Mohammad Assem Mayar

AFGHANISTAN'S URBAN WATER DILEMMA: Why are Afghan cities running out of water?

AFGHANISTAN ANALYSTS NETWORK

Afghanistan Analysts Network

Economy, Development, Environment

September 2025

Water scarcity, once thought to be a problem only for Afghanistan's driest provinces like Farah and Nimruz, is now gripping Afghan cities. Predictions that Kabul's groundwater will be exhausted by 2030 have already made international headlines, but Kabul is not alone. In cities across the country, taps are running dry, wells are having to be deepened and government systems are collapsing under the weight of rising demand and institutional paralysis. Urban water supply has long sat on the margins of Afghanistan's development agenda – underfunded, uncoordinated and poorly understood. With climate change accelerating and urban populations swelling, that neglect is becoming catastrophic. A crisis, decades in the making, is now unfolding in real time. Guest author Mohammad Assem Mayar discusses a key question in this, his latest report for AAN: Why are Afghan cities running dry and what can be done about it – before it is too late?

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THE URBAN WATER ALARM

Once an oasis of underground reserves and natural springs, Kabul is now facing a steady and alarming decline in its groundwater. In May 2025, Mercy Corps highlighted the worsening Kabul water crisis, warning that unless action was taken, the Afghan capital could run out of water by 2030. The warning was based on data showing that water extraction was exceeding recharge, putting millions of residents at existential risk. The alarm was echoed in international media, including CNN and The Guardian.[1] Nearly half of Kabul's borewells are indeed dry and many others are operating at reduced capacity. Al Jazeera recently reported that wealthier residents had begun to drill deeper, while poorer families have to either rely on unsafe sources or spend up to 30 per cent of their household income purchasing water from private tankers in Kabul city (in reality, this is not a recent trend; rather, the progressive deepening of their wells by the better-off has been going on for years).[2] As to piped water supplied by the state, some areas receive water every two to three days, while others report even longer gaps.

Figure 1 below shows the depth and status of the water table in Kabul city's 22 police districts, based on 2022 data. Already, most of the districts were at crisis level, with just two enjoying accessible water. The situation has deteriorated even further over the past three years.

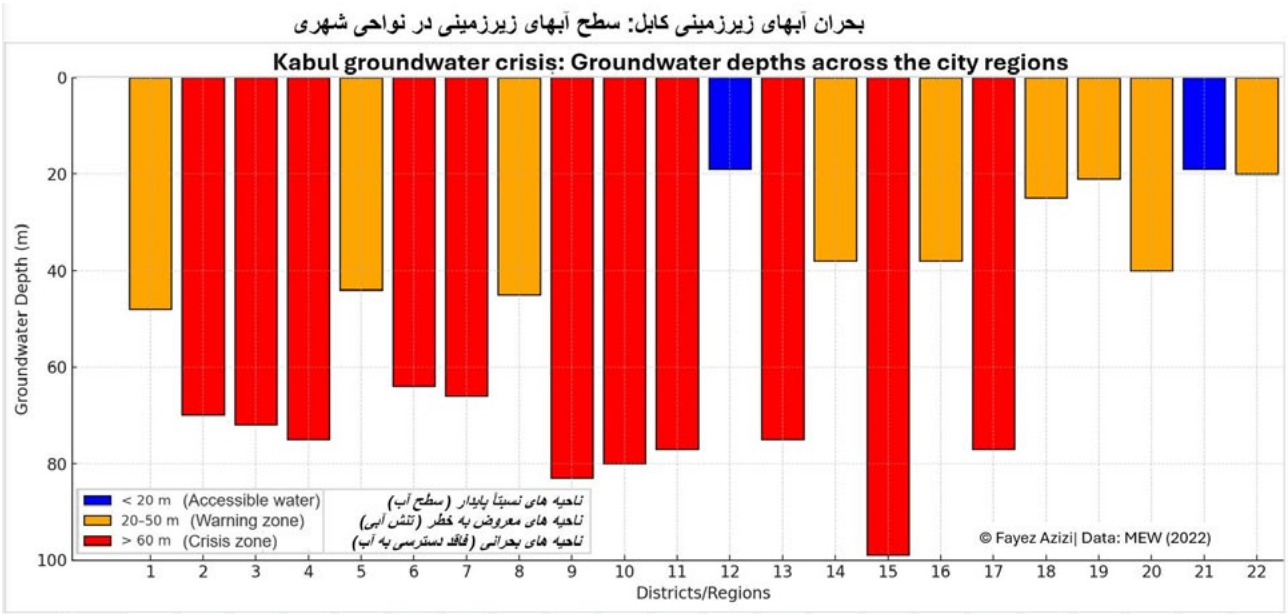
Yet, the water crisis in Afghan cities is neither new, nor limited to Kabul. To give a flavour of the extent of the crisis, a few examples of recent reports include: urban and rural communities across Helmand and Farah provinces are experiencing mass displacement due to water scarcity (see the TOLOnews report from June 2023 and this documentary from August 2023); in Kandahar and Helmand, solar-powered boreholes are rapidly depleting aquifers and in Helmand, many women and children now walk for hours to fetch water, with tension rising as scarce resources fuel conflict (as reported here and here); in Zaranj, the capital of Nimruz province on the Afghan-Iran border, families receive piped water just once a week and in Farah

[1] This Guardian article published 15 years ago warned about the water crisis in Kabul.

[2] See this 2018 AAN report on people having to resort to buy water from tankers, Blue Gold: The quest for household water in Kabul city.

city, the system struggles to fill a one-cubic-metre household tank once every three days.[3]

Figure 1: The depth and status of the water table in the 22 police districts of Kabul city



The red, orange and blue bars represent crisis, warning and reliable zones, respectively.
Source: Faizurahman Azizi, former Director of Water Resources, Ministry of Energy and Water.

The reasons for the depletion of groundwater are complex, but not ambiguous. First, climate change has altered the seasonal rhythms that urban water systems quietly relied on. Winter snowfall has declined and the period when spring rains and/or meltwater recharge aquifers is shrinking. Second, urban population growth, at an estimated four per cent annually,[4] has increased demand at a pace not matched by infrastructure expansion. Third – and perhaps most consequentially – there has been systematic mismanagement. Successive governments allowed unregulated urban development without ensuring the most basic infrastructure – water supply and sewerage. New homes were built without access to piped systems. Instead, tens of thousands of residents dug private wells and installed septic tanks, drawing

[3] Information about the water supply network in Nimruz, Farah, Nangarhar, Kabul, Wardak and Samangan provinces is based on interviews with customers in these provinces and a local employee of the Afghanistan Urban Water Supply and Sewerage Corporation (AUWSSC). First, I asked for online feedback through social media and then I talked with individuals who provided important information about the water supply network in their region, for which I asked them to provide evidence.

[4] The rate of population growth has differed across time and across Afghan cities. The four per cent figure is a conservative estimate. While used across the literature, such as in this World Bank report in 1975, it is accepted as well that urbanisation was very high during the Republic 2001-21.

groundwater with little or no oversight and slowly contaminating the resource they depended on. Fourth is the lack of a water-saving culture, or indeed of public education or attempts to explain to people why there is a pressing need to save water, allied with the lack of economic or political incentives to change.

Underlying all this is also the political economy of water in the nation's capital – and elsewhere. Elites and those with easy access to water have continued to wash their cars every day, 'water' the street to keep the dust down, water their lawns, and so on. For those with access to deep wells – who typically have money and power – water is free, unlike those who have to buy water from tankers, so there has been no monetary incentive to conserve this vital resource. Moreover, the richest can 'buy' their way out of any shortage by digging their own private wells deeper, so for them, there is little sense that water is a collective good that should be cherished. Those with power could effect policy change, but if they are not personally affected by a crisis, there is often little motivation for them to act and that seems to have been the case in Kabul. Indeed, their very ability to buy their exemption from the crisis makes the overall situation worse: the rich in Kabul can continue to access free water and are able squander it without personal consequences to them, even while it leads to the drying up of wells in areas where the water table is deeper or the residents are unable to afford deep well-drilling.[5]

Each of these stressors – climate, population, policy, culture and political economy – has magnified the others. The result is a slowly emerging urban water crisis, one that is no longer limited to low-income neighbourhoods or informal settlements. The question is no longer whether Afghan cities are facing a water shortage, but why this crisis has been allowed to deepen and whether it is still reversible.

