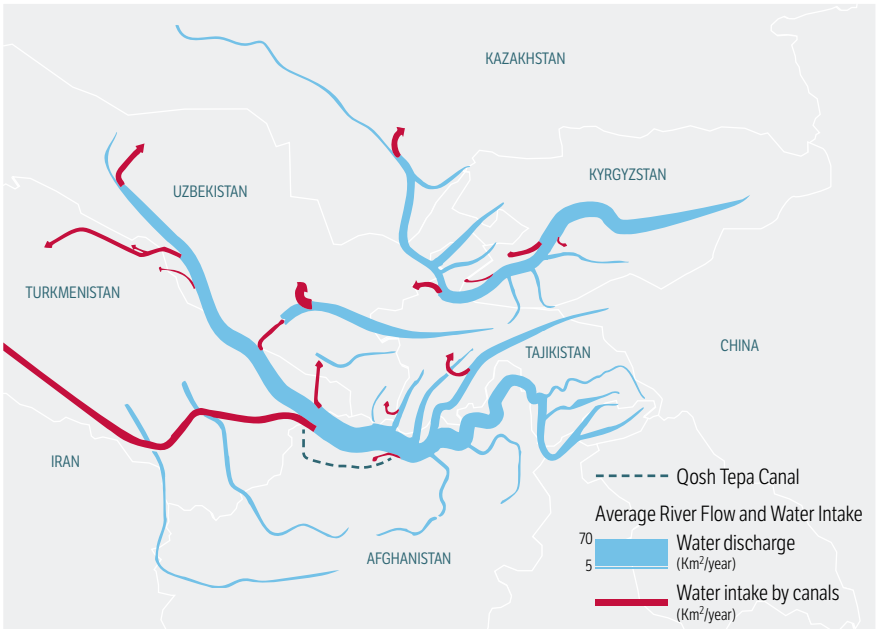
Often overlooked or even 'hidden', there is another dimension to the GERD of great strategic relevance in the global international agenda, and it is called crypto-currency. The GERD, now the largest dam in the African continent, has the potential to produce ~5,000 MW of energy, which is a massive amount of energy by any standard. It is more than enough for Ethiopia's domestic electricity needs, including providing energy for the growing industries of investors from the Gulf, China and elsewhere, thereby attracting further foreign direct investment. Still, a very considerable surplus of energy will remain available. With an eye on this, several international crypto companies are already mining in Ethiopia, currently at other dams, but it is the GERD that has the potential to become a crypto-currency powerhouse. This potential can serve the maximalist goal of the Ethiopian government: to generate foreign currency the country badly needs, as its reserves are at their lowest. Thereby, and somewhat unexpectedly a decade ago, the Ethiopian dam has gained geo-economic and geopolitical weight in a geopolitical chessboard that goes well beyond the Nile.

A mega water canal in Afghanistan in the geopolitical landscape of Central Asia

In 2022, the Taliban regime announced the revival of the large-scale Qosh Tepa

FIGURE 2. CENTRAL ASIA RIVERS, LARGE-SCALE WATER PROJECTS AND THE QOSH TEPA CANAL

Sources: Zoi Environment Network, 2010; Water, Peace and Security (WPS), 2025.



Canal, a flagship project of 285 kms designed to divert water from the Amu Darya – one of Central Asia's most important rivers – for irrigation schemes in northern Afghanistan. Although the Canal is now bringing water to the political forefront and even international media, Afghanistan is not widely known for water-related issues. Rather, in the popular mindset of much of the world, Afghanistan is a country of endless wars, extremism and perhaps mountains because of Osama bin Laden's hideouts. The fact is the country was the stage of a decade-long proxy war between the two superpowers during the Cold War (1979-1989), invasion and occupation for 20 years by the United States and its allies (2001-2021), and the source of opium that was traded by international companies throughout the world. The outcomes of repeated external interference are critical levels of insecurity, societal fractures and above all poverty, particularly in the rural areas. In this context, a canal to channel water to boost national food production appears to be a legitimate national development project, while at the same time asserting national sovereignty and rallying domestic political backing.

However, the Amu Darya is a river shared with four other countries. The upstream countries of Kyrgyzstan and Tajikistan are the main sources of water, while the downstream countries of Uzbekistan, and Turkmenistan to a lesser extent, are dependent on its flow for their national projects [see map of Central Asia, Amu Darya and the Canal]. In particular Uzbekistan, the 'darling' of the Soviet Union because of its vast and fertile land, is heavily dependent on the water for large-scale irrigation schemes (cotton and wheat) that were initially developed during the 1960s/1970s, extended ever since then and that are basically the major consumers of the Amu Darya's waters. Therefore, the Qosh Tepa Canal is a very sensitive topic given that Afghanistan contributes an estimated 15% of the total water flow. Nevertheless, the country has been hydropolitically isolated in the basin, and excluded from regional water meetings, negotiations and agreements. It begs the question: why? The answer lies in the fact that hydropolitics is merely a pawn on a very complex geopolitical chessboard, with extensive regional and international ramifications.

