Conflict Factsheet

Local Violence over Water Resources in Yemen

<table>
<thead>
<tr>
<th>Type of conflict</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
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<table>
<thead>
<tr>
<th>Conflict Locality</th>
<th>Time</th>
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<tbody>
<tr>
<td>Western Asia</td>
<td>1990 – ongoing</td>
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<table>
<thead>
<tr>
<th>Countries</th>
<th>Resources</th>
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<tbody>
<tr>
<td>Yemen</td>
<td>Water</td>
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Conflict Summary

Since the start of deep well drilling in the 1970s, Yemen’s groundwater resources have diminished at a rapid pace - fostered by state subsidies and the absence of effective regulation. Consequently, competition for the precious resource has intensified and led to numerous, highly localised conflicts between individuals, tribal groups, and villages.
Conceptual Model

Climate Change
- Gradual Change in Temperature and/or Precipitation

Environmental Change
- Increased Water Scarcity
- Increased Land Scarcity
- Pollution / Environmental Degradation

Intermediary Mechanisms
- Change in Access / Availability of Natural Resources
- Grievances between Societal Groups

Fragility and Conflict Risks
- Change in Access / Availability of Natural Resources
- Grievances between Societal Groups

Social and Economic Drivers
- Migration patterns
- Demographic Change
- Economic Development

Context Factors
- Water-stressed Area
- Weak Institutions
- History of Conflict
- Low Level of Economic Development
- Proliferation of Weapons
- Weak Institutions

Water
- Water-stressed Area
- Weak Institutions

History of Conflict
- Low Level of Economic Development
- Proliferation of Weapons
- Weak Institutions
Conflict History

Numerous experts predict Yemen to run dry very soon, as the first country in the world (Hill, 2008; IRIN, 2010; Jamjoom & Somra, 2010; Lichtenthäler, 2010). Whilst water availability is rapidly decreasing as a consequence of mismanagement, overexploitation and climate change, local disputes over the distribution of water and land are spreading and often turn violent, taking the lives of nearly 4,000 people per year (Whitehead, 2015).

Dwindling water resources

Owing to the absence of perennial rivers, agriculture in Yemen is mainly rain-fed, with about 75% of rural communities depending directly on rainwater for growing crops and keeping livestock (Wilson Center, 2011). Yet, the discovery of deep well drilling in the 1970s has triggered a steep increase of irrigated agriculture. In 30 years, the irrigated area increased 13 fold (Haidera et al., 2011), with about 40% of utilised water resources being supplied by deep groundwater aquifers (Lichtenthäler, 2010). Currently, the water table is falling between one and eight meters per year (UNFCCC, 2013), forcing new wells to be drilled ever deeper up to 800m depths. This has, in effect, given rise to groundwater salinization and pollution (Al-Asbahi, 2005; Ward, 2009), and depleted nearly 14 out of the country’s 16 aquifers (Wikileaks, 2009).

This development has not been accompanied by sound policies and sustainable water management. In absence of effective state regulation unlicensed private wells have mushroomed, and competition for dwindling groundwater resources has increased, leading to the exploitation of aquifers beyond recharge rates. One of the water ministry’s senior hydrologists comments: “I see unlicensed drilling rigs as mobile artillery batteries, and the tankers that distribute the groundwater as missiles landing in every neighbourhood” (Ferguson, 2015). Despite the introduction of a licensing system in 2003, today only about 2% of wells are registered and over 90% of well drillings are unlicensed (Stratfor, 2014). Implementation of the system is hampered by vested interests of high level officials. Eager to win popular support and accommodate powerful elites, the Yemeni government has further introduced agricultural and fuel subsidies, thereby encouraging the expansion of water-intensive “cash-crops” such as citrus, bananas, pomegranates or qat (Ward, 2009; Haidera et al., 2011).

Pressures on local water resources are further compounded by a fast growing population (2.5% per year (CIA, 2015)), and a notable reduction in average rainfall (9% per decade since 1990 (McSweeny, New & Lizcano, 2010). Although Yemen has always been a dry country, its current water availability (120m³/capita/year) is lower than ever and far below the threshold of “water scarcity”, set at 1000m³/capita/year by the World Bank (Wilson Center, 2011). Given current consumption patterns, Yemen is projected to be among the 16 most water stressed countries of the world in 2040 (WRI, 2015).

Local conflicts and inter-communal violence over water

Progressing water scarcity intensifies competition and increases societal tensions. In combination with an environment permissive to the use of force, disputes over water can heat up quickly. In Yemen, weapons are easily accessible and almost every second citizen owns a small arm (Hales, 2010a). Particularly
the rural society is “generally...arms bearing, and resort to violence frequent” (Ward, 2009). Accordingly, Zeitoun (2009) has commented that “the use of firearms as both explosive and deterrent power may be nowhere in the world more prevalent in the water sector than in Yemen”.

