



Water for livestock in the drylands: The case of Wajir County

Summary

In the pastoral drylands, water is a major tool for sustainable rangeland management. Water development in pastoral areas has focused on increasingly the availability of water through infrastructure development without engaging local communities or considering the needs of both people and livestock. This can exacerbate water scarcity and undermine rather than promote resilience in dryland areas. This technical brief gives guidance on issues to consider in the context of water development in the pastoral drylands, with examples from Wajir County, Kenya.



Introduction

Water is key to the sustainable management of pasture in the drylands. Water opens up land for productive use and in so doing introduces both economic and political opportunities. It is therefore important that water development promotes the sustainable management of rangelands resources in an equitable and peaceful manner.

Too often in the drylands, governments and planners have taken over simplified views of water development, prioritising the delivery of water services without considering the complex interactions between the land, environment and livelihood systems and their links to wider political processes. Decades of water development have resulted in a proliferation of water point infrastructure, but yet residents continue to face acute water shortages, due to poor planning, frequent breakdowns and weak water governance¹

An emphasis on global and national domestic water targets has failed to integrate the specificities of dryland areas for livestock water provision. In Kenya, livestock needs for water are often neglected, or presumed to fall within those provisions made for domestic water. This is surprising since in dryland counties such as Wajir County in northern Kenya, livestock make up the dominant livelihood and economy. With little consideration for livestock water needs, the inappropriate placement of water points can lead to rangeland degradation and weaken local resilience.

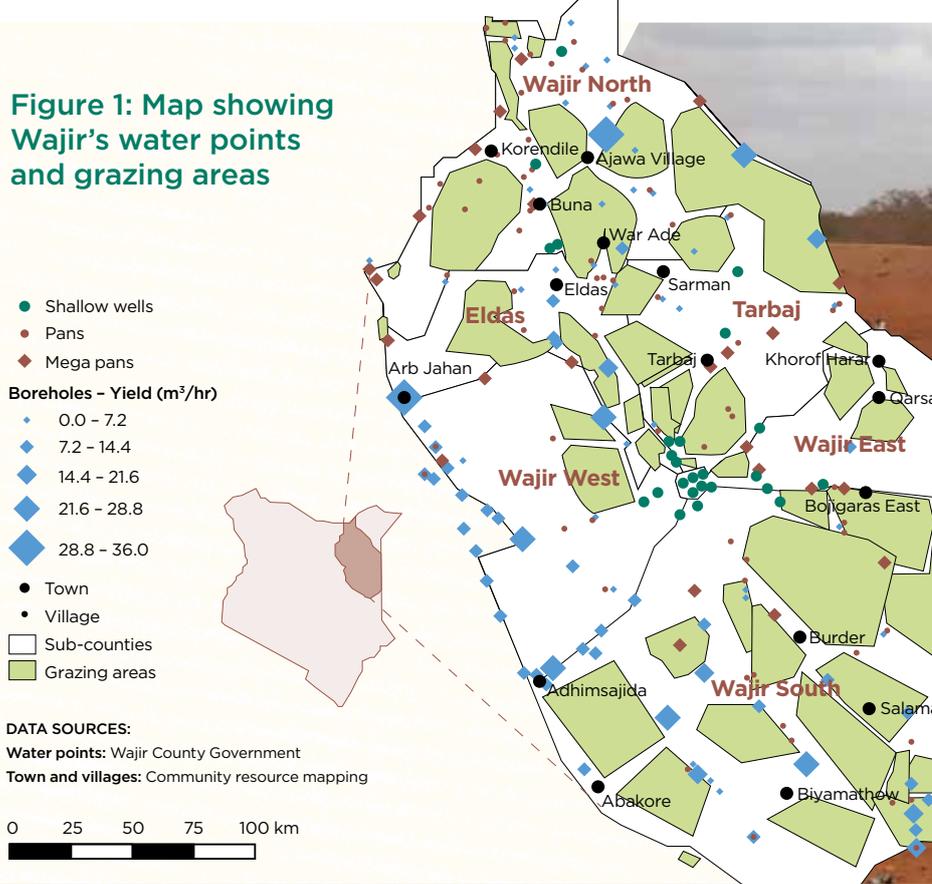
There is also a weak system of community engagement in water development in rural dryland areas to ensure local needs for livestock and domestic water are being incorporated into developing water priorities.