This report seeks to answer these questions. It argues the answer lies in a nexus of problems stemming from climate change, urban expansion and fragmented governance. As snowmelt dwindles and rainfall proves erratic and city populations rise amidst fractured institutions, access to safe water is slipping out of reach for urban residents – not just in Kabul, but in cities across the country.

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[5] Throughout history, public goods, such as air quality, water supplies, safe sewage disposal, security and freedom to move (by car or public transport) only get prioritised when the rich are no longer able to buy those goods privately. For a look at a similar dynamic in Kabul under the Republic where physical restrictions for the general population and greater security infrastructure for the powerful meant that "the many will bear the cost of better protection for the few," see this 2017 AAN report, The New Kabul 'Green Belt' Security Plan: More Security for Whom?.

WATER STATUS IN AFGHANISTAN

Afghanistan is not a water-poor country, but its water is poorly managed. The country uses only about 30 per cent of its renewable water resources (55 billion cubic metres of surface water and an estimated 10 billion cubic metres of groundwater); the rest flows untreated and unregulated into neighbouring countries. Even within this 30 per cent, the distribution across sectors is highly unbalanced: approximately 98 per cent is consumed by agriculture, while residential and industrial use each account for only about one per cent.

A gardener waters the grass in Kabul: keeping grass green through the long, hot Kabul summer uses colossal amounts of water.
Photo: Walik Kohsar/AFP, 11 May 2021

While domestic water consumption remains relatively low, the pressure on water systems has grown due to the more frequent and more severe droughts induced by climate change. Repeated drought cycles in recent years have had their most severe impacts on rural agricultural livelihoods, but they have also contributed to declining

water tables in urban areas. Snowfall, once a dependable source of spring recharge for underground aquifers, has become increasingly erratic. Glaciers in the central highlands are retreating and rainfall has become both less predictable and more intense, with much of the rainfall and meltwater water running off, rather than percolating into groundwater reserves. These shifts have reduced the recharge rate of aquifers that urban areas depend on, further shrinking the already limited water buffer.

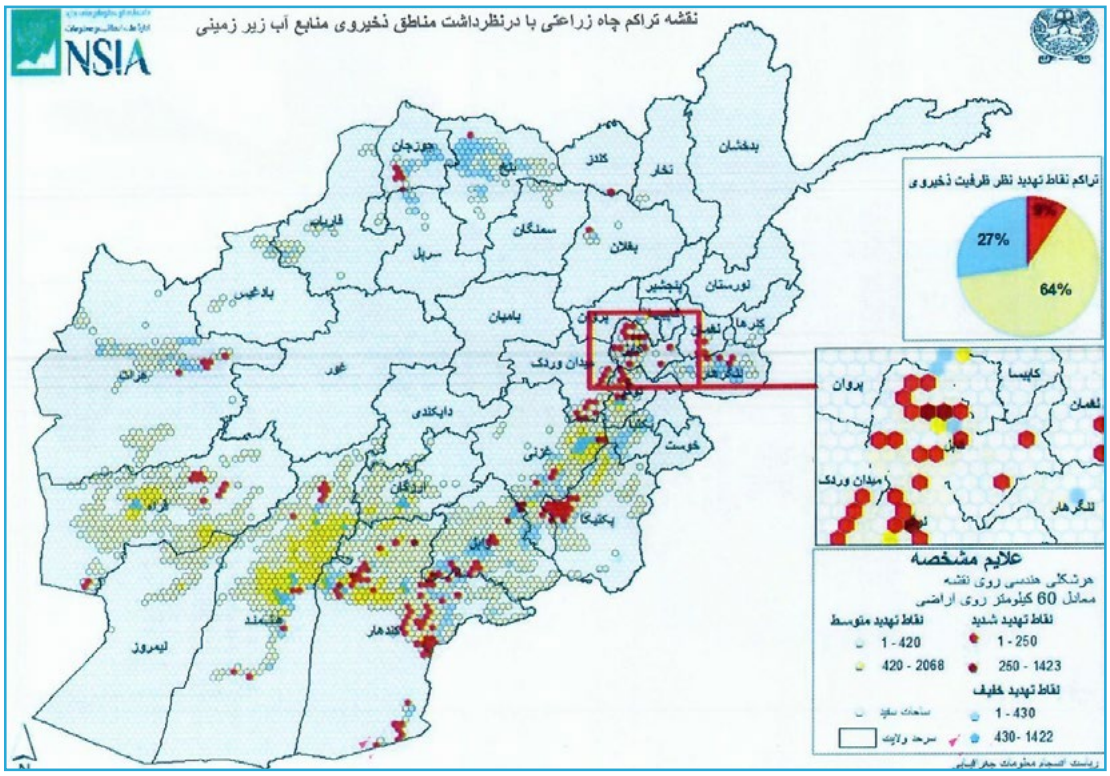
Compounding the issue is the seasonal mismatch between water availability and demand. Most precipitation falls during the winter months with modest rainfalls in the spring, while summers – when water needs are highest – see no rainfall, except heavy monsoon rains in eastern parts of the country. Global warming has also disrupted Afghanistan's hydrological calendar. Rising temperatures cause snow and glaciers to melt earlier than usual, leading to high river flows in spring when demand is moderate and storage capacity is limited. As a result, much of this runoff exits the country without being captured. By summer, when water needs are highest, rivers experience low flows or even run dry, compounding shortages in both agricultural and urban areas. This mismatch between seasonal supply and demand further underscores the urgency of infrastructure to manage water, yet Afghanistan lacks effective systems to store and distribute water year-round. As a result, urban areas, which require a consistent water supply, face chronic shortages.

To meet the demand, city residents, government institutions and even international donors have turned to groundwater extraction as a quick fix. Over the past two decades, this approach has become widespread, but it is no longer sustainable. Groundwater levels have dropped sharply in major cities and are declining across the country. One key driver of this depletion is agricultural use of groundwater, especially around cities where greenhouses and farms rely on boreholes powered by solar pumps. According to the National Statistics and Information Authority (NSIA), by 2023, over 310,000 boreholes had been drilled in 26 provinces for agricultural purposes,[6] mostly in dry provinces – further accelerating groundwater depletion.[7] NSIA's map, reproduced below (Figure 2), shows the location of the boreholes

[6] The remaining eight provinces are mountainous and rocky, with little or no arable land for irrigation. In such areas, drilling boreholes is both costly and inefficient. NSIA counted existing boreholes using high-resolution satellite imagery. This process could be made more efficient through the use of automated coding algorithms.

[7] Author's copy on file, 'Uncontrolled Extraction of Groundwater Resources Using Solar Panels in Afghanistan,' Dari version, NISA, 2023.

Figure 2: Solar-powered boreholes across Afghanistan in 2023 (1402)



Source: Uncontrolled extraction of groundwater resources using solar panels in Afghanistan, Dari version, NISA, 2023.