Conflicts over water are carried out on various levels. Sometimes, only between few individuals, e.g. when a villager builds a well more proximate to another villager’s than customarily accepted. Often, however, the violence over water involves whole tribes or villages fighting each other, by inflicting considerable damage to the competitors’ water infrastructure, e.g. through the blowing up of wells and pumps, or also by killing members of the other community directly. Occasionally, clashes also involve governmental soldiers (cf. Jabr Mountain Water Conflict). According to researchers from Sana’a University, 70-80% of conflicts in rural Yemen are related to water (WWAP, 2012). Although they cause large numbers of casualties, the vast majority of these conflicts are highly localised.

Moreover, disputes are increasingly likely as internal migration rises and land sales have led to a mixed make-up of villages where cohabiting tribes with diverging economic interests compete for access to dwindling water resources. In this context, resentments are likely to surge and ancient feuds can be revived (Kasinof, 2009; Ward, 2009). Water disputes are often closely connected to land disputes and “may be the trigger for conflict against a background of other grievances” (Hales, 2010b).

**Resolution Efforts**

**Legal conflict resolution**

Various traditional and formal conflict resolution mechanisms exist but remain often ineffective. Customary rules and statutory law are often incoherent and hence can result in contradicting regulatory approaches, making conflict resolution less likely. Settlement by legal means is further obstructed by a lack of both law enforcement and public confidence in the Yemeni judiciary. In the past, laws have frequently been interpreted in favour of influential individuals and groups. Furthermore, courts are perceived as too expensive due to the prevalent corruption, as too slow, and as too remote from the local level. While people thus turn to customary resolution mechanisms, there are, however, hardly any customary laws regulating groundwater extraction since this is a rather recent phenomenon (see Zhang, Huntjens & de Man, 2014; Ward, 2009).

Moreover, traditional local leaders are increasingly unable to solve conflicts. In an effort to “divide and rule” local tribes, former president Saleh appointed numerous sheikhs without proper knowledge of local customs and traditional laws. In addition, the sheikhs’ political activity is growing, making them lose their legitimacy as tribal leaders charged to work for the common good of their community. On the one hand, these measures weakened locals’ trust in their sheikhs as well as in state officials and institutions even more; on the other, they made sheikhs compete for power and divided society along tribal lines. Furthermore, sheiks are usually the largest users of groundwater themselves. Therefore, they face severe conflicts of interests that lessen both the credibility of their impartiality and their ability to make fair judgements that can appease all parties (Ward, 2009).
On the upside, the multi-layered and disjointed legal system allows for conflict parties to jointly choose a mediator from a broad range of actors, including state and customary authorities, or religious leaders. Despite this offering an alternative path to the sheikhs’ rulings for conflicts to be solved peacefully, mediators often experience considerable difficulties in getting the trust of all conflict parties (Zhang, Huntjens & de Man, 2014).

Resolution paths commonly taken
In a study, 96% of respondents said they would firstly deal with a conflict in traditional ways at neighbourhood level; if the conflict still remains unsolved they then seek a third party to mediate (Ward, 2009). If government officials are sought by the conflict parties they usually are from the National Water Resources Authority (NWRA), the national agency responsible for managing Yemen’s water resources and enforcing the respective laws, and take different roles. Mostly, they function as advisors. However, the majority of conflicts are solved by sheiks who try to do so in concordance with the respective customs and, if needed, ask judges or NWRA experts for technical advice; in non-tribal areas, community associations have been founded to manage water resources and mediate disputes. Only if the conflict is still unresolved until then, they go to court. However, unless the conflicts involve killings, this rarely happens and normally only if one of the parties sees an advantage for itself in doing so (Ward, 2009).

Notwithstanding the existing possibilities for peaceful conflict resolution, parties might nonetheless choose to deal with a conflict by recourse to arms because peaceful settlements “do not always address the root causes of a conflict, but rather prevent the conflict from escalating” (Zhang, Huntjens & de Man, 2014). Traditional resolutions only aim at satisfying the conflict parties but not at a sustainable resource management which could avert scarcities and future conflicts.

Tackling water scarcity
When water scarcity became more visible the government took some minor action on the demand side. While the notion of reducing water consumption is indeed the right one, these efforts were fairly limited in scope and hence had very little impacts. More effective measures like significantly cutting fuel subsidies, needed to operate deep tube wells, were mostly shunned by the government for their great unpopularity.

In another attempt to address the pressing issue of growing water scarcity, the NWRA was established in 1996 and the Ministry for Water and Environment (MWE) in 2003. Nevertheless, the most important powers and portfolios such as the “Irrigation and Dams Department” remained with the Ministry of Agriculture and Irrigation (MAI) (Al-Asbahi, 2005). This division of responsibilities precludes effective action as the MAI generally represents the interests of large farmers and other elite members and thus focused on action on the supply side, i.e. to increase water supplies, while the MWE instead endeavoured to implement more sustainable demand side-focused measures (Zeitoun, 2009).

