Water governance and development in the drylands: The case of Wajir County, Kenya

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Executive Summary

In the drylands, water is key to the sustainable management of pasture. Too commonly governments and development planners have taken over-simplified views of water resource development, prioritising the delivery of water resources over the impact this has on the complex interactions between the land, environment and livelihood systems, and their links to wider political processes. Pastoralism is often the main economy and livelihood option in dryland areas, and ensuring there is sufficient water for livestock is an important consideration that must be integrated with that of sustainable rangeland management. The study uses Wajir County as a case study to understand the challenges related to water governance and development in the drylands.

Wajir County face problems of water stress and availability of water for domestic and livestock use, particularly during the dry season and drought years. This is associated with a high percentage of failure of water investments, the inappropriate placement of water sources to ensure the sustainable utilisation of resources across the rangelands, and weak water governance. The water sector is a high priority for the Wajir County Government, and large increases in funding the water sector since devolution have seen the construction of numerous new water points throughout the county. Although successful in increasing access to domestic water, the placement of many scattered new water points has led to adverse consequences for pastoral mobility, degradation of the surrounding pasture land and the creation of new settlements. A number of new water investments are not functional two years after operation, questioning the sustainability of these investments. The Wajir County Government is in the process of formulating its county water policy and legislation including a water bill and water regulations. The County Government is also developing a GIS-based county spatial plan. The findings from this study are intended to inform the development of these documents.

The main aim of the study was to identify policy and practical measures to improve the management of rural water points in support of resilient pastoral livelihoods. The study examines the current institutional set up of Wajir's rural water sector and the roles and responsibilities of the different water actors. The study gives emphasis to water for livestock as this is given the least attention in policy and practice, and highlights the needs and concerns of pastoralists in order to identify possible areas for improvement.

The focus of the study was decided collaboratively by the Wajir County Water Department, the Wajir County Water and Sewerage Company (WAJWASCO), Mercy Corps and IIED. This process was supported by a review of the existing and draft water policy and legislation to understand the water policy environment and identify any gaps. Representatives from each organisation were involved in determining the study questions, collecting data in the field, reporting back and writing up findings. This created ownership of the study by Wajir's water actors in order to enhance the success of study findings being used to inform policy development. The study teams visited 16 water point sites, including boreholes, pans, mega pans, and shallow wells, across Wajir County between the 9th and 19th October 2018, and spoke to community members, water point operators, and key informants. A number of interviews were also carried out with water sector actors in Wajir Town.

A number of key governance challenges were highlighted in the current governance and management structures of Wajir's water sector institutions. These include:

The Wajir County Water Department:

- There is a lack of technical capacity in the water department with few trained engineers, and few staff trained in operation and maintenance (O&M). Combined with poor organisational and data management systems, this precludes the timely, efficient and effective functionality of the department.
- The department is overly reliant on one central county O&M team leading to inefficiencies and irregularities in service delivery and breakdown repairs across a large county.
- The water department have a weak presence on the ground: subcounty water officers mandated to coordinate water activities in the subcounties are based in Wajir Town and not regularly and physically present in their areas. This is because resources are not sufficiently devolved to the subcounty level.

The Wajir County Water and Sewerage Company (WAJWASCO)

- Since establishment in 2014, WAJWASCO has been most successful in managing high-yielding high-revenue earning boreholes. In the case of low-yielding boreholes earning low revenue, WAJWASCO has failed to manage these and handed them back to the community to manage.
- WAJWASCO faces challenges of low institutional, financial and technical capacity, and commonly relies on the county water department for technical assistance and purchasing of spare parts.
- WAJWASCO suffers from poor social accountability. There is a lack of downward accountability to the community level, who are rarely consulted on management issues and are not clear on how their water fees are being used.
- WAJWASCO is not well integrated at the community level. There was little community participation during the formation of the company leading to an unwillingness of many communities to hand over their water supply systems.

Water User Associations (WUAs)

- There were mixed reports by the community on the functionality of their WUAs. Some WUAs were reported to be functioning well and this was usually associated with transparent financial accountability, regular community consultations and regular committee elections. Others were said to have poor management, with the misappropriation of revenues and little community feedback.
- Overall, WUAs have poor accountability, both downward to the community level and upward to the county level. Most WUAs do not disclose their accounts to the community nor to the county, and they are provided little supervision by the subcounty water officers or water department.
- WUA committees can be susceptible to being composed of community elites, lack female members, and are sensitive to clan and political issues.
- The technical capacity of WUAs to manage breakdowns is low, and they are heavily reliant on the water department for sourcing spare parts and carrying out repairs.

