## Conflict Factsheet

**Water Shortages and Public Discontent in Yemen**

<table>
<thead>
<tr>
<th>Type of conflict</th>
<th>Intensity</th>
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<tr>
<td>Main</td>
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<tr>
<th>Conflict Locality</th>
<th>Time</th>
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<td>Western Asia</td>
<td>2009 – ongoing</td>
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<tr>
<th>Countries</th>
<th>Resources</th>
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<td>Yemen</td>
<td>Water</td>
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### Conflict Summary

As a consequence of severe mismanagement, Yemen’s water availability is declining dramatically. The impacts on the people are unequally distributed, and corruption and nepotism are at the core of this imbalance. This has increasingly frustrated the disadvantaged, with water scarcity playing a role in fuelling the political and security crisis in Yemen.
Conflict History

Yemen is one of the water-scarcest countries in the world with currently only 120 m³ water per capita/per year available and is probable to fall even farther below the World Bank’s threshold of "water scarcity", defined as 1000 m³/capita/year (Wilson Center, 2011). Grievances over poor resource management, (scarcity-related) rising inequality and livelihood losses have translated into growing public protests which, at times, have been met with brutal state force.

Origins of the scarcity

While precipitation in the region has always been rather low, rainfall has further decreased by 9% on average per decade since 1990 (McSweeny, New & Lizcano, 2010). Yet, more importantly, Yemenis’ consumption habits have changed dramatically and the population is growing steeply (CIA, 2015). Not only is more water used in the domestic households, agriculture, responsible for almost 90% of water consumption, demands increasingly more water as more traditional ways of farming are being abandoned (Adra, 2013). In particular, state subsidies have incentivised the growing of cash crops which mostly require large amounts of water. Since the 1970s, these are mainly provided by deep tube wells that draw on deep groundwater resources and, due to their widespread proliferation, cause water tables to fall significantly. The diesel needed to operate them has since been heavily subsidised, which particularly benefitted the proliferation of the extremely popular, though water-intensive, mildly narcotic drug qat. Moreover, a ban on fruit imports in 1983 made it economically viable for Yemeni farmers to grow fruit themselves (Lichtenthäler, 1999). Consequently, overall groundwater use increased by 41% between 1998 and 2004 alone, while each year on average 0.6% less cereals were grown, despite their centrality to the traditional Yemeni diet. Hence, almost 80% of the domestic demand for cereals could not be satisfied (FAO, 2008).

Structural scarcities: unequal impacts across society

This situation is intensified as water scarcity manifests unevenly across socio-economic segments of society. Most importantly, small farmers are not able to take part in the “race to the bottom of the aquifer” because deep tube wells are quite expensive. They are also less able to purchase water on the open market; in 2009, the market price of water had quadrupled within just four years (Worth, 2009).

Moreover, as a consequence of the high prices of trucked water from private companies, women and children from poor families get especially marginalised. They have to take on long walks, sometimes in the middle of the night, to be able to fetch water for their households from distant wells (World Bank, 2006).

Competition between cities and the countryside has also increased with progressing urbanisation. As water scarcity aggravates, many of the rural populations cannot subsist from their diminishing agricultural production anymore and thus flee their homes towards the larger cities of Yemen; however, scarcity is even worse there (Marslen & Lehane, 2015; UPI, 2009). With the rising demand in the cities, resources are increasingly extracted from the surrounding rural areas.
From the 1950s to the 1990s, the state supported upstream diversion structures which widened the inequality gap by allowing the already wealthier upstream landowners to retain even larger amounts of water for themselves, leaving downstream communities with less spate flow and groundwater available (Ward, 2009). Hence, beneficiaries of the governmental subsidies and water policies were large farmers and the non-poor in general (World Bank, 2006).

What is more, various sheikhs abused their customary legal rights and influential positions to monopolise water rights, as well as did the political elite “on occasion usurp land and water and justify their actions through bribing judges” (Varisco, 1983). Yemen-expert Gerhard Lichtenthäler (1996) therefore observed that in a context of lacking “economic development and alternative livelihoods [...] control of water is the basis of income, wealth, power and even life”, wherefore the problem is probably rooted in the distribution of power.

