

E-PAPER

Addressing Afghanistan's Climate Induced Exodus:

Water Scarcity Driven Displacement in Southern Afghanistan

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Published by Heinrich Böll Foundation, June 2024

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In Southern Afghanistan, a new displacement challenge is emerging that threatens to contribute to a wider – eventually international – immigration crisis. At the heart of this issue is the rapidly increasing water scarcity – a global problem with particularly severe implications in this area of Afghanistan, although other regions of the country are affected as well. Globally, the migration phenomenon encompasses over 1 billion individuals, with approximately 10 per cent attributable to water scarcities. Afghanistan stands as a prominent example among nations grappling with severe water shortages that significantly also contributes to the displacement and migration trends.

For decades, Southern Afghanistan has already been plagued by severe droughts, leading to the depletion of traditional water sources, including the Kariz irrigation system (ancient underground aqueducts) and natural springs. For the past decades, local communities managed to adjust their consumption to initially allow a replenishment to some extent of the resources. However, to combat this scarcity and to extract even the little water still available, locals have increasingly relied on borewells operated by generators or more recently solar panels, tapping into the groundwater as an alternative source of water. However, the unregulated use and often overuse of water from borewells, exacerbated by the proliferation of solar-powered pumps, has resulted in even more acute water shortages as many of the more sustainable irrigation systems relied on a higher groundwater table, leading to overall environmental degradation with the soil unable to retain water, and eventually to the displacement of communities to other areas, which often also already have been facing water scarcity.

Additionally, with the shift towards tapping into groundwater coupled with the lack of regulatory oversight for over two decades, there has been a significant deterioration of the overall management practices of shallow borewell exploitation, making it challenging to implement necessary revisions and implementing stricter measures now, particularly in rural Southern Afghanistan where the water scarcity crisis is at its peak.

The displacement from the region of Southern Afghanistan also has two larger – international – dynamics to consider. First, in terms of mitigation efforts, the current Taliban regime faces challenges to access international technical assistance and financial resources to address the water scarcity problems. While there are some efforts to launch increased engagement on the issue between the Taliban government and some members of the international community, the current political realities limit the opportunities for more substantial engagement or even financial support to mitigate the water scarcity in a sustainable manner. The second aspect concerns the reality that many of those displaced in Southern Afghanistan right now are considering outmigration to Europe as their only option. Thus, the water scarcity in Afghanistan is not just an Afghan or regional problem but if unaddressed will eventually to some extent also affect the international community.

How did we get here? Water scarcity and its consequences in Southern Afghanistan

The early 2000s witnessed an internal displacement crisis in Southern Afghanistan, triggered by a significant reduction in water levels in Kariz systems and springs due to persistent drought. During the last year of the first Taliban regime and at the beginning of the post-2001 state building in Afghanistan, this crisis pushed the population towards seeking alternative water solutions on their own without any state support, leading to the widespread and uncontrolled construction of shallow deep wells, also known as borewells or Bawri. This move was a direct response to the acute shortages of water from traditional sources, including Kariz, springs, rivers, and insufficient rainfall for rainfed agriculture, which had represented and supported the traditional rural subsistence and commercial farming for decades. This emergency response shift to shallow deep wells out of the sheer need initiated a new era of increased dependency on borewells, a trend that persists.

As villages faced severe water shortages, displacement ensued, with villagers often only left with the choice between relocating to areas like the Dasht (meaning desert) or staying and constructing borewells in their current locations.

This migration was propelled by two pivotal factors: The dwindling availability of traditional water sources in their original villages and the comparative advantage of the larger, more fertile Dasht lands over their smaller, original plots. While moving to a desert area might seem counter-intuitive, it makes sense when considering that these areas often held untouched land that with some water could potentially produce more yield compared to smaller, nutrient depleted plots in villages where everyone was competing for limited water sources. Desert areas often still had groundwater tables at easier to reach levels compared to those in villages where shallow deep wells had often already caused groundwater tables to drop. Furthermore, the potential for better agricultural yields, especially with crops like poppy on Dasht lands, further incentivised this move. Poppy cultivation away from the villages meant less detection by counternarcotic operations and the larger field with the higher poppy yield also promised more earnings for a crop that could even be stored for later cashing out. The high price of poppy compared to all other commodities also meant that farmers were able to better offset the cost for the wells in the short and long-term. Consequently, individuals not only installed borewells on their existing land but also expanded their operations to Dasht, installing additional borewells there. This strategic expansion into Dasht, coupled with the shift to borewell irrigation overall, underscored a significant response to water scarcity, highlighting the critical role of borewells in adapting to and overcoming environmental challenges.

