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The U.S. Government's Global Hunger & Food Security Initiative

WATER GOVERNANCE IN PASTORALIST AREAS OF AFRICA



Summary

This brief on water in the drylands of Africa will explore the critical importance of water governance not only for water access and maintenance of water infrastructure, but also the wider governance and use of the surrounding rangelands. It shows why effective water governance is critical for the sustainability of pastoral systems, peace, and managing the risk of overgrazing/land degradation. It provides case studies of good and bad practice from dryland interventions and gives a summary of recommendations for water development in the drylands.

Current trends in conflict in pastoralist areas

Water governance is a generic term that refers to the political, social, economic, and administrative systems and frameworks that are in place at all levels of society and government to develop and manage water resources.¹ Good water governance aims to ensure that all citizens are water secure—that is, that everyone has equitable,

¹ Rogers and Hall, 2003.



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Water security has been defined as “the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.” UN Water, 2013

reliable, and sustainable access to water for their livelihoods, human well-being, and socio-economic development, in an environment of peace and political security.²

Despite these understandings of water security at the international level, water development is all too often perceived and delivered in a narrow sectoral manner, with a technical supply-side focus that emphasizes the expansion and development of physical infrastructure.³ Sectoral targets are usually framed in terms of

increasing the proportion of households that have access to clean water (and sanitation) for domestic purposes or reducing the average travelling distance to water.

Especially in the drylands, this way of thinking about water development is dangerously limited. It actually prevents communities from achieving water security, broad conceived. That is because this reductionist view fails to take into account the complex interactions between pastoralist producers and their environment, the fundamentally political nature of water, and the importance of water for productive as well as domestic use. The focus on technical hardware ignores the critical “software” component of human interaction: the institutions and social relationships that together establish the rules for accessing and using water, the unequal relationships of power between people involved in governance in various capacities, and the ways in which users coordinate and cooperate when using water—or compete with each other and end up in conflict.⁴

Until relatively recently, pastoralist systems and dryland environments were under-studied and under-theorized by western scientific disciplines, which used temperate environments as the yardstick of comparison, and recommended modernization through the adoption of capital-intensive production systems suited to western socio-ecological conditions.⁵ This legacy persists to this day in policy circles, where common narratives frame pastoralism as “backward,” “unproductive,” and “harmful to the environment,” or in more recently versions, as particularly “vulnerable to climate change.”⁶ But to understand water governance from a wider systemic perspective, and to appreciate the fundamental role of water in dryland agriculture and sustainable rangeland management, we need a sophisticated understanding of the production logic of mobile pastoralist livelihood systems. A new scientific consensus has emerged that views pastoralism as a specialized production system that is uniquely well suited to rangelands in the drylands.⁷

Pastoralism and the drylands

Pastoralism is an extensive livestock-based production system that has evolved to take advantage of the specific opportunities presented by the dryland environments.⁸ While ecological scientific classifications of drylands tend to focus on the mean level of precipitation, from the perspective of the producer, the key characteristic of these environments is the unpredictability and uncertainty associated with the availability of key resources. On the rangelands where pastoralists operate, the availability of pasture and water varies greatly across space, scale, and time: the specific location and timing of nutritious pasture and water can change greatly from year to

2 Batchelor, 2007; UN Water, 2013.

3 Nassef and Belayhun, 2013.

4 Gomes, 2006.

5 Kratli, 2015.

6 Campbell, 2021.

7 FAO, 2021.

8 Kratli, 2019; FAO 2016, 2021.

year. Pastoralist producers turn this variability into a productive asset through a range of different production strategies, including the most important and visible adaptation—livestock mobility. By keeping their livestock mobile, they can continuously shift their center of production to match the current location of the most nutritious pasture and fodder.⁹

Pastoralists and their animals follow planned itineraries across the landscape that maximize the availability of the resources they encounter and allow them to access markets while simultaneously avoiding disease and conflict. The precise pattern of mobility is tailored to the specifics of the ecology and climate of the area, and pastoralists can operate over both relatively small and large geographical scales according to context.¹⁰ For example, in the Sahel region of West Africa, some pastoralists engage in long-range seasonal migrations covering hundreds of miles from south to north and back, following the seasonal onset and duration of the West African monsoon rains.¹¹ By contrast, patterns of livestock mobility in East Africa are typically over shorter distances, with specific areas set aside for grazing during the dry season when there is very little, if any, surface water.