**High dependency on agriculture and water**

More than half the Yemeni population work in agriculture (Wilson Center, 2011) and the livelihoods of over three quarters of Yemenis depend on it (World Bank, 2002). Concomitantly, they also depend on the availability of water, of which at least 90% is used in the agricultural sector. Diminishing water supply hence also decreases food supply. The country is already the 11th most food insecure one in the world (WFP, 2015). Partially as well due to a change in cultivation types, domestic production cannot satisfy the people’s demand anymore. In turn, around 90% of Yemen’s staple food is imported nowadays, exposing it to the volatility of international markets (Marslen & Lehane, 2015).

Economic development remains low. Unemployment rates of 40% (and 60% among the youth) are rising in the context of losses of rural livelihoods and leave already more than half the population below the poverty line (Ahmed, 2015). As a consequence, many Yemenis cannot afford to buy enough food, especially since prices have risen starkly (e.g. for wheat by 200% between 2000 and 2008 (ibid.)). Many have come to chew qat as part of their diets since it is often cheaper than food but creates a similar feeling of fullness (Pai, 2012). Though lacking nutritiousness, about half of the water used in the agricultural sector is still being used for its production (Caton, 2010). Qat takes a central role in the people’s lives – households spend on average 30% of their income on the drug – and it contributes between 6% (World Bank, 2007) and 30% (Ward and Gatter, 2000) to the GDP (estimates vary but are more likely to be in the lower band). Cutting its production is therefore an economic risk but most of all could lead to public discontent. Yet, “even in relatively wealthy communities, however, small landholders who only cultivate qat and depend on the market for food, are cash poor between qat harvests and suffer from hunger during these periods” (Adra, 2013).

**Grievances and unrest**

A vicious circle that “led to a society that is highly distrustful of the central government” (Stratfor, 2014) emerged: water scarcity and power struggles have exacerbated food insecurity and slowed down the economy; because of low economic development food insecurity is exacerbated. In fact, it has been argued that in this manner water and food scarcities have been contributing factors to the collapse of the Yemeni state (Ahmed, 2015). Due to the importance of water and the severe consequences of its scarcity for the Yemeni population, the latter has grown increasingly discontent with the government which is
more and more unable to provide for its citizens’ livelihood security. Erstwhile Minister for Water and the Environment, Abdul-Rahman Al-Eryani, has pointed out “that 70 percent of unofficial roadblocks stood up by angry citizens are due to water shortages [...] He reported that small riots take place nearly every day in neighborhoods in the Old City of Sana’a because of lack of water” (Wikileaks, 2009b). Water protests have also taken place in several other governorates (Wikileaks, 2009a).

Particularly corruption, as well as power imbalances and political exclusions of the civil society, were main issues in the past protests that are said to have brought down the government of former president Saleh in 2011 (Freedom House, 2014; Bertelsmann Stiftung, 2014). Yemen ranks 161 out of 174 countries in Transparency Internationals 2014 Corruption Perception Index, and corruption is also well spread in the water sector. Especially the fact that top officials are among the main perpetrators of illegal well drillings has led demonstrators to denounce corruption (Friedman, 2012), which significantly contributes to rising inequalities destabilising politics and society (Robinson et al., 2006). Other water-related grievances include those of rural populations towards the political elites from the cities whose policies are increasingly designed to exploit resources of rural areas. Thus, urban-rural tensions have intensified and experienced occasional violent outbreaks already (UPI, 2009).

Water disputes and riots increase the pressure on the state and have weakened its capacity to deal with other pressing issues (Al Arabiya, 2010). The already weakened state became increasingly unable to deliver basic goods and services to its people, thereby losing its legitimacy and leaving a vacuum to the benefit of insurgent militants (Ahmed, 2015).

Resolution Efforts

Rather than effectively resolving the conflict, the main response of the Yemeni Government under former president Ali Abdullah Saleh was to step up state security and attempt to quell protests. The (not exclusively water-related) demonstrations in 2011 against his government were met with brutal violence from state security forces and are said to have led to the deaths of over 200 people and injuries of over 1000 (Amnesty International & Abdullah, 2012). Nevertheless, Saleh was forced to step down at the end of that year anyway when external criticism of his actions was growing and pressure had mounted significantly (Bertelsmann Stiftung, 2014).