Afghanistan is a 'water tower' from where several transboundary rivers originate, namely the Helmand River that flows westwards into Iran and has been subject of disputes and 'negotiation' for decades, among many other top political and security issues. However, in the case of the Amu Darya flowing northeastwards, there is no agreement nor yet a platform for cooperation surrounding the highly controversial Canal, even if downstream countries (mainly Uzbekistan) would welcome a binding legal agreement that could protect their current and future water uses. Therein lies a political dilemma at stake. None of the five Central Asia countries formally recognize the Taliban as a legitimate government, which poses a significant barrier to officially negotiate or sign a water agreement. However, pragmatical diplomacy channels exist, but the hydropolitical issues are expected to linger dependent on the evolution of regional and international dynamics. As in the case of the Nile and the Euphrates-Tigris, global geo-economics and geopolitics have an important role to play here.

The Central Asia region, including Afghanistan, is today undoubtedly a key piece in the global political economy. As in the past, it retains its characteristics of the old Silk Road – a trade route between Asia and Europe, including Russia. But if in the past it was mainly about commercial goods through land routes, nowadays the discussion centers on a wealth of mineral resources and extensive pipelines. All eyes are on the large hydrocarbons of Kazakhstan, and even Afghanistan is exploring oil through a Chinese oil company, an operation actually located in the Amu Darya basin. It is likely these financial resources will allow the Tabilan regime to pay for the canal costs. For China, the Central Asia region is essential as a passage for its exports-imports to Europe, and as a market for its products and engineering services, and therefore regional security is paramount. Russia, the former leader of the Soviet Union still has significant influence in the region in cultural, economic and political terms, and also needs a stable and loyal Central Asia region for its exports-imports, namely with China, which is unequivocally Russia's main trade partner, especially since the Western sanctions in 2022.

Besides, there is an increasing global interest in the vast rare earth minerals of Afghanistan, that are estimated to be amongst the largest reserves in the region and even globally. The potential mining of these minerals is expected to attract the interest of major economies, such as the US, and global companies who depend on these precious minerals for technological advancements. This will add even more geopolitical layers that might prevent – or rather enable – the completion of the Qosh Tepa Canal.

Mesopotamia: once a hydraulic civilisation, now a web of pipelines

Mesopotamia was the cradle of human civilisation, where societies have developed unprecedent societal, cultural, economic and technological advancements. At the core of it lay the water flows of the Euphrates and Tigris rivers, which originate in the mountains of present-day Turkey and Iran, and then flow through vast fertile lands downstream in Syria and Iraq before merging in southern Iraq to form the Shatt al-Arab river, which finally enters the Persian Gulf. Water for agriculture was a key strategic element for the development of complex socio-political systems. From being an important regional breadbasket and a major land-sea transportation route, the Euphrates and Tigris waters became contested by successive empires throughout the centuries. However, the grand plans to harness the water resources emerged with the Ottoman Empire in the 19th century, which pioneered ambitious projects as well as modern technology to transform the water into food and electricity. This was the tipping point for the development of large-scale dams and irrigation schemes. These hydropolitical conflicts between riparian states persist today and intensify every time there is a new project planned that could reduce downstream flows, or every time there is an unpredictable drought, which is becoming increasingly recurrent. Ultimately, the extensive human-made water diversions over the last century have almost entirely obliterated the ancient ecosystem, including the Mesopotamian Marshes, a UNESCO World Heritage Site.

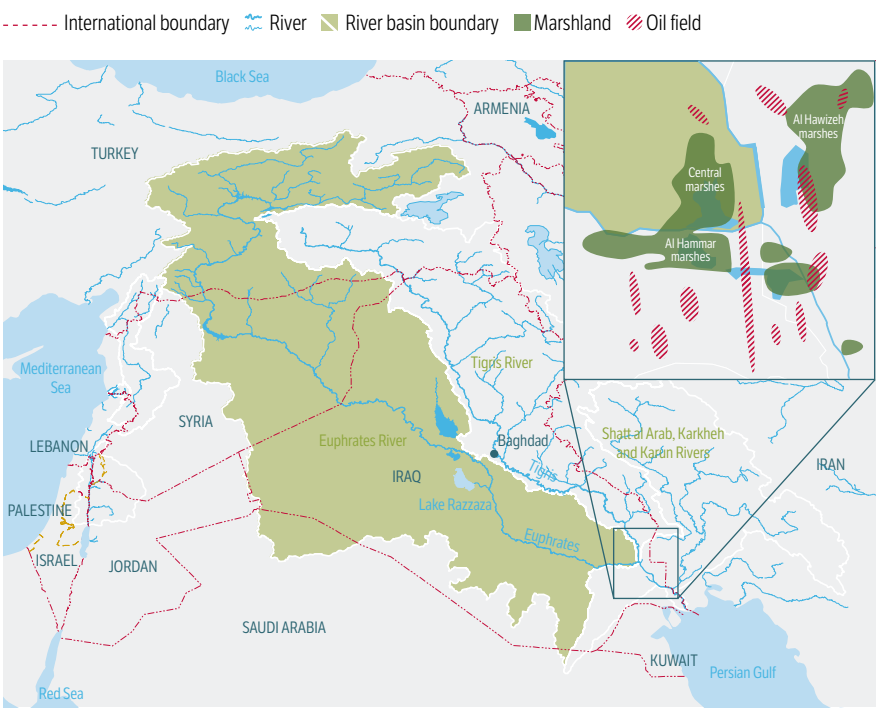
But what are the hydropolitical conflicts between of Turkey, Syria, Iraq and Iran about? It is not just (nor mainly) about water quantity and environmental protection, although a country like Iraq at the end of the system is clearly witnessing a profound socio-economic and environmental crisis. Rather, the Euphrates-Ti-