The latest research shows that pastoralists are experts in making use of variable dryland conditions, and, contrary to popular narratives, functional mobile pastoralism is arguably *the* most resilient and sustainable form of agricultural production possible in the rangelands.¹²

Water in pastoralist livelihood systems

Customary water governance systems in functional pastoralist systems are tailored to, and supportive of, mobile livelihoods.¹³ Along with pasture and forage, water is a key input into pastoralist production systems. But water is not just a simple commodity; it is also the cornerstone of governance of common pool pastoralist resources in the landscape.

Pasture and forage—regardless of their quality and abundance—are essentially useless if livestock do not have ready access to water. As a result, particularly in the dry season, water points can be used to regulate access to pasture in the surrounding areas. A network of water points is like a set of connected valves that can be turned opened and closed to control the “flow” of migrating livestock around the landscape—both the numbers and the speed with which they cross the terrain. Regulating and rationing the supply of water for livestock not only allows a community to match the number of livestock to the available pasture and forage in the area at any point in time, it is also key to managing the timing of livestock migrations and to protecting seasonally specific grazing areas.¹⁴ In pastoralist communities, informal and interlocking governance institutions (such as councils of elders, clans, territorial sections, or ethnic groups) often play this role.

But if water points in functioning mobile pastoralist systems are usually part of a regulated network, this does not mean that they benefit only a limited number of people living in the immediate vicinity. In response to the variable nature of resources in the drylands—where the precise location of water or pasture can never be predicted with any certainty—governance systems for mobile pastoralists generally prioritize flexible and negotiable access rights to water, grounded in a common culture of reciprocity and mutual assistance.¹⁵ This allows mobile pastoralist groups to assert usage rights to resources even when they are far from home by appealing to shared socio-cultural norms, clan affiliations, and carefully cultivated ties of reciprocal obligation,

9 Kratli, 2015, 2019.

10 Niamir-Fuller and Turner, 1999; Turner and Schlect, 2019.

11 Turner, 2011.

12 Kratli et al., 2022.

13 Nassef and Belayhun, 2012.

14 Kratli, 2014; Nassef and Belayhun, 2012.

15 FAO, 2016.

and by drawing on social capital.¹⁶ Systems of resource governance like this (known as “common property regimes”) are an essential component of functional mobile pastoralist systems because they encourage and facilitate adaptive and strategic livestock mobility in response to frequently changing socio-economic conditions on the ground. They look very different from a system based on capitalist private property rights, which creates and defends exclusive rights of access for specific individuals, groups, or corporate entities. Exclusion generates barriers and blocks the flow of livestock and people around the pastoralist system.

Unsustainable patterns of development

Historically speaking, development of water infrastructure in the drylands has failed to take into account the dynamics of mobile pastoralist production systems and the specific requirements of mobile livestock.¹⁷ Instead, water infrastructure development in the drylands has often followed the governance model developed for domestic water supply for sedentary communities.¹⁸ This is because governments and development practitioners have consistently misunderstood the nature of dryland ecosystems and undervalued the production strategies that pastoralists use to exploit them. While some national and international policy has become more enlightened over time (e.g., the African Union Policy Framework for Pastoralism in Africa), deep-seated prejudices and misunderstandings remain deeply engrained among government staff and development practitioners working in dryland areas.