The situation worsened even further in 2006 when a critical water crisis deepened across Southern Afghanistan, as water sources – Kariz and springs – completely dried up in some villages, a situation that persists to this day. Increasingly, villages became entirely reliant on borewells. Although villagers attributed these changes to natural drought conditions, it has become increasingly clear that human activities, particularly the introduction of solar-powered borewells, have played a substantial role in exacerbating the depletion of underground water resources and especially Kariz structures and springs that were also connected to those resources. This reliance on borewell water, especially pronounced in Northern Helmand and Western Kandahar, forced entire communities to abandon their traditional water source management, thus contributing to a rapidly worsening cycle of water scarcity, displacement of families, and the gradual desertification of once fertile lands.

In recent years, even these borewells have begun to fail, drying up as the relentless droughts have been continuing and the unregulated extraction of water, now amplified by solar-powered pumps, has been accelerating the depletion of groundwater. This relentless drawdown of the water table has rapidly diminished groundwater levels across vast areas, exacerbating the water crisis and pushing the entire region into a dire ecological and social predicament with far-reaching implications for the future of Southern Afghanistan.

The construction of borewells saw an exponential increase as villagers began to occupy freely available and unused Dasht lands for agricultural purposes and borewell installation. Asserting traditional land claims, the villagers consider Dasht – traditionally state-owned territory – as their own due to its close proximity to their village and casual habitual use in the past without any pushback from the state authorities. They rely on informal or customary claims to use this land they do not legally own, treating it as an extension of their village territory for historical, social, or practical reasons. Consequently, the practice of claiming such free and unused Dasht land has significantly contributed to the rising popularity of shallow deep wells in Southern Afghanistan, which in turn meant that the tapping into the ground water just outside and around the villages had led to an even faster depletion of groundwater resources both in the village and in the Dasht.

From 2001 to 2021 with conflict intensifying over the years due to Afghan National Defense and Security Forces (ANDSF) and foreign troops fighting the Taliban in the rural areas of Southern Afghanistan, the Afghan government made no significant attempts to halt the appropriation and unauthorised use of government land. The Afghan government was in fact hardly able to intervene in these areas outside of the provincial capitals and a few other district capitals it controlled, with the rest of the areas largely under the control of the Taliban insurgency. Concurrently, the Taliban insurgency at the time refrained from taking action against the construction of borewells, aiming to avoid alienating local communities and preserving their support in these areas, especially as the Taliban could hardly

offer the local population any alternatives and also relied on the informal taxation of local poppy production for its insurgency financing, for example.

So instead of any of the key actors intervening to stop these practices, local strongmen on the government side, local Taliban members, and Republic-era government officials with still some access in these areas, all got engaged in acquiring or mostly just usurping government land for personal gain. Such influential players were often involved in both illegally selling or leasing the land and endorsing construction of borewells; they also constructed borewells for their own agricultural purposes.

The introduction of solar technology to operate the borewell pumps to get the water to the surface significantly influenced and negatively impacted the groundwater extraction. The use of solar panels reduced the dependence on costly fuel for operating borewells, as locals considered solar technology a cost-effective alternative despite its initial expense. This transition to solar energy resulted in a surge in borewell installations and the operating hours of these installations, with individuals eager to exploit the economic benefits of solar power compared to traditional fuel sources. The convenience and lower operational costs associated with solar technology encouraged landholders to augment their agricultural activities by adding more borewells, frequently on Dasht land. This development not only further escalated the strain on groundwater resources but also prompted greater grabbing of Dasht territories.

The new wave of displacement began when borewells started drying up, leading to either deeper drilling for more water or relocation to find water, resulting in the complete desertion of some villages. This scenario, driven by uncontrolled pumping of groundwater, has led to a situation where there are over a million borewells in Helmand province alone. This alarming trend signals more villages facing desertion as borewells continue to dry up, marking a shift to permanent displacement. The situation is exacerbated by the seasonal inadequacy of river water and the ban on poppy cultivation, which further accelerates migration from Southern Afghanistan over the past two years following the Taliban de facto government's ban on poppy cultivation from April 2022. The dramatic reduction in water sources, from Kariz and springs to a complete reliance on borewells, underscores the profound impact of water scarcity on the region, highlighting a crisis fueled not only by necessity but also by competition, greed, and opportunism as well as local governance failures to try to regulate or earlier flag issues with the accelerating harmful practices.