This technical brief is based on a review of water policies, a water governance study and a participatory resource mapping exercise carried out in Wajir County in 2018. The aim of these activities was to understand pastoralists' water and pasture needs to inform more sustainable water development and rangeland governance. In the context of increasing climate variability, there is a strong need to secure access to water and pasture that strengthens the resilience of pastoralist communities.

1. Bedelian, C. 2019. Improving the governance of rural water points in Wajir County. BRACED Policy Brief. Available at: <https://pubs.iied.org/G04399/>



Figure 1: Map showing Wajir's water points and grazing areas



Securing water for a resilient pastoral economy

In any water development in the drylands, it is important to ensure that the needs of livestock water use are distinguished from the needs of domestic water use. This has implications for the design, positioning, technical characteristics, and governance structures surrounding water infrastructure.

There are three critical issues to consider in securing water for both people and livestock in the pastoral drylands:

1. The location and distribution of water points in relation to pasture: The pasture-water balance

- Before starting any water development in the pastoral drylands, there needs to be a good understanding of the local environmental context including, natural resource availability and seasonal livestock grazing patterns.
- Sustainable range management balanced with water provision in the drylands requires matching the number of animals to the availability of pasture and water. This will differ in the wet and dry seasons and from year to year (Table 1).
- The number of water points and their distance from natural pastures will determine the frequency and distance livestock have to trek to reach water and pasture.

- Water points should be spaced adequately to avoid pressure on any single water point and its neighbouring pastures.
- Inappropriately sited permanent water points with high water discharge rates and poor governance regulating access, such as many public boreholes, encourage large livestock populations and settlement, resulting in the degradation of pasture.
- In many cases, a seasonal water source for livestock will be preferable to a permanent one. Too much water for too long can concentrate livestock population and settlements and lead to degradation.

In Wajir, there has been a proliferation of boreholes without consideration of wet and dry season grazing pasture (Figure 1). Many high yielding boreholes are situated in or next to grazing areas, encouraging permanent settlement and leading to the over use of these pastures and degradation.

2. Technical characteristics of the water point

- The technical characteristics of water point infrastructure should be differentiated on the basis of whether water is for domestic or livestock use (Table 2). This will also have an important gender dimension since it is women who regularly collect water for domestic use and men who usually take livestock to water.

Table 1: Wet and dry season grazing and pasture and water dynamics

Wet season dynamics	Dry season dynamics
<ul style="list-style-type: none"> • During the rains, pastoralists rely on surface water, such as natural ponds and water pans. Boreholes and wells are allowed to recharge. • Pasture is more abundant and easier to find. Livestock move from dry season grazing areas to allow them to regenerate. • Livestock rely on peripheral areas for grazing. They leave pasture areas close to towns to save it for dry season use. These areas are not to be grazed when pasture is abundant elsewhere and their use is restricted. • In Wajir, there is a rule during the wet season that livestock should move 10km out of town to graze to avoid over use of these pastures and reserve them for the dry season 	<ul style="list-style-type: none"> • The relationship between water and pasture is most critical during the dry season. Animals need more water more often, and surface water and pasture become scarcer as the dry season progresses. Livestock use subsurface sources such as boreholes and wells. • Although pasture during drought is crucial; water is more important. Availability of pasture but not water will not make pastoralists stay. • During drought, pastoralists rely on key resource areas; they migrate to dry season pastures that have been left to rest during the wet season.
<ul style="list-style-type: none"> • Technology should be selected on its appropriateness to the local context, taking account of factors such as the number and type of livestock, domestic use requirements, livestock grazing patterns, the type and effectiveness of management, and the technical capacity for maintenance. • The appropriate technologies will be those that water point managers (such as the community-managed water users associations (WUAs) and water service provision companies in the case of Wajir) can understand and use themselves. This should be determined through an assessment of needs, governance arrangements and local capacity. 	<p data-bbox="837 757 1481 1008">In Wajir, high yielding boreholes have encouraged many livestock, permanent settlement, and over use of pastures. When selecting individual water point technologies, there needs to be greater attention given to the governance and ecological considerations of the surrounding range management.</p> <ul style="list-style-type: none"> • Technology should have sustainable, affordable, and available spare parts value chains. • During emergencies, such as drought, breakdowns and conflict, certain water points face extra stress on management and on O&M. These water points will need specific support and attention to ensure they can cope with demand. • Water point technology and O&M requirements should be integrated into county level water policy to ensure application of the most sustainable, effective and efficient technology in the given context.
<p data-bbox="108 1317 753 1545">In Wajir, preference was given to hybrid borehole pump systems, that combine solar power with diesel. However, more training for borehole operators in the installation and maintenance of these systems is required for sustainable and efficient operation and maintenance (O&M).</p>	