From colonial times until comparatively recently, the received wisdom among development practitioners was that pastoralism was a backward, unproductive, and fundamentally irrational livelihood system that needed to be replaced with more modern and scientific livestock production methods. It was theorized that pastoralist rangelands were open-access, ungoverned spaces where overstocking of animals was evitable, leading to unsustainable overgrazing and severe and possibly irreversible environmental degradation.¹⁹ As a result, orthodox pastoral development approaches argue that pastoralists should be permanently settled in fixed locations where modern services can be provided and more productive livelihoods (for example, ranching or irrigated agriculture) can be promoted. Far from supporting livestock mobility, building new water infrastructure is a tool to encourage sedentarization and social transformation away from mobile pastoralism.

Today, water development in the drylands is primarily driven by the need to meet ambitious national water supply targets for domestic use, following models designed for sedentary crop-farming communities. In pursuit of the Sustainable Development Goal 6 (“Ensure availability and sustainable management of water and sanitation for all”), well-funded WASH programs focus on improving health and well-being by providing domestic water and sanitation services and hygiene.

These are important objectives, but in a dryland context the approach to governance taken by these programs is overly simplistic and sectoral. It is blind to the specific water supply requirements of mobile pastoralist livestock, or the systemic impact of more water points on the complex interactions between land, the environment, and pastoralist livelihood systems in the drylands. It ignores the fact that the absence of water is just as important for sustainable governance as its presence. Instead, planning for water is seen through the narrow, top-down sectoral and technical lens of domestic water service delivery for farming households in permanent settlements—where more water is always desirable.

The sophisticated functional adaptation of pastoralist production strategies to their dryland environments, such as strategic livestock mobility to track variable resources and common property systems with inclusive access

16 Turner, 2011.

17 Gomes, 2006; Mtisi and Nicol, 2013; Nassef and Belayhun, 2012; Mahadi Salah et al., 2014.

18 Nassef and Belayhun, 2012.

19 Hardin, 1968.

rights, remains misunderstood and unsupported. Pastoralists have found it hard to challenge these deep-seated prejudices and misunderstandings because they are politically marginalized in their own countries and largely excluded from national decision-making processes. Discourses around the backwardness and vulnerability of pastoralists, dating back to the colonial period, remain hegemonic.

Wajir County in Kenya

Wajir County in the northeast of Kenya provides an illustrative case study of the most common problems associated with water development in the drylands.

Mainly flat and low lying, Wajir has a semi-arid climate and a bimodal pattern of rainfall. There are no permanent rivers or lakes in the county, and the population relies on boreholes, wells, and surface water pans. The population is predominantly ethnically Somali, and around 70% depend directly upon mobile pastoralism, which continues to be the main livelihood and local production system.

Until the 1960s, traditional managed pastoralist livestock mobility patterns exploited a limited number of grazing reserves concentrated around the few permanent water sources during the dry season, followed by much more dispersed grazing strategies during the wet season when forage and surface water are more abundant. Managed mobility allowed dry season grazing areas to recover between seasons, fertilized rangeland soils and enhanced water infiltration, helped maintain biodiversity by dispersing seeds, and prevented bush encroachment.²⁰ This pattern of livestock mobility and seasonal land use allowed pastoralists to exploit variable resources in their dryland environment in a sustainable way.

However, in Wajir, mobile pastoralism as a specialized production system has never been fully recognized or valued by government or development agents. Colonial perspectives viewed pastoralism as outmoded and wasteful; it was associated with overgrazing, overstocking, and environmental degradation. These attitudes persisted into the decades following independence, when there was an attempt to convert functional pastoralist systems to “modern” and scientific grazing systems, specifically ranching; water development served this agenda by providing high-capacity boreholes that could support grazing by defined blocks.²¹ When ranching proved unsuccessful, water development was increasingly driven by politicians, working closely with Somali clan-based urban elites, pushing a sedentarization agenda. These powerful actors benefitted strongly from an increase in the