Long term challenges: Water scarcity, displacement, and migration implications

As Southern Afghanistan grapples with these challenges, the implications for its ecological and social future remain profound. It could be argued that by now only there is little hope for a significant reversal of the by now chronic water scarcity and in many places now the complete absence of groundwater table within reasonable reach that could be expected to replenish itself. In fact, the climate change and weather prognosis not only for Southern Afghanistan but most of Afghanistan remains bleak in terms of a reduction in drought-inducing climate conditions. In fact, the 2023-2024 fall and winter had hardly the necessary precipitation to even just ensure adequate water supply for the coming year, not even thinking about the precipitation needed to maintain any limited groundwater resources still available in some areas or to even replenish the groundwater table. The latter might also have become more challenging compared to the past with underground water arteries clogged, collapsed or sanded due to the excessive borewell construction as well as changes in soil conditions making it even more challenging for any rain water to be effectively absorbed into the ground.

Local communities have also increasingly observed these trends and many already had to react to the anticipated inevitable scenario that with no access to water – for drinking or agricultural purposes – the only option is to move away from these areas. It is also harder to sell any property legally in the possession of these families, as hardly anyone is interested in buying land that is barren due to the lack of water. Even families that have already sent away male relatives to work at other places in Afghanistan or abroad to send remittances home, hardly consider it feasibly now to stay in the affected areas of Southern Afghanistan – prices for water that needs to be delivered for drinking and even basic household chores has become very expensive and the overall conditions with limited water have often led to significant and costly health issues for families.

Another aspect to consider is that unlike in the past where families would move to the next larger villages or to provincial capitals, now this calculation has also become more difficult as in many of these places also water is running low or has become expensive to purchase for household use. When some families initially moved to other areas in the south to set up new livelihoods there and to construct new borewells, this influx often accelerated existing patterns of water scarcity leading to both the host family and the newly displaced families having less water available in a short period of time.

This has often resulted in families from the original affected areas moving further afield outside of Southern Afghanistan and often with little to no hope of returning to their home villages and with little opportunities inside Afghanistan, families often have made

the decision to collectively migrate abroad. Southern Afghanistan traditionally had less outmigration compared to other areas of Afghanistan but this has changed with the water scarcity crisis. Given the reputation of Southern Afghanistan as the heartland of the Taliban, many families have also used the last years to claim asylum abroad disguising water related primary outmigration reasons with political and human rights related claims. In terms of prospects for return, the families who have left Afghanistan due to the water scarcity would be hardly willing to consider any type of incentive offered by the Taliban de facto regime to return to the country.

In light of the tensions between Pakistan, Iran and Afghanistan over the already high Afghan refugee load – documented and undocumented – neither of the neighbouring countries currently presents an appealing relocation option in the region around Afghanistan. Hence the majority of those displaced and seeing themselves without prospects in Afghanistan and the region are likely to push to migrate to Europe, thus also adding a layer of geopolitics and socio-economic dynamics, in addition to the environmental factor, that the Taliban government in Afghanistan is currently unable to address effectively.

Solutions and recommendations for the Helmand and broader Southern Afghansitan water crisis

Addressing Southern Afghanistan's water crisis requires a comprehensive strategy focusing on resource management, legal regulation, and sustainable practices. The displacement that has already taken place and will be increasing in the near future need to be addressed too. The indiscriminate drilling of borewells has exacerbated water scarcity, underscoring the urgent need for effective governance and policy implementation.

The lack of regulations has led to severe overexploitation of water resources. In some cases, communities possess multiple borewells, intensifying the crisis. This situation is partly due to inadequate management by authorities, including both the current de facto regime of the Taliban and the former Republic government, which failed to devise and enforce sustainable water management policies over the last two decades.

To combat this crisis, the following measures are proposed:

A. Infrastructure development: Initiatives such as funding and construction of dams and canals, such as the Musa Qala river dam and the proposed Farhad Band and Kajaki district projects, are crucial. These projects aim to efficiently harness and distribute remaining surface water, reducing reliance on borewells and groundwater.