Table 2: Preferred characteristics for domestic and livestock water points by Wajir residents

Domestic water	Livestock water
<ul style="list-style-type: none"> • Conveniently located water points that are safe and avoid women having to walk long distances to collect water • Water is easy and quick to extract to reduce the time women spend waiting to collect water • Piping systems and meters for direct access to households and institutions • Conveniently located water kiosks in town to quickly extract water • Water is accessible at many times during the day 	<ul style="list-style-type: none"> • Well positioned livestock troughs, placed outside of the fence of a borehole or water pan to avoid livestock entering the water and contamination • Troughs strategically located outside of town to avoid livestock needing to enter town • Regulated access to a controlled number of animals to ensure access to water is determined according to pasture availability

3. The governance system for managing access to water

- Control over access to water will determine the degree to which pastoralists are able to manage the stocking rates on pastures.
- Water point managers need to have the authority to regulate access, both within the community and to visitors, to ensure water use is balanced in relation to pasture availability in the surrounding area. This includes prioritisation of water for domestic versus livestock use as the dry season progresses and water becomes increasingly scarce.
- Community-managed associations (or WUAs) should be inclusive and representative of different social groups, including women, the poor and marginalised.
- There should be rules for equitable access to water, for example for women and other vulnerable social groups.
- Visitors seeking water will need to negotiate access, through the principle of reciprocity.
- Conflict may arise in the absence of clear governance rules that are followed by all users.

In Wajir, visitors negotiate with community elders to ensure access pasture and water. Visitors are usually permitted on the basis of reciprocity.



Partners



Good water governance

To date, the emphasis on water development infrastructure has occurred at the expense of building the institutional capacities and skills of local people to govern water facilities, or in managing the differentiated set of livestock and domestic user needs.

The development of water infrastructure must go hand in hand with the development of good governance. Sustainable water governance in the drylands requires a strengthened capacity of state and local institutions to understand and implement water and range management. Good water governance occurs when rules and institutions are transparent, inclusive and equitable. It is also an effective conflict management strategy.

Suitable project interventions should be decided in consultation with local communities and take account of the local context, community knowledge and governance institutions. This requires involvement of all community members and all relevant county departments in the design of water point infrastructure

The points given above are important to integrate into the development of county water policies and associated legislation. They are also important to consider as counties develop their County Spatial Plans as they provide the opportunity to align the placement of water infrastructure to rangeland management plans.

This will encourage water provision that supports a productive and resilient pastoralism economy in the drylands which also supports the wellbeing of pastoralists.



In 2018, the Wajir County Government led a participatory GIS mapping exercise and water governance study to understand the key challenges underlying sustainable rangeland management and domestic and livestock water security in Wajir County. The study was carried out in collaboration with WAJWASCO, Mercy Corps and IIED as part of the Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) programme funded by the United Kingdom (UK) Department for International Development (DFID). The contents of this policy brief do not necessarily reflect the views of DFID, the UK Government or Mercy Corps and partners.

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