Grievances over water scarcity in general, or of rural populations towards urban city dwellers, however, cannot be stopped through state force. Discontent persists as long as livelihoods are being destroyed, corruption continues and inequalities widen. In order to decouple water scarcity from the security of Yemeni livelihoods, the economy should be diversified and reliance on agriculture decreased. In fact, other countries in the region experience even greater water scarcities but have been much more able to find solutions because of higher economic and political stability (Fitch, 2015). What is more, ubiquitous corruption and the judicial system in Yemen practically put the poor and those without political connections at a disadvantage and weaken their voice (World Bank, 2006). Hence, taking to the street might turn out a logical consequence for them.
Dealing with water scarcity
Since, inter alia, water scarcity is at the start of the vicious circle threatening economy and livelihoods, it also represents a possible entry point for conflict resolution. The technical potential for efficiency improvement in general public water infrastructure as well as in the agricultural sector is tremendous; in 2004 only 0.1% of irrigation in Yemen was localised (e.g. using drip irrigation) (FAO, 2008) and Sandra Postel (1999) posits that, for instance, by using drip irrigation methods and less water intensive crops, water for agriculture can generally be used up to 95% more efficiently. On the other hand, the country heavily depends on foreign aid and investments in order to manage the related high costs of an estimated $12.7 billion for such infrastructural improvements (Stratfor, 2014). Furthermore, supported by the World Bank and other external actors, institutions like the RUAF Foundation have addressed the cities’ dependency on rural areas in food productions and are trying to bolster urban gardening.

The Yemeni government’s ability for effective action is relatively low. A licensing system that limits and controls the numbers of wells in the country could check groundwater extractions and hold it at a sustainable level. However, despite its (late) introduction in 2003 it has not been properly implemented to date (Stratfor, 2014). Its effectiveness is mainly hindered by the fact that many of the unlicensed illegal wells belong to members of the military, economic and political elite (Ward, 2009). Hence, while ostensibly fighting them, the latter actually contribute to the overexploitation and exacerbate it by blocking related law enforcement.

The weakness of the government is also evident in relation to numerous unsuccessful attempts at increasing diesel prices. While these measures could contain a further proliferation of unlicensed deep tube wells, they have regularly been responded to with strong popular opposition in form of demonstrations, road blocks, and street riots - resulting in strong political reluctance towards their employment.

Conclusion
Ultimately, as a mere suppression of protests is not going to do away with the public grievances, addressing the main root causes of the water scarcity in Yemen will be crucial. The unregulated overexploitation of groundwater aquifers has to be stopped, more efficient irrigation methods be employed and less water-intensive, yet nutritious, crops to be grown (Ward, 2009). However, in order for measures to be successfully implemented, first and foremost corruption has to be tackled and stable economic and political conditions be established (Fitch, 2015). Otherwise, international donors will turn away from the country and leave the country struggling for bettering (Robinson et al., 2006).
### Intensities & Influences

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### Resolution Success

- **Reduction in geographical scope**
  - There has been no reduction in geographical scope.

- **Increased capacity to address grievance in the future**
  - There is no increased capacity to address grievances in the future.

- **Grievance Resolution**
  - Grievances have been completely ignored.

- **Causal Attribution of Decrease in Conflict Intensity**
  - There has been no reduction in intensity
Entry Points for Resilience and Peace Building

**Strengthening legislation and law enforcement**
In order to control the unregulated overexploitation of groundwater aquifers, a licensing system that limits and controls the numbers of wells in the country was implemented in 2003. However, the system has not been properly implemented to date.

**Reducing dependence on specific supplies**
The diversification of the Yemeni economy can decrease its reliance on agriculture. Institutions like the RUAF Foundation have addressed the cities’ dependency on rural areas in food productions and are trying to bolster urban gardening.

**Improving resource efficiency**
Several options exist to improve water-use efficiency, such as the use of more efficient irrigation methods, the farming of less water-intensive crops, and the general improvement of public water infrastructure.

Resources and Materials

Conflict References

Local Violence over Water Resources in Yemen

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Further information