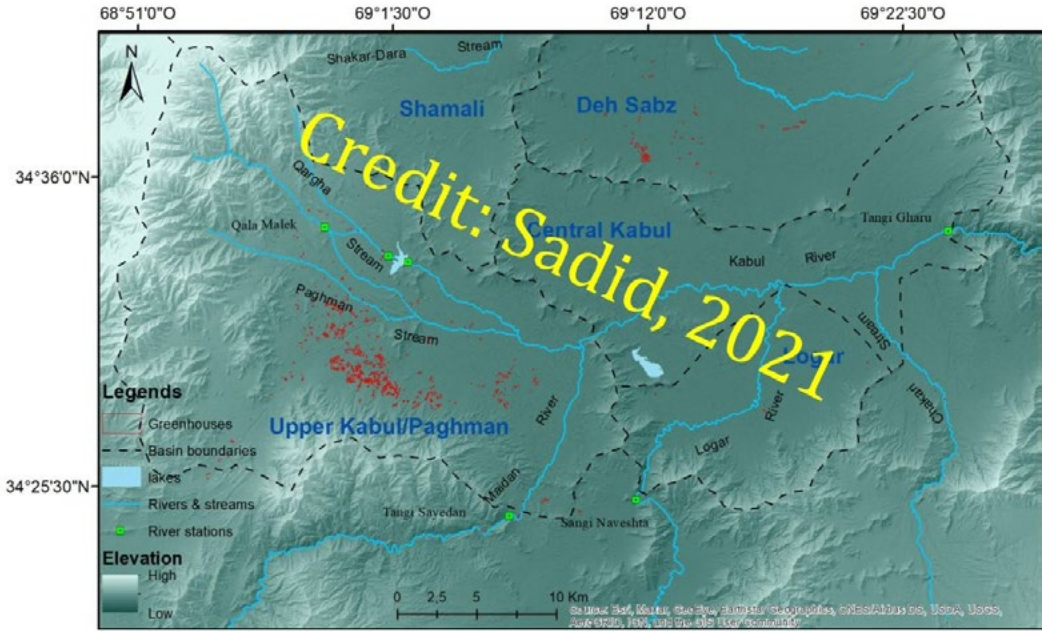
The pie chart embedded in the map shows that nine per cent of the boreholes are located in areas with the lowest groundwater storage capacity (red), 64 per cent in an area with moderate storage capacity (yellow) and just 27 per cent in an area with good storage capacity. NSIA has combined this information with the number of boreholes in a particular location to give an assessment of the risk to groundwater supply. In the map above, this is shown by the colour of the dots: the red dots mark boreholes located in areas of extreme risk, yellow marks the boreholes in areas of moderate risk and blue those in areas where the groundwater is at least risk.

In response to growing concerns over unregulated groundwater extraction, the Ministry of Energy and Water has recently begun installing meters on solar wells used for car washes, public baths and agriculture in Nangrahar, Samangan and Faryab provinces (see the ministry's post here and here). Officials say the aim is to introduce a usage-based tax – both to reduce consumption and encourage groundwater recharge.

Afghan water resource expert Najibullah Sadid noted on his X account that greenhouses covering more than 400 hectares around Kabul consume approximately four billion litres of groundwater each year for horticultural irrigation. As Figure 3

(below) shows, most are located directly over the Paghman aquifer, which is now drying faster than any other in the capital. Recently, the number of solar-powered boreholes used for agriculture, especially greenhouses, has increased considerably in Logar province as well, the area whose water drains northeastwards towards Kabul, although it still has better groundwater conditions.

Figure 3: Location of greenhouses, indicated by red dots, near Kabul city.



Most are directly over the Paghman aquifer, an underground water source that is now drying faster than any other in the capital. Source: Najibullah Sadid's X account.

Industrial use adds further pressure. Kabul alone hosts dozens of beverage and bottled water companies, many located in the city's industrial parks. These firms extract large quantities of groundwater for production, often without regulation. One prominent example is the Alokozay beverage company, which, according to its official website, draws 2.5 million litres per day – amounting to over 900 million litres annually. In addition to large-scale industries, smaller private suppliers operate informally, extracting water through unregistered wells and distributing it for sale across the city. This pattern is also observed in other major cities. There is no comprehensive registry or monitoring system for these withdrawals so the companies' essential raw material, water, is free for them. Such commercial consumption comes at no cost to the companies, but contributes to groundwater depletion at a scale far exceeding household use, accelerating aquifer decline and placing additional strain on already fragile public water systems.

Another fast-growing commercial use of water in Afghan cities is the proliferation of ice-making factories. As summers become hotter due to climate change and as dense construction, without greenery, contributes to the urban heat island effect, demand for ice has sharply increased. These factories, often located within the city limits, consume large volumes of groundwater to meet rising cooling needs. Ice is not only sold locally but also transported to peri-urban and rural areas, where mechanical refrigeration remains limited. While this sector provides a valuable service, its water usage adds pressure to already stressed urban aquifers. Relocating such factories to rural areas – where groundwater may be less depleted or surface water more accessible – could help reduce extraction from critical city reserves.

INSTITUTIONAL CONFUSION: WHO IS RESPONSIBLE?

Ask residents in any Afghan city who is responsible for providing water to their homes and answers will likely vary. Some might name the Ministry of Energy and Water, others the municipality and a few may point to the Afghan Urban Water Supply and Sewerage Corporation (AUWSSC), the state-run water utility. The truth is more complicated. The Afghan urban water sector is not only under-resourced, but also institutionally fragmented, with overlapping mandates that often hinder rather than help.

AUWSSC is, in principle, the national utility responsible for providing piped water services in Afghanistan's provincial capitals. Its core mandate includes the design, building, operation and maintenance of urban water supply systems, with an eventual goal of managing sewerage networks as well. In practice, however, AUWSSC operates in only 22 cities and has no presence at all in 11 provinces – Ghor, Panjshir, Nuristan, Daikundi, Bamyan, Kapisa, Paktika, Kunar, Helmand, Uruzgan and Zabul. It also lacks any footprint in district centres, secondary towns, or rural areas. Its operation appears to be limited to high-density urban zones.[8]

Responsibility for water supply and sanitation in the districts falls to the Ministry of Rural Rehabilitation and Development (MRRD). Its mandate includes rural villages as well as district centres, many of which are increasingly urban in character. Even parts of Kabul province, outside the capital city, remain under MRRD's mandate. Recent donor-funded water supply projects in Bamyan city, coordinated with MRRD, suggest that in provinces where AUWSSC has no presence, they fill the gap (see this MRRD post on X).

This ministry typically relies on NGO partners or local contractors, using donor funding and often with limited regulatory oversight. The projects are then handed over to the provincial MRRD directorate upon completion. The result is a network of rural systems, established with donor funding, with no sustainable model for operation or maintenance, leaving thousands of residents at risk of losing access to

[8] The information about AUWSSC is drawn from its 1399 (2020-21) annual report, downloaded by the author. At the time of writing, its website was down.

water once systems break down.[9] That is why, in many cases, the local communities resort to digging wells as a fallback solution.

Unlike AUWSSC, MRRD lacks a revenue collection system or service payment mechanism. Provincial directorates do not operate billing platforms and in most districts, there are no banks to support systematic fee collection. As a result, the day-to-day management of these systems is still delegated, in practice, to local Community Development Councils (CDCs), even though they were officially abolished last year.[10] CDCs, in turn, assign a water committee and a paid operator to maintain the system and collect nominal fees. In stronger communities, this arrangement can function. But in some cases, such as one example reported from lower Darabad village in peri-urban areas of Farah city, the CDC lacked the capacity to enforce payment and the infrastructure has since fallen into disuse. Local residents argued that water should be free, and with no maintenance funds, the system collapsed.

During the final years of the Islamic Republic, MRRD had proposed reforms to address the problem of fees for water not being paid, including plans to install smart meters and introduce mobile payment schemes modelled on mobile phone credit systems. These were meant to improve transparency and ensure cost recovery. But following the change of government in 2021, such initiatives were postponed.

At the same time, municipalities, particularly Kabul Municipality, are responsible for other key functions: solid waste management, flood drainage, road construction and urban planning. These functions routinely intersect with water infrastructure. The Ministry of Urban Development is supposed to play a guiding policy role, but has also taken on project implementation. The result is a tangle of authorities, each with partial mandates, separate budgets and often clashing timelines. This has further blurred institutional roles in recent years and difficulties with accountable and working out who is responsible for what.

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[9] An official from MRRD explained to the author that coordination is now stricter than under the Republic: the implementing organisation must submit the project cost, design and all other details to MRRD and get MRRD permission to go ahead.

[10] Despite the abolition of CDCs, their legitimacy still exists in some communities. Though completed water projects are now handed over by NGOs or other implementors to the MRRD provincial directorate, they then hand them over to CDC members, eg the leader of the village, imam of the mosque and other elders. Meanwhile, during the construction phase, the implementor assigns one person to learn how to run the scheme and he is given training in making basic repairs.

For more on CDCs and their abolition, see this June 2024 AAN report, The Fate of the Village Councils: The Emirate's effort to institute hegemony over rural Afghanistan.