20 Hesse and MacGregor, 2006.

21 Walker and Omar, 2002.

number of permanent settlements and the progressive concentration of previously dispersed clan constituencies in dependable “electoral voting blocks.” New water infrastructure was part of a package of modern services in new settlements that would encourage pastoralists to sedentarize in politically expedient locations.²²

As a result, for over 70 years in Wajir, water development has been pursued without any consideration of sustainable rangeland management and the needs of mobile pastoralist livelihoods.²³ Government actors, political elites, and external donors have followed a top-down supply-side strategy with an ever-accelerating emphasis on the provision of new water infrastructure, irrespective of the wishes of the local population.

Uncoordinated water development has completely undermined managed pastoralist livestock mobility, making pastoralists more, not less, vulnerable to climate change. Permanent, high-capacity boreholes in wet season zones have enabled year-round grazing in the surrounding areas and increased the number of animals that can be kept there. Water pans and dams constructed in dry season grazing areas have encouraged everyday use of what were previously emergency grazing reserves. And a proliferation of new settlements has led to islands of permanent grazing in formerly open grazing areas. Coordinated and sustainable rangeland management has become extremely difficult, and distinct seasonal grazing patterns for mobile livestock have virtually disappeared in Wajir.

The environmental impacts are stark. Concentrations of stationary livestock have led to increasing degradation and severe overgrazing of the range, with a corresponding decrease in biodiversity and the quality of available pastures. Perennial plant species have been replaced with less palatable annual species that dependent on low and erratic rainfall.²⁴ And with the growth of new settlements has come more frequent outbreaks of human and livestock disease, and deforestation has become a serious issue in the hinterland.

Agence Française de Développement (AFD) in Chad

The experience of AFD with pastoral water development in Chad in the period 1993–2013 is an instructive positive counterpoint to the example of Wajir.²⁵

Chad has a typically Sahelian climate, and rainfall is determined by the progress of the West African monsoon. The wet season runs from June to September, with the onset of the rains following a south-north gradient as the season progresses.²⁶ Transhumant pastoralists follow the onset of the rains over many hundreds of kilometers northwards, returning south in the dry season. Long-distance transhumance allows mobile pastoralists to give their livestock access to nutritious and abundant fodder throughout the year.

Prior to the mid-1990s, water policy in the drylands of Chad aimed at encouraging the sedentarization of pastoralists, facilitating the systemic transition of mobile pastoralism to ranching. From 1994 onwards, AFD pioneered a series of revolutionary projects that recognized

Temporary, not permanent, water sources

AFD’s focus on building small, temporary rain-fed ponds along transhumant routes was particularly popular among herders. Their time-bound nature discouraged permanent settlement in the area, while their limited capacity meant that livestock density was controlled. Equally, the provision of water at regular intervals along the route allowed pastoralists to transit more slowly through the landscape, allowing them to arrive at a more convenient time for sedentary crop farmers.

22 Gomes, 2006.

23 Bedelian, 2019a, 2019b, 2019c.

24 Gomes, 2006.

25 Kratli et al., 2014; Hesse et al., 2013.

26 Turner, 2011.

mobile pastoralism as an important and valuable livelihood system worthy of official government recognition and support. Water became an entry point for safeguarding and supporting the long-distance transhumant pastoralism livelihood system in the country.²⁷

Innovations introduced by AFD included planning at the landscape scale of the seasonal migrations - more than 200,000 square kilometers - over an extended period of time (13 years), allowing the interventions to take a systemic view of the full spatial extent of the pastoralism system. This meant that the design of the water points, as well as their location, was dictated by the needs of the mobile pastoralist livelihood system, rather than by top-down, supply-driven targets. The focus was on providing the right amount of water in the right place at the right time—matching the water supplied to the available pasture.