gris region is a crystal-clear example that hydropolitics are inseparable from wider geopolitics and geo-economics. For example, at the regional level, Turkey and Iran compete for economic and political influence, namely within Syria and Iraq's national territory, including influence over critical security issues, such as those related to Kurdish forces. But even more relevant is that this region holds high global geopolitical and geo-economic relevance. On the one hand, Turkey occupies a highly strategic geographic location as a crossroads for numerous trade routes and oil and gas pipelines connecting Asia and Europe, and as a NATO member, it provides Turkey with a major leverage in international politics. This leverage also enables Turkey's hydropolitical hegemony in the Euphrates-Tigris region. On the other hand, Iran and Iraq have some of the largest oil and gas reserves in the world, and only a fraction of which has been exploited so far, which expectedly grabs the attention of major global economies and companies.

The proverb that 'oil and water do not mix' is proven wrong, particularly as closer as the twin rivers get closer to the Persian Gulf. This is the case for many reasons, not least because the oil and gas fields lie beneath the Mesopotamian Marshes [see basin map, and then zoom in]. On both sides of the Iraq-Iran border, multiple global oil and gas companies are already operating, extracting and exporting, bolstering the national budgets of both countries and attracting foreign direct investment (in the case of Iraq, while Iran is still under international sanctions). However, the potential is far greater, and international companies aim at expand the hydrocarbons business. This expansion comes at a cost: the further draining of the wetlands that used to be the cradle of civilisation, and it is estimated that up to 90% of the Marshes have already been lost since the 1970s. This summer provided a stark vignette – the widespread burning of marshlands, often to access oil reserves or clear land for infrastructure such as pipelines, proceeded regardless of its environmental or social impacts. In fact, profit-driven policies are a primary factor in the destruction of the Mesopotamian Marshes –perhaps even more so than the upstream dams that are usually blamed as the main cause.

FIGURE 3. THE EUPHRATES AND TIGRIS RIVERS, THE MESOPOTAMIAN MARSHES AND OIL FIELDS

Sources: Inventory of Shared Water Resources in Western Asia, ESCWA 2013; Oil fields of the Mesopotamian Marshlands, 2020 Sentinel.



Driven by national, regional and international interests, the hydropolitical relations between Turkey, Syria, Iraq and Iran extend well beyond water, dams and irrigation. They are deeply embedded in a complex regional chessboard, where conflicts span multiple interrelated dimensions such as border security, military capabilities and commercial trade. And more often than not water is used as a political card. But what is evident is that hydropolitics are increasingly subordinated to geo-economic dimensions in the Euphrates-Tigris region.

The oil and gas resources are a key driver for the involvement of regional and global powers, from multiple geopolitical angles. Iran and Iraq want to increase their exports and revenues, even at the cost of water and environmental sustainability. Iraq has an ambitious project called 'The Development Road' which, if ever completed, will connect the Persian Gulf and Turkey by road and railway, potentially becoming the preferential trade route from the Indian Ocean to Europe, and could potentially surpass the Suez Canal in terms of travel time and costs. Turkey has a strategic interest in the project, as it will bolster its current position as the strategic hub of pipelines and simultaneously enhance its political leverage vis-à-vis the European Union and its markets. But the most eager investor is China which sees the region as a critical node – both in its land and sea dimensions – in its massive Belt and Road Initiative (BRI). In the background, the US remains omnipresent, namely to counter agreements that might favor its chief global competitor, China, or a foe such as Iran; and ultimately to maintain the geopolitical upper hand in the wider Middle East region. In short, the Persian Gulf has already witnessed two major wars since the 1980s, partly motivated by its oil abundance. And it might soon face another war – an environmental one of great dimensions.

Conclusion

Hydropolitics are fundamentally shaped by geopolitics and geo-economics dynamics, as illustrated by three critical hotspots. Ethiopia's mega-dam has recalibrated regional power in the Nile region and introduced new transactional elements to these dynamics, such as cryptocurrency mining. Meanwhile, Afghanistan's Qosh Tepa Canal threatens established water uses in Central Asia, a region of growing strategic importance for global trade. In the Mesopotamia, the expansion of lucrative oil and gas fields is causing severe water and environmental degradation in the Marshes. Ultimately, water itself has become a transactional tool and a form of diplomatic leverage in a rapidly shifting global order. ●