Employees of the Urban Water Supply and Sewerage Corporation inspect the Bagrami water pump station on the outskirts of Kabul.
Photo: Wakil Kohsar/AFP, 23 April 2025

This confusion has tangible consequences. In Kabul and other cities, under the Republic and now under the Emirate, newly constructed roads have been torn up sometime later to install water pipelines, simply because AUWSSC and the municipality failed to coordinate. Even when cooperation is attempted, mismatched capacities and funding shortfalls slow progress. In some cities, AUWSSC is unable to extend networks into new developments due to lack of capital investment. Elsewhere, municipalities approve construction without ensuring water access, leaving residents to drill private wells or buy from tankers.

The result is a fragmented system in which parallel institutions – AUWSSC, the Ministries of Rural Development and Urban Development and municipalities – oversee water supply through separate administrative, financial and technical frameworks. The division is not just institutional but geographic and functional, creating inconsistencies in service standards and accountability across the country.

THE URBAN WATER SUPPLY IN AFGHANISTAN

The history of formal water supply services in Afghanistan dates back more than a century, beginning under Amir Abdul Rahman Khan in the late 19th century (for further details read this paper by Shah Mahmoud Hanifi). At that time, the focus was on securing clean drinking water for royal compounds and government institutions in Kabul. Water was sourced from springs behind Ibn-e Sina hospital and transported through rudimentary piping systems to government buildings. These early systems were narrow in scope but marked an important shift from traditional water management to state-run infrastructure.

Kabul's first structured water network emerged during the reign of Amir Habibullah Khan (1901-19), who extended his father's effort by commissioning a piped water system from the Paghman River to the city. The project included four components: a surface water intake in Paghman, a 26-kilometre five-inch pipeline to Deh Afghanan, a storage reservoir and a distribution network for municipal use. This project was implemented by a British engineer hired by Amir Habibullah. Despite this infrastructure, the traditional *saqqa* system – vendors carrying water in goatskin bags – remained in use. Later, King Amanullah oversaw the construction of the Amir Ghazi Dam in Khak-e Jabar to supply Kabul's eastern quarters. Several of these early projects were designed and implemented with the assistance of German engineers, including Walter Harten, chief engineer for Darulaman Palace.

Urban water expansion continued incrementally through the mid-20th century in other cities such as Herat, Mazar-e Sharif, Jalalabad and Kandahar. Despite this, there remained no unified national institution for urban water provision. According to the history of AUWSSC (available here), it changed in the post-2001 era, when Afghanistan's rapid urbanisation, despite the dilapidated infrastructure, spurred the establishment of the Urban Water Supply Directorate within the Ministry of Urban Development. This department laid the groundwork for a national approach to managing piped water in cities.

It was this directorate that in 1388 (2008-09), based on cabinet decisions and donor recommendations, was transformed into the state-owned enterprise, the Afghanistan Urban Water Supply Corporation. Subsequently, in 2020, following the establishment of sewerage department, its name was changed to the Afghanistan

Urban Water Supply and Sewerage Corporation (AUWSSC). The goal was to professionalise water delivery in provincial capitals using a semi-commercial model. AUWSSC was granted the mandate to design, build, operate and maintain piped water and sewerage systems in urban centres. Regional zones were created to support decentralised management and improve service reach.

A girl drinks water from a hand pump in Faizabad district, Badakhshan province.
Photo: Omer Abrar/AFP, 5 August 2025

AUWSSC inherited aging infrastructure, low coverage rates and a weak customer base – but also the mandate to plan, build, operate and maintain water systems. Over time, some support from donors such as USAID, GIZ and the World Bank helped AUWSSC establish billing systems, meters and limited expansion. However, the institutional fragmentation described earlier, financial constraints and insufficient long-term investment left the corporation underperforming relative to its mission.

In several provinces, its staff presence is minimal. For instance, in 1399 (2020-21), according to the AUWSSC annual report downloaded by the author, Sar-e Pul had only three employees, Farah just seven, Jawzjan eight and Faryab ten. By contrast, Kabul

and Herat hosted the largest AUWSSC branches, with 366 and 242 staff, respectively. Still, these numbers say little about performance. Revenue generation was and is weak and often insufficient to cover operational costs, let alone capital investment.

Part of the challenge lies in AUWSSC's tariff system, which is outdated and politically constrained. The utility charges AFN 35 (USD 0.51) per cubic metre for residential users and AFN 50 for commercial clients, with no variation for usage levels. Customers are also required to pay a meter rental fee of AFN 450 annually – roughly equivalent to one month's water bill – and to pay a fine of AFN 2,000 (USD 29.35) if the meter is intentionally damaged. For an example of a water bill, see Figure 4, below. In theory, these charges support maintenance and service expansion. AUWSSC also has customers without water meters, who are charged a flat rate of AFN 240 (USD 3.47) per month. Its stated policy is still to install meters for all customers, as reflected in AUWSSC's annual reports published during the Republic era.

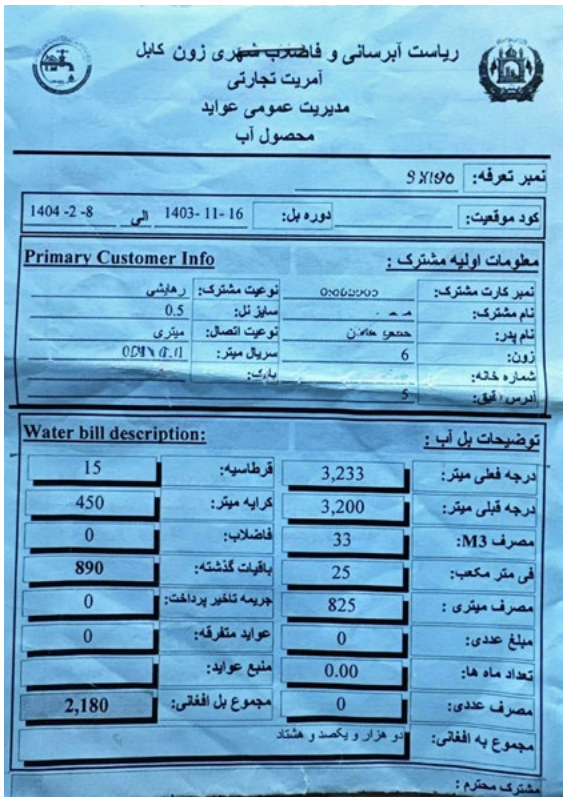
In practice, AUWSSC relies on government subsidies, particularly now that a significant share of government offices fail to pay their water bills. Compared to the Republic, there is very little project-based donor funding. One rare example was that UNICEF, recognising that the existing reservoirs in Kabul city are far from meeting demand, recently funded the installation of 11 kilometres of 450 mm pipeline and the excavation of two new wells below the Qargha Dam to supply water to an existing 10,000-cubic-metre reservoir located above Kabul Polytechnic University. This reservoir had previously relied on wells in Kabul's fifth district, which could no longer supply water at full capacity. The stored water is distributed primarily to the Khairkhana area (district 17) in the north of the city.

The last prices, checked in June 2025, were AFN 25 (USD 0.37) and AFN 35 (USD 0.51) per cubic metre of water for residential and commercial clients, respectively. Previously, before 2011, the price was only AFN 7 (USD 0.10). These prices are fixed, regardless of how much water a customer uses. In contrast, electricity tariffs increase with higher consumption, which encourages users to reduce their usage. Introducing a similar tiered pricing model for water could create an incentive for households and businesses to use water more efficiently. One source told the author that such a tiered pricing model has recently been proposed to the Emirate's leadership and is currently awaiting the Amir's approval.

The utility's technical and financial capacity further declined after the Taliban takeover in 2021. Trained engineers and managers were replaced by politically appointed individuals without experience. Previously supported by institutions like the World Bank, KfW, UN-Habitat and JICA, AUWSSC has since struggled to maintain donor engagement and its projects have mostly been halted.