External actors
International donors are very important for improving Yemen’s water management, in particular the German and Dutch development aid agencies. Not only do they provide financial resources, they can also set conditions when they implement projects and thereby target a sustainable resource management. In order to foment trust and induce cooperation, aid agencies try to work directly with local stakeholders.
and seem to focus on facilitating transparent procedures and accountability (Hill, 2008). Supported by the German GIZ, a decentralisation programme accomplished to devolve competencies for water to the local level by creating 14 water basin committees. Decentralisation seems to be a promising resolution strategy both for a more sustainable resource management and a reduction of violence since it "provides citizens with an opportunity for more equity and voice since it supports the power of local community institutions. It also builds on existing indigenous forms of civil society and values of local governance" (World Bank, 2006). A close cooperation between the NWRA, the water basin committees, local coordinators and self-organised community groups has led to a significant decrease in illegal well-drilling (GIZ, 2014). Nevertheless, international donors' agendas often seem to be unclear to local inhabitants and their projects can also have adverse impacts if badly designed. Due to the deteriorated security situation many donors have left the country (Zhang, Huntjens & de Man, 2014) and important reforms such as the decentralisation efforts have come to a halt (GIZ, 2015).

Outlook

Ultimately, the existent peaceful formal and informal conflict resolution mechanisms are important pathways that should be retained and strengthened. Furthermore, public authorities seem to have had some success at reducing the likelihood for conflicts to be carried out by violence. They passed several laws restricting the permission to sell and carry guns. Nevertheless, they only addressed urban areas and overall violence continues to persist (Hales, 2010b). Moreover, the local conflicts over water can only really be resolved if their root causes are effectively addressed, i.e. groundwater extraction is regulated at sustainable rates. Demand-oriented policies, such as diminishing economic incentives for water-intensive crops, making irrigation methods more efficient, improving water infrastructures, and decreasing the dependency of livelihoods on agriculture through a diversification of the Yemeni economy, are therefore imperative. Yet, many of those measures on the demand side are often opposed by influential stakeholders who prefer to instead develop further water supplies – such as farmer sheikhs, the MAI, and large land owners – wherefore effective demand-side action is unlikely within the current political set-up (see Zeitoun, 2009).
### Intensities & Influences

<table>
<thead>
<tr>
<th>Intensities</th>
<th>Influences</th>
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<tbody>
<tr>
<td>International / Geopolitical Intensity</td>
<td>Environmental Influences</td>
</tr>
<tr>
<td>Human Suffering</td>
<td>Societal Influences</td>
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### Resolution Success

<table>
<thead>
<tr>
<th>Success</th>
<th>Description</th>
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<tbody>
<tr>
<td>Reduction in Violence</td>
<td>There was no reduction in violence.</td>
</tr>
<tr>
<td>Reduction in geographical scope</td>
<td>There has been no reduction in geographical scope.</td>
</tr>
<tr>
<td>Increased capacity to address grievance in the future</td>
<td>There is no increased capacity to address grievances in the future.</td>
</tr>
<tr>
<td>Grievance Resolution</td>
<td>Grievances have been partially addressed.</td>
</tr>
<tr>
<td>Causal Attribution of Decrease in Conflict Intensity</td>
<td>There has been no reduction in intensity</td>
</tr>
</tbody>
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Entry Points for Resilience and Peace Building

Improving state capacity & legitimacy

The National Water Resources Authority (NWRA) and the Ministry for Water and Environment (MWE) were established to address the pressing issue of growing water scarcity. The NWRA is responsible for managing Yemen’s water resources and enforcing the respective laws, while the MWE attempts to implement more sustainable demand side-focused measures.

Strengthening legislation and law enforcement

In an effort to reduce violence, the Yemeni government passed several laws restricting the permission to sell and carry guns.

Changes in constitutional balance of power

Decentralisation seems to be a promising resolution strategy for a more sustainable resource management and a reduction of violence. A close cooperation between the NWRA, the water basin committees, local coordinators and self-organised community groups has led to a significant decrease in illegal well-drilling.

Promoting alternative livelihoods

In order to reduce local conflict, policies can be created to decrease the dependency of livelihoods on agriculture through a diversification of the Yemeni economy.

Improving resource efficiency

Policies that regulate groundwater extraction, diminish economic incentives for water-intensive crops, and create more efficient irrigation methods are imperative in order to address the root causes of the conflict.

Environmental restoration & protection

International donors such as the German and Dutch development aid agencies provide financial resources to implement projects that focus on sustainable resource management.

Resources and Materials

Conflict References

Jabal Sabr Mountain Water Conflict in Yemen
Water Shortages and Public Discontent in Yemen
References with URL


GIZ (2014). Water Sector Programme Yemen: Guaranteeing the Yemeni population a basic drinking-water supply and sanitation service provision.

GIZ (2015). Institutional development of the water sector. [2015-12-10]


Stratfor (2014). Yemen’s Looming Water Crisis


WikiLeaks (2009). Water Resources Fall as Water Scarcity Rises on the Agenda


WRI (World Resources Institute). (2015). Ranking the World’s Most Water-Stressed Countries in 2040. Table "Top 33 Water-Stressed Countries: 2040."


Further information

https://factbook.ecc-platform.org/conflicts/water-conflicts-yemen