B. Regulation and enforcement: Implementing strict policies on borewell usage and groundwater management is essential. Raising awareness about sustainable water use, coupled with legal frameworks to regulate groundwater extraction, will help control further overexploitation. Recent efforts by the Taliban's to develop groundwater management strategies, including restrictions on new borewell constructions, are steps in the right direction but require further development and enforcement. With the Taliban now in control of the entire area and expected to take over all governance functions, immediate enforcement of these measures is imperative. However, in the most affected areas of Northern Helmand and Western Kandahar, where the drug ban already resulted in pushback by the local population as well as local Taliban commanders, this could present a genuine challenge.

C. Policy and awareness: Enhancing public awareness and implementing policies on groundwater use are critical. Engaging communities through local leaders or NGOs in promoting water conservation and sustainable practices must accompany Taliban policies to ensure effectiveness. Tailored strategies are needed for communities facing imminent water depletion, emphasising sustainable alternatives and addressing displacement challenges. The Taliban local de facto administration in Southern Afghanistan seems to have understood the need for these interventions and has already held several seminars on the issue. Even among the Taliban there appear to be some de facto officials who understand the crisis and know of the necessary measures to be taken. One example noted during the research was the head of National Environmental Protection Agency (NEPA) in Kandahar. He was described as very influential locally and hence would be able to push this issue forward very effectively – including through religious messaging.

D. Urban water supply improvement: Addressing water scarcity in urban areas, particularly in informal settlements, is imperative. Developing a robust urban water infrastructure, regulating deep well constructions, and tackling corruption can significantly improve water access. The Taliban's enforcement capabilities should extend to well regulation and water management in urban settings.

E. Addressing displacement and migration: Water scarcity, coupled with economic challenges, is driving displacement and migration. A nuanced approach is needed to manage urban displacement, recognising the permanence of current migration trends compared to past temporary displacements. Comprehensive strategies should focus on improving urban integration for displaced populations and mitigating the push factors driving migration abroad.

F. Multifaceted approach: Effective management of Southern Afghanistan's water crisis requires a multifaceted approach, integrating infrastructure development, regulatory reforms, community engagement, and strategic planning to address urban displacement and migration. Implementing these measures is vital for reversing the water scarcity trajectory and ensuring sustainable water access for Southern Afghanistan's communities.

G. Tackling tension with Iran: The ongoing tensions with Iran over the use of the Helmand river water as governed by the 1973 Water Treaty has also put even more pressure on the Taliban de facto government in terms of water management in Southern Afghanistan. These tensions might yet be another aspect to consider when looking at how to improve the water management crisis in Southern Afghanistan with Iran pushing for even the limited water that might be made accessible to them as well.

Conclusion

While there are a number of concrete steps that can be taken immediately as outlined above and there already being the recognition and willingness of the Taliban government in Afghanistan to tackle the issue, technical and financial limitations in being able to immediately and effectively implement these are persistent. Several of the mentioned mitigation measures require time and persistent enforcement in order to yield results in the medium and long terms, while maybe having little immediate effects. In light of the challenges, the current regime's efforts should be acknowledged and despite the political realities, it is important to explore options to support and expand the current efforts via technical and financial assistance as well as allowing Afghanistan to be represented in international climate conferences. With the outmigration being driven by the water scarcity that cannot immediately be addressed, the international community should also be prepared to support measures inside Afghanistan to mitigate migration outside of Afghanistan and to Europe, by providing humanitarian and eventually development assistance to create livelihood opportunities for the displaced populations inside Afghanistan.

Endnotes

¹ Kariz is a system for transporting water from an aquifer or water well to the surface, through an underground aqueduct; the system originated approximately 3,000 years ago in what is now the Iran-Afghanistan era. This is a system of water supply that allows water to be transported over long distances in hot dry climates without losing much of the water to evaporation. The system has the advantage of being resistant to natural disasters, such as earthquakes and floods; it is almost insensitive to the levels of precipitation, delivering a flow with only gradual variations from wet to dry years. Kariz are constructed as a series of well-like vertical shafts, connected by a gently sloping tunnel. This taps into underground water and delivers it to the surface by gravity, without need for pumping. The vertical shafts along the underground channel are purely for maintenance purposes (such as cleaning out mud, etc) – the water is typically used only once it emerges from the daylight point.

Imprint

Editor:

Heinrich-Böll-Stiftung e.V., Schumannstraße 8, 10117 Berlin

Place of publication:

afpak.boell.org

Release date:

June 2024

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