Across the provinces, services remain uneven. In Kabul, AUWSSC serves about 95,000 customers with five existing and eight planned reservoirs, but many households receive water only once every two or three days, if not less. The infrastructure is aged and leaky. Reports from Qala-ye Fathullah in Kabul, for example, suggest contaminated water reaches homes in the neighbourhood, particularly when the water supply first comes on, although later the water runs clean. In Logar, AUWSSC has extended its network, but failed to attract new customers. In Khost, the total number of users in Matun city is just 400 out of tens of thousands of households. Gardez, the provincial capital of Paktia, has only 1,200 active customers, out of thousands of households. Even in Herat, considered one of AUWSSC's stronger branches, access remains limited and water quality is reportedly poor.

Figure 4: A copy of a water bill


ریاست آبرسانی و فاضلاب شهری زون کابل
آمریت تجارتی
مدیریت عمومی عواید
محصول آب

تمبر تعرفه: SX196

کود موقعیت: | دوره بل: 1403- 11- 16 الی 1404 -2 -8

Primary Customer Info : معلومات اولیه مشترک

نمبر کارت مشترک:	0000000	نوعیت مشترک:	رهایشی
نام مشترک:	محمد [illegible]	سایز نل:	0.5
نام پدر:	حضرت خان	نوعیت اتصال:	میتری
زون:	6	سریال میتر:	[illegible]
شماره خانه:		بارک:	
آدرس / قریه:	5		

Water bill description: توضیحات بل آب :

درجه فعلی میتر:	3,233	قرطاسیه:	15
درجه قبلی میتر:	3,200	کرایه میتر:	450
مصرف M3:	33	فاضلاب:	0
فی متر مکعب:	25	باقیات گذشته:	890
مصرف میتری :	825	جریمه تاخیر پرداخت:	0
مبلغ عددی:	0	عواید متفرقه:	0
تعداد ماه ها:	0.00	منبع عواید:	
مصرف عددی:	0	مجموع بل افغانی:	2,180
مجموع به افغانی:	دو هزار و یکصد و هشتاد		

مشترک محترم :

A copy of a water bill (name redacted) in Kabul city indicating water consumption of 33 cubic metres, at a cost of AFN 25 (USD 0.37) per cubic metre and an annual rent of the meter of AFN 450 (USD 6.6).

Zaranj, the capital of Nimruz province, illustrates the structural limits of AUWSSC's model. The city draws its water from 16 wells located 45 kilometres away, pumping about 6,000 cubic metres daily – a fraction of the 30,000 cubic metres needed. Supply rotates by neighbourhood, meaning residents receive water just once a week. Extraction relies on solar power by day and fuel-powered generators by night. Private tankers provide water for AFN 600 (USD 8.8) per cubic meter.

Even in cities where AUWSSC operates, service is intermittent, customer numbers are low and infrastructure remains limited. The mismatch between staff size and revenue, especially in provincial branches, raises questions about the utility's long-

term sustainability. Designed to be a national provider, AUWSSC has become, in effect, a patchwork of isolated urban experiments, each operating under different constraints and with capacity and level of local political support varying widely.

In terms of legal status and institutional responsibility, AUWSSC is similar to the national electricity provider, Da Afghanistan Breshna Sherkat (DABS): both are state-owned enterprises tasked with delivering essential public services. Yet while DABS has managed to supply electricity to urban and rural areas across the country, AUWSSC has struggled to provide even basic water and sewerage services to provincial capitals. Several factors help explain this gap. First is institutional capacity. AUWSSC's technical foundation is relatively recent; the first academic department dedicated to water supply engineering was only established in Kabul Polytechnic University in 2007. Second, DABS benefited from significant financial and technical assistance in rebuilding and expanding its power grid. In many cases, DABS constructed the backbone infrastructure for regional electricity delivery. Local distribution was funded by contributions from customers.[11] AUWSSC, by contrast, has failed to secure comparable levels of investment or donor support for large-scale water infrastructure. Finally, the relative complexity of water systems – requiring careful design, pressure regulation, quality monitoring and wastewater management – has made AUWSSC's task technically more difficult than extending electricity lines, further hindering its performance.

Electricity shortages were another factor disrupting the water supply, as power is needed to pump water into the reservoirs. In Jalalabad, for example, AUWSSC faced difficulties during the summer in lifting water to reservoirs and maintaining supply to customers. The lack of reliable electricity also limited efforts to attract new customers. In recent years, however, this problem has been addressed in many areas through the installation of solar panels at reservoirs.

What binds these cases together is a structural pattern: AUWSSC has the legal mandate, some technical capacity and historical legitimacy – but not the financial, political, or managerial power to deliver. Without clear institutional support, sustained investment and regulatory authority, it is unlikely to turn the tide on Afghanistan's growing urban water crisis.

[11] The author witnessed this in Baghlan province: money was collected, locally, based on the number of people in a house and financial capacity of the household. The amount was determined by the elders gathered in the mosque. It was then used to buy the cable and wooden posts and install them so that the electricity could be delivered to people's homes.

PATCHY SUPPORT AND POLICY GAPS

Post-2001 reconstruction in Afghanistan overwhelmingly prioritised visible infrastructure – roads, public buildings and security-related facilities – while largely overlooking the less visible but arguably more critical systems that sustain urban life. As a result, the water supply networks, sewerage systems and flood drainage infrastructure were underfunded and underdeveloped. The initial phases of national planning reflected this imbalance. Although the 2008-13 Afghanistan National Development Strategy (ANDS) did mention the Afghan Urban Water Supply and Sewerage Corporation (AUWSSC) and placed it under the Ministry of Urban Development's oversight, it failed to outline clear coordination mechanisms between AUWSSC, municipalities, and other relevant actors. No institutional hierarchy was defined, leaving mandates overlapping and accountability diffuse. This institutional ambiguity has remained a persistent obstacle to effective service delivery and long-term planning, leaving the urban water sector structurally weak and chronically underdeveloped.

Afghanistan's urban water sector received intermittent donor attention until the end of Republic. Yet this support, though valuable, was neither coordinated nor sustained at a level that could match the pace of urban growth or the institutional complexity of Afghan water governance.

In the early years after 2001, multiple actors entered the urban water space. The World Bank backed key infrastructure investments and supported institutional reforms such as the establishment of AUWSSC (as mentioned here). The German development bank (KfW) rehabilitate piped networks in Herat and parts of Kabul (TOLOnews). Japan's JICA financed engineering studies and pilot infrastructure in selected urban districts, while UN-Habitat piloted community-based water and sanitation schemes. Yet much of this assistance was fragmented, bound by short project cycles and often delivered through parallel mechanisms that did little to reinforce long-term institutional capacity. AUWSSC, the central utility, benefitted only partially.

One notable exception was the Managed Aquifer Recharge (MAR) project along the Logar River near Kabul, supported by the Asian Development Bank. The initiative aimed to capture excess surface water during wet months and direct it into recharge

zones, helping stabilise groundwater tables in areas of high urban demand. Though technically sound and relatively low-cost, MAR schemes remained limited in scale and were not expanded systematically to other vulnerable cities.

Children fill canisters with drinking water in Mazar-e Sharif.
Photo: Atef Aryan/AFP, 29 January 2024

Perhaps the most ambitious attempt at long-term water planning was the SASAKI strategic framework. Funded by the Asian Development Bank (ADB), during the second Ashraf Ghani presidency, this American company designed masterplan in 2017-18 outlined a 30-year development vision for Kabul, integrating water supply, wastewater management, flood control and land use with urban transit, energy and economic zoning. It proposed a phased approach – short, medium and long-term targets – and emphasised both centralised trunk infrastructure[12] and decentralised solutions such as building-level treatment systems. ADB later expanded the model to five major cities of Kandahar, Herat, Mazar, Kunduz, Jalalabad and Khost.

[12] A trunk sewer is essentially the main artery of a wastewater collection system. It is a large-diameter pipe that carries wastewater from numerous smaller sewer lines, called main sewers or collector sewers, towards a treatment plant or another disposal facility.

However, implementation faltered, largely due to political instability, budgetary constraints and institutional overlaps. None of the plans moved beyond the design stage (more on SASAKI below).