Projects also developed new forms of governance around the planning and operational management of new and existing water points:

- Extensive participatory consultations were conducted with *all* potential stakeholders of water points. This protected both the interests of transhumant herders who used the water points only at specific times of the year *as well as* the interests of the permanent residents living near the water points.
- Pastoralist water points were designed as a public good rather than as an exclusive economic good. The state was responsible for installing and maintaining the national water point infrastructure, using the analogy of the public road system. This enabled water to be supplied for free at point of use, with access generally mediated by customary institutions (rather than “modern” water committees) with strong local legitimacy; this encouraged flexible and negotiated access to water based on principles of reciprocity and mutual aid.

After 20 years of operation, there were no significant instances of conflict around AFD-sponsored water points.²⁸ This has been attributed to the adoption of new forms of participatory, inclusive governance and customary management of the water points, together with the public good ethos

Conclusion

Water governance—the planning, development, and management of water resources for the benefit all citizens—is a powerful tool for shaping the destiny of the drylands and the people who live there. It can either reinforce the resilience of indigenous pastoralist livelihoods and rangeland ecosystems, or it can fatally undermine them. It has strong distributive effects. Top-down, sectorally driven water development can easily result in the dismantling of mobile pastoralist systems against the wishes of the majority of local people, bringing heightened social inequality, reduced resilience to climate change, and destitution for many.

Reviewing the evidence from recent research into pastoralist systems, while keeping in mind a broad understanding of water security that protects livelihoods and ecosystems—and fosters peace and sustainable development—allows us to draw some recommendations for good water governance in the drylands:

- Pastoralism is often the main livelihood option for the majority of the population in dryland areas because it is particularly well suited to the sustainable use of variable resources in the dryland environment. Sustainable water development must be supportive of pastoralist livelihood systems.
- Strategic livestock mobility is key to pastoralism. Control over access to water plays a fundamental role in pastoralists’ management of strategic livestock mobility and the sustainable use of resources across the rangeland. Water governance must take a systemic approach that is responsive to, and supportive of, wider socio-ecological system and livestock mobility dynamics.

27 Kratli et al., 2014.

28 Kratli et al., 2014.

- Water governance should operate over the full geographical scale of livestock mobility: use rights for migrating pastoralists should be planned for, and protected, across the entire migration zone of the rangelands and adjacent areas used by the pastoralist system. Coordinating governance institutions of water coordination and management are needed at all scales—from the level of the individual water point, to clusters of water points, to inter-communal and cross-border coordination institutions.
- Bottom-up, participatory water governance systems based on negotiated social contracts with all potential user groups (especially women, who are often excluded from governance, and migrating pastoralists) will be more equitable, legitimate, and responsive to the needs of both sedentary and mobile groups.
- Although contexts will vary, hybrid systems of governance that include elements of both informal customary institutions (through elected representative bodies) and formal government systems are likely to be the most effective in securing pastoral mobility and sustainable use of the rangelands, and in providing safe and equitable access to water for all citizens. Systems are more likely to be effective and sustainable if they are integrated into, and coherent with, national governance frameworks.

A note on participatory governance

Participatory governance should not be confused with the Community Management model which, promoted by the Washington Consensus, has been the main paradigm for water point governance since the mid-1990s (see Chowns, 2015). This model aims to transfer responsibility for water supply from the state to community management committees with “modern” management structures (e.g., a board including a secretary, treasurer, chairman, etc.). The emphasis is narrowly sectoral and emphasizes water as an economic good. The objective is self-sufficient management and cost recovery through fee charging.

Participatory water governance for pastoralist systems has an entirely different motivation. The objective is to promote demand-led development that is responsive to local needs by empowering local communities to take the lead at all stages of the water development process. The objective is systemic—aiming to secure pastoralist mobility rights and promote peaceful interaction and complementarity between sedentary farmers and mobile pastoralists. Communities do not replace the state; instead, they are integrated into governance processes at multiple levels. Community governance benefits from local indigenous knowledge and promotes coherence between existing customary management systems and national water policy.

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