A critical missed opportunity lay in the post-2001 urban development policy itself. As demand for housing soared, the Ministry of Urban Development allowed widespread residential construction – even in formal districts – without first requiring water and sanitation infrastructure. Households built private wells and septic tanks as stopgaps, practices that gradually undermined groundwater quality and made later infrastructure rollout technically and financially unfeasible. In effect, informal coping strategies were institutionalised. AUWSSC, lacking the authority to enforce preconditions for connection or deny service to unplanned areas, was left to retroactively serve urban zones it never planned for.[13]

This policy vacuum has had lasting consequences. Projects were pursued in silos. Ministries implemented infrastructure without coordinating with AUWSSC or municipalities. Roads were paved without accounting for underground utilities; later, they were torn up again to lay pipes. No central regulatory mechanism ensured interoperability or long-term sustainability. As a result, Afghanistan's cities remain dotted with partial systems – pumps without treatment plants, pipes without consistent flow, or facilities with no trained staff to run them.

In short, while the post-2001 period brought unprecedented international resources to urban water management, the lack of strategic cohesion, regulatory enforcement and institutional clarity ensured that these resources translated into fragmented outcomes. As Afghanistan now navigates a drastically changed political and economic landscape, the sector faces the dual challenge of correcting the structural gaps that undermined earlier efforts and reviving donor interest (which is now even less likely according to this AAN report).

[13] The main reason was that people were unable to wait for the AUWSSC piped network to be installed, especially as AUWSSC was rarely able to provide an expected date for it to arrive. Therefore, the Ministry of Urban Development allowed people to build homes without water or wastewater connections.

WATER IN AFGHAN LAW

Afghanistan's 2004 Constitution did not explicitly recognise the human right to water, although it tasked the state, under article 9, with safeguarding the country's natural resources, including water. The Afghan Civil Code further specified, in article 2347, that "the water of rivers and their tributaries are considered public property and everybody has the right to irrigate his land from that water or draw a ditch for irrigation purposes except when it is contrary to public interests or special laws." The 2020 Law on the Management of Water Affairs reinforced this principle, stating that water resources are public property to be used for human consumption, agriculture and energy production, with domestic use – particularly drinking water – given priority. The law specifies that water itself is to be provided free of charge, although water suppliers are permitted to recover costs for delivery and maintenance. Although the Emirate does not recognise the Republic's laws nor the language of human rights, in practice, it has continued with the Republic's policy when it comes to water. AUWSSC charges users only for supply and operational costs, while the MRRD applies a similar principle in rural areas, with charges varying by location according to local expenses and maintenance needs. MRRD drills wells for villages without a water source, while those with existing access – whether through private or community wells – are expected to manage their own supply. In less densely populated areas, the use of latrines and private wells is still allowed, meaning that not all households are required to pay for piped water.

In urban areas, however, the picture is shifting. As aquifers decline and wells in built-up zones dry up, residents without network access face mounting difficulties. Over time, governments – whether current or future – may be able to encourage households to connect to piped water by linking the service to sewerage systems, once they are built. Without such connections, households will be unable to legally discharge wastewater, which in turn will push them toward joining the network and abandoning private wells.

URBAN GROWTH MEETS GROUNDWATER CRISIS

Urban Afghanistan is still growing fast, but its water systems are standing still. With a four per cent annual urbanisation rate, cities like Kabul, Kandahar, Herat and Mazar-e Sharif are expanding well beyond the limits of their formal infrastructure. The result is a growing dependency on groundwater – tapped through an ever-increasing number of unregulated boreholes, household wells and solar-powered pumps.

Most Afghan cities rely almost entirely on groundwater, accessed by wells, to supply their residents. While piped networks remain sparse, groundwater has served as the invisible foundation of urban water systems. But this foundation is now cracking. A combination of climate-driven shifts in precipitation and temperatures and uncontrolled extraction has caused groundwater levels to plummet. Latrines and septic tanks are widespread and often poorly built, allowing sewage to seep into shallow aquifers. The contamination risks are especially acute in dense urban settlements where sanitation infrastructure is weak or absent (more on this below).

In Kabul, this dual crisis of quantity and quality is stark. The city's aquifers are in steady decline. Informal private suppliers fill the gap by trucking water from deeper wells and selling it at exorbitant prices. Piped networks reach only a fraction of the population and even these provide water only every two or three days.

Zaranj in Nimroz province offers a case of extreme scarcity. It is in the driest part of the country with consequent droughts affecting this downstream region more than any other place. The temperature warming due to climate change is highest in this province in Afghanistan (see temperature changes maps in this UN report). The piped network supplies water to 6,000 households once a week, but the city's population is far greater. Thus, the private business of supplying water is on the rise. During droughts, people dig wells in the river's 'thalweg' to extract water (see picture shared with author during the drought of 2021, posted on X).

Kandahar city, too, is under growing stress. Although its upstream catchment spans a large area starting from the mountains behind Paghman district in Kabul and Ghazni provinces, the widespread use of solar-powered boreholes upstream has accelerated depletion. No regulation governs these extractions and the natural recharge cycle can no longer keep pace.

In Farah, local residents report that AUWSSC's piped water network cannot fill even a one-cubic-metre tank every three days. Groundwater recharge is reduced due to climate change-induced precipitation anomalies. However, with the Bakhshabad Dam project, currently in progress, will be an alternative water source for residents of Farah city. This project still remains in reach over the longer-term.

Labourers work at a construction site in Kabul. The capital and other urban centres have grown since 2001, without regard for water supply or sewerage.
Photo: Wakil Kohsar/AFP, 28 February 2014

In Khost province, according to a former official, the Matun city network serves only 400 users and the piped network cannot compete with private wells, which are seen as more reliable. Herat has one of the more established AUWSSC networks, but service quality varies significantly between city centre and outskirts. Aybak city in Samangan is a rare positive case that stands out. According to an official who wished to remain anonymous, the city is supplied by a natural spring in Khuram Sarbagh district, connected via a 700 mm pipe. AUWSSC here claims 7,500 customers and near-continuous water access – yet the area remains an exception rather than the rule.

Mazar-e Sharif has historically faced water shortages as well, but the excavation of the Qosh Tepa canal has the potential to ease its stress. In Jalalabad and Kunduz, nearby rivers offer some buffer from groundwater stress, but weak infrastructure and poor management leave these cities vulnerable to future shortages.

Sheberghan, in Jawzjan province, though not yet in crisis, is also showing early warning signs. Groundwater levels remain relatively high, but rapid expansion of solar-powered agricultural boreholes suggests this may not last. Without monitoring and controls, Sheberghan could soon join the ranks of water-stressed cities.

Across these cases, a pattern emerges: rapid urban expansion, absence of regulatory frameworks and uncoordinated infrastructure development have led to over-reliance on shrinking aquifers. In many cities, local sources are nearing exhaustion and without significant investment in recharge, regulation and alternative supply systems, Afghanistan’s urban groundwater crisis will deepen further.

SEWERAGE AND DRAINAGE: THE OVERLOOKED HALF OF URBAN WATER

While urban water supply dominates the headlines and planning discussions, the absence of a functioning sewerage and stormwater drainage system presents an equally urgent challenge for Afghan cities. Wastewater flows untreated through open drains, across public streets and into rivers – posing serious health and environmental risks. In Kabul and other cities, the build up of sewage in open ditches has become a normalised feature of urban life, exacerbated during rainy seasons when clogged channels flood roads and homes.

Contamination of urban water sources adds another layer of risk. In Kabul, the absence of a functioning wastewater collection and treatment system means that sewage often leaks into the same aquifers that supply drinking water. Expert studies,[14] as well as observations by the author have shown high levels of bacterial and chemical contamination in shallow wells across the city. Reports mentioned up to 80 per cent of Kabul's groundwater is polluted with sewage, toxins and high levels of arsenic and nitrates, posing serious health risks, especially for children and the elderly (Al Jazeera). This not only reduces the amount of water that is safe to use but also poses serious public health risks. Similar contamination has been reported in other urban centres, especially where informal settlements have expanded without proper sanitation.

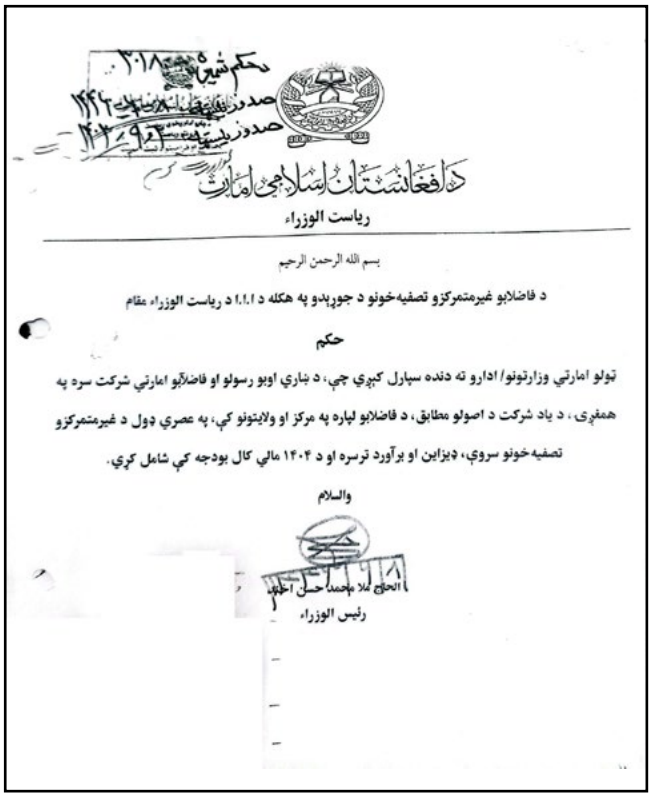
During the final years of the Republic, the already mentioned SASAKI Kabul Urban Design Framework attempted to bring this problem into the mainstream of urban planning. The plan offered a phased and flexible approach to sewerage management, calibrated to the capital's limited institutional and financial capacity. It proposed three tiers of intervention. The first was at the household level, treating wastewater onsite using septic systems or package plants. The second involved small clusters of neighbourhoods connected to local treatment works. The final stage envisioned a citywide sewer network that would collect and convey wastewater to treatment plants. Reviving and upgrading the defunct Macrorayon

[14] See, for example, Mohammad Daud Hamidi, Marco J Haenssgen, Milica Vasiljevic, Hugh Chris Greenwell, Edward GJ Stevenson, Between a rock and a hard place: A geosocial approach to water insecurity in Kabul, Water Security, vol 22, August 2024.

wastewater treatment plant was one of the key proposals – meant as an interim facility while longer-term infrastructure was developed.

SASAKI also produced a stormwater drainage masterplan for Kabul, recommending rainwater harvesting measures, such as bioswales,[15] retention ponds and engineered channels to reduce urban flooding and manage surface runoff. In practice, however, these recommendations remain largely unimplemented. Kabul Municipality has not committed to the investments required and AUWSSC does not have a mandate for stormwater infrastructure. AUWSSC has developed basic sewerage masterplans for Herat, Jalalabad, Mazar-e Sharif and a few other cities, but none have progressed beyond paper.

Figure 5: Order from then acting Prime Minister Mullah Muhammad Hassan Akhund



د افغانستان اسلامي امارت

ریاست الوزراء

بسم الله الرحمن الرحیم

د فاضلابو غیرمتمرکزو تصفیه‌خونو د جوړېدو په هکله د ۱۴۰۱ د ریاست الوزراء مقام

حکم

تولو امارتي وزارتونو/ ادارو ته دنده سپارل کېږي، د ښاري اوبو رسولو او فاضلابو امارتي شرکت سره په همغږۍ، د یاد شرکت د اصولو مطابق، د فاضلابو لپاره په مرکز او ولایتونو کې، په عصري ډول د غیرمتمرکزو تصفیه‌خونو سروې، ډیزاین او برآورد ترسره او د ۱۴۰۴ مالي کال بودجه کې شامل کړي.

والسلام

الحاج ملا محمد حسن اخوند

رئیس الوزراء

Order from then acting Prime Minister Mullah Muhammad Hassan Akhund, dated 21 November 2024, instructing that the survey, design and cost estimation of decentralised wastewater treatment systems for all government buildings in the capital and provinces be developed in accordance with AUWSSC regulations and guidelines and for this to be included in the national budget of 1404 (2025-26). This order was based on a AUWSSC proposal.

This institutional and financial neglect of sanitation has deepened the urban public health crisis. In the absence of proper sewerage, communities continue to rely on rudimentary latrines and open drains that leach into the same aquifers used for drinking water. Without serious attention to wastewater and stormwater systems, even the best-designed water supply interventions are ultimately undermined.

Some institutional reforms, however, have continued under the current authorities. A directive from the then acting Prime Minister Mullah Muhammad Hassan Akhund dated 21 November 2024 (see Figure 5) instructed government institutions to construct wastewater treatment facilities for their compounds using national budget allocations. If enforced and maintained,

[15] Bioswales are channels, typically with vegetation, designed to concentrate and convey stormwater runoff while removing debris and pollution, and help recharge groundwater.

this could reduce the burden on urban drainage systems and demonstrate the value of decentralised treatment models. However, owing to budget constraints, it will be difficult to complete this task any time soon.

A tanker delivers water to one of the hillside settlements in Kabul. Those without piped water or a private well pay far more for water, while the private companies exploit the common groundwater supply.
Photo: Wakil Kohsar/AFP, 27 April 2025

WHEN THE PRIVATE SECTOR STEPS IN: PROMISE AND PITFALLS

Where state systems have fallen short, private developers have occasionally stepped in to fill the gap – most notably in the form of newly-built residential compounds on city outskirts. These developments offer a glimpse of what functional water systems might look like, but also highlight the risks of unregulated and uneven service delivery.

Labourers digging a water well in a residential garden in Kabul. Those with money have been able to dig their way out of the problem of water scarcity and a falling water table.
Photo: Wakil Kohsar/AFP, 14 November 2018

Aino Mena in Kandahar is often cited as a rare success.[16] Developed by a private company called AFCO International, the neighbourhood boasts its own water supply

[16] This development was not without controversy. See these New York Times and AAN reports.

and sewerage infrastructure, independent of AUWSSC. The water is sourced from deep wells, treated and distributed through a closed network. Tariffs are surprisingly low – just AFN 17 per cubic metre, half the AUWSSC rate. Sewerage is connected to a treatment plant and the treated effluent is reused for landscape irrigation, reducing pressure on groundwater. Importantly, residents pay for meter installation and adhere to usage regulations, a model that incentivises accountability. Yet not all of Aino Mena is covered. The first phase, comprising roughly 20 per cent of homes, lacks access to the piped water system. Residents rely instead on household wells, many of which are already running dry, highlighting the patchwork nature of even well-managed private efforts.

Omid Sabz, a gated development in the south of Kabul, tells a more fragile story. The project was launched with its own water and sewerage system, also managed by a private firm. But over time, the service faltered. Residents went months without water and had to pay additional fees to have supply restored. The treatment facility fell into disrepair and maintenance lagged behind expansion. Recently, service has been reactivated, but only after new financial contributions from residents – raising questions about long-term affordability and service stability.

One of the more promising initiatives prior to the regime change was a privately led water supply project planned for police districts 12 and 22 in eastern Kabul. Designed for newly developed and planned areas, the project included a smart grid water network and was structured under a Build-Operate-Transfer (BOT) model, whereby a private investor would finance and manage the infrastructure before eventually transferring it to the government. The feasibility study, reviewed by the author and the information mentioned in the AUWSSC website (when it was functioning), indicated both technical and financial viability (USD 55 million), offering a rare example of structured private-public cooperation in Kabul's urban services. However, with the collapse of the Republic in 2021 and the resulting political uncertainty, the project was suspended indefinitely – leaving thousands of planned housing plots without reliable access to water.

These private initiatives reveal both the opportunity and limitations of off-grid urban infrastructure. Where well-planned and technically sound, private networks can relieve pressure on public systems and offer higher-quality service. But without regulation, oversight and integration with citywide plans, they can easily

replicate the same vulnerabilities they aim to avoid: fragmentation, inequity and unsustainable groundwater use.[17]

Moreover, they underscore a broader risk. As the state retreats from service provision, only those who can afford to live in gated communities or pay extra fees will have reliable access to safe water. The rest remain dependent on overloaded public systems or informal suppliers, deepening inequality across Afghan cities. While the private sector can play a role in urban water delivery, it is not a substitute for coherent public investment, policy enforcement and environmental safeguards. Without these, even well-meaning private solutions risk becoming temporary fixes in a system that remains structurally broken.

[17] The source of water for all these private initiatives are groundwater. The east of Kabul (districts 12 and 22) receives water from the Logar aquifer, whose status and recharge rate are both still reliable.

THE FUTURE: SOLUTIONS OR A COMPOUNDING CRISIS?

Afghanistan's urban water crisis is no longer on the horizon – it is here. But is it still solvable? Technically, the answer is yes. Financially and institutionally, however, the road is long, uneven and politically constrained. Some projects have already begun to address the crisis. Others remain on paper. The question now is whether Afghanistan can move from isolated interventions to a systemic response before it is too late.

In the short term, several measures could slow the collapse. One is managed aquifer recharge (MAR), an approach that involves directing surface water, rainwater and treated wastewater into the ground to replenish groundwater reserves. A pilot MAR initiative along the Logar River was launched before 2021 and identified potential recharge zones on Kabul's outskirts. The idea was to combine infrastructure with landscape management to sustain urban groundwater levels. However, the project has since stalled and remains largely symbolic without expansion. Still, as a concept, it remains one of the most practical tools in the Afghan context, especially where new surface water infrastructure is unlikely.

Another potential fix lies in inter-basin water transfers. Two dam projects – Shah wa Arus in Shakardara district, just to the north of Kabul city, completed but not fully operational, and Shah Tut, in Charasiab district, just to the southwest, whose construction has yet to start – were intended to supplement Kabul's water supply with seasonal flows from the upper Kabul River basin. Bringing water from the Panjshir River to Kabul is another option, but would require huge investment. If managed equitably and environmentally, these could provide critical relief. However, these projects have suffered from delays, funding gaps and political limbo. Even if brought online, they would require careful integration into Kabul's fractured water grid.

Another promising avenue for addressing Afghanistan's urban water crisis lies in integrating nature-based solutions into city planning. These approaches, which include rainwater harvesting and smart landscape design, can help recharge aquifers while mitigating urban flooding. In Kabul, for instance, public institutions

like the Ministry of Energy and Water and Kabul Polytechnic University have already implemented basic rainwater harvesting systems, diverting runoff from roofs into recharge storages. Similar interventions could be scaled up across the city: flowerbeds between roads designed to sit lower than the asphalt, parks and playgrounds shaped to collect stormwater and metal guardrails to separate traffic – all relatively low-cost, locally manageable changes. These approaches not only reduce water waste but also increase resilience in the face of declining rainfall and groundwater recharge.

Children fill canisters at a water collection point on a hillside in Kabul.
Photo: Wakil Kohsar/AFP, 14 January 2025

Commercial water uses such as car washes, public baths and saunas – often clustered within or near city centres – consume large volumes of groundwater daily. To sustain their operations in the face of declining water tables, these businesses should be required to install basic water reuse and recharge systems. Such infrastructure would not only reduce their environmental footprint but also help preserve groundwater resources for broader urban needs.

Moreover, industrial beverage and bottled water companies are currently extracting their raw material – water – at no cost. Introducing a tax on such extractions in urban areas could incentivise these companies to either develop systems to use surface water or relocate their operations further away from city centres.

Some of these ideas were not absent from recent planning. The SASAKI framework for Kabul laid out short, medium and long-term strategies for urban water resilience, including widespread rainwater capture. While many of its proposals remain on paper, revisiting and adapting these plans in light of today's crisis offers a clear path forward.

Institutional reform remains perhaps the most decisive factor. Without regulatory clarity and unified responsibility, even the best technical solutions will falter. Currently, urban water governance is split between AUWSSC, MRRD and municipalities. Many new housing areas remain beyond any agency's operational scope. There is no mandatory policy requiring developers to connect to a public water or sewerage network before construction. As a result, cities grow first and infrastructure follows – if ever. Reversing this dynamic will require not only new policies, but also enforcement mechanisms, urban planning coherence and public accountability.

In the long run, investment in infrastructure and institutional capacity is unavoidable if the system is not to collapse. Urban water systems must move toward universal metering, pricing reforms that reflect supply costs while protecting vulnerable users, and clear zoning of recharge areas, where groundwater extraction is limited. Without these guardrails, current practices – particularly unregulated well-drilling and unchecked borehole expansion – will continue to undermine long-term sustainability.

International actors still have a role to play, but under new constraints. Since 2021, most donors have suspended direct support to central institutions like AUWSSC. Some have pivoted to area-based programming, working through NGOs or other implementation bodies that are independent of the Emirate. A few donors, including ADB, have maintained interest in sector-specific investments, particularly in water infrastructure and flood risk management. However, these are limited in scale and bound by political caution. For larger-scale solutions to materialise – particularly those requiring coordination with government agencies – new financing mechanisms will be needed, such as climate adaptation funds channelled through neutral intermediaries, or public-private models that distribute the risk between local authorities and external partners.

The key challenge facing Afghanistan’s urban water system is not a lack of technical solutions, but rather the absence of institutional will, financial commitment and coordinated action. Practical, locally appropriate tools – such as rainwater harvesting, recharge zones and urban planning reforms – are already known and, in some cases, piloted. Yet in the absence of a unified national strategy, these efforts remain isolated. Without meaningful reform and integration, the country risks sliding toward a more fragmented response: a patchwork of disconnected fixes that cannot meet growing urban demand or withstand the pressures of climate change and rapid population growth.

CONCLUSION

Afghanistan’s urban water shortage is not the result of a single misstep, nor is it the inevitable outcome of natural scarcity. It is a crisis that has built up slowly – through decades of uncoordinated urban expansion, institutional fragmentation and short-term fixes to long-term challenges. The country is not lacking water. It is lacking a system to manage, distribute and protect it.

A woman pushes a wheelbarrow loaded with water cans on the outskirts of Herat.
Photo: Mohsen Karimi/AFP, 8 April 2025

Multiple governments over the past century have attempted to create water systems worthy of a modern state. Some succeeded briefly. Many failed to scale. After 2001, billions of dollars were invested in Afghanistan’s infrastructure, but few of those projects focused on – or even took account of – urban water and sewerage. Instead, unchecked real estate growth, combined with the absence of regulatory enforcement, created sprawling neighbourhoods reliant on private boreholes

and septic tanks. The institutional confusion is emblematic of the problem, with no single state actor fully responsible for either success or failure. Accountability has evaporated as fast as the water levels. Groundwater was treated as an infinite resource. Now, it is vanishing from under the cities.

Compounding all this is climate change – not as the original cause, but as an accelerant. Reduced snowfall, glacier retreat and erratic rainfall have shrunk Afghanistan's seasonal recharge window. Meanwhile, droughts have driven up agricultural reliance on groundwater, especially near urban peripheries. Afghanistan's urban water problem is no longer just a Kabul story, nor is it one that can be solved by new wells or donor-funded pipelines alone.

The cost of inaction is rising. Already, families in cities like Zaranj and Farah receive piped water only once a week, if at all. In others, like Kandahar and Helmand, solar-powered pumps feed a quiet depletion. Across the country, more residents are turning to expensive and noisy private tankers, that strain household budgets, even as the tanker companies reduce the common groundwater supply. Poorer communities, meanwhile, face exposure to contaminated water and rising health risks.

Afghanistan's cities will not empty out. But the cost of living will keep rising – economically, physically and socially. Without sustained investment, institutional clarity, policy enforcement and political determination, Afghanistan's urban water crisis will deepen, entrenching inequality and weakening the very foundation of urban life. Whether this trajectory can still be reversed remains uncertain. What is clear is that delay is not a neutral option. To do nothing will have disastrous consequences.

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Edited by Kate Clark
Design and layout by Žolt Kovač

Cover: A gardener waters the shrubs on a hilltop overlooking Kabul in the city's Wazir Akbar Khan neighbourhood. Neither governments, nor elites have shown any sign of trying to conserve water. Photo: Wakil Kohsar/AFP, 2 July 2023