Private operation models

- There were few cases of management by a private operator, however where in existence, this appeared to work well. The community reported transparent financial accountability and good communication between the community and the operator.
- There was interest by the water department, WAJWASCO and the community to engage further with the private sector in the management of rural water supplies. This offers the potential for more professional management and also supports the rural private sector.

Community voice

In focus groups and interviews, community members commonly reported that they were not regularly involved in decisions concerning the development of water projects and water infrastructure. They are usually only informed during the implementation or commissioning stages of a project, rather than in decision-making during conceptualisation. Water projects are initiated by politicians and then driven by contractors. As a result, they do not always address local priorities. Pastoralists spoken to at water points said they have little voice in decision-making because they are often out herding livestock, and are rarely consulted on water or any development project. Women have no voice in decision-making and are not consulted at all. This was viewed as a particular failure because women are responsible for domestic water provision.

Settlements and rangeland management

The large increase in water points in Wajir County in recent years has encouraged the growth of new and permanent settlements as people are attracted to settle close by. This has had a number of impacts including, increasing congestion at the water point, obstruction of livestock movements, pasture degradation, increase in demand for resources, and an increase in hygiene-related diseases. The mushrooming of settlements is making it increasingly difficult to plan water development priorities.

The placement of water points in Wajir is not being made according to livestock mobility patterns and the seasonal use of grazing pastures. Water points and settlements have been placed in, or too close to, livestock grazing areas, and this has encouraged the over use of dry season pasture reserves. Water points with a year-round supply of water have encouraged permanent settlements, large numbers of livestock and the overgrazing of the surrounding pastures. The absence of a coordinated plan for more integrated water and pasture management was thought to be because of a lack of collaboration between the county water and livestock departments, as well as lack of consultation with pastoralists.

The study makes a number of policy and practical recommendations to improve water governance and development practices that support more sustainable rangeland management in the drylands. These can be used to inform the ongoing development of Wajir County water policy and legislation, and the county spatial plan, to promote more integrated water and rangeland management in support of resilient pastoral livelihoods.

1. Introduction

Following devolution in Kenya under The Constitution of Kenya 2010, water service delivery is now decentralised to the county governments. This has been accompanied by a large increase in funding to the county water sector budgets and a rise in water development infrastructural investments. Yet many people still continue to lack access to safe water and face acute problems of water scarcity, especially during drought periods.

In Wajir County, the county and national governments have drilled almost 200 hundred boreholes and 60 water pans in the last five years (WCG 2018a). Nevertheless, problems due to poor management, uncoordinated institutions, ineffective operation and maintenance, frequent breakdowns and long repairs times, mean that water supply systems are not performing as well as they could. Some water points are not functional within two years of establishment, questioning the sustainability of investments.

Kenya is considered a water scarce county; 19 million people lack access to safe water and 27 million lack access to improved sanitation (Water.org 2019). However, Kenya's water crisis is principally considered to be a governance crisis (Nordmann et al 2012; WASREB 2018). If people are to access safe, clean water for their livelihoods and social and economic wellbeing, improving water governance must be given the highest priority.

In dryland counties such as Wajir, these issues are compounded by low and variable water availability, a common feature of dryland areas. Pastoralism is often the main economy and livelihood option for people living in the drylands, and ensuring sufficient water for livestock is an important consideration that must be integrated with that of sustainable rangeland management. Water governance in dryland areas thus needs to take account of the specific characteristics of the drylands and dryland water availability.

This study uses Wajir County as a case study to understand the challenges related to water governance and development in the drylands. Wajir County is in the process of formulating its county water policy and associated legislation. At the time of writing (May 2019), drafts of the Water Policy, Water Bill and Water Regulations are being reviewed and debated by stakeholders. The county government is also in the process of initiating the development of a GIS based county spatial plan, a requirement of all counties under the County Governments Act, 2012. As outlined in the CIDP 2018-2022, this process should include for the water sector, a strategic and spatially explicit plan for the development of water infrastructure, including identifying areas where new water sources would interfere with grazing patterns (WCG 2018a).

This study aims to provide knowledge to contribute to the improved governance, management and effectiveness of Wajir's water sector, and specifically to integrate key issues of concern related to pastoralists use of water, that can feed into the current development of Wajir's water legislation and the county spatial plan. It identifies policy and practical recommendations for more sustainable water governance and resilient pastoral livelihoods.

2. Good water governance

Water governance refers to the systems that are involved in decision-making about water management and water service delivery. Water governance can be defined as 'the range of political, social, economic and administrative systems that are in place to develop and manage water resources or delivering water services, at different levels of society' (Rogers and Hall 2003). Essentially, water governance determines who gets what water, when and how, and who has the right to water and related services (UNDP 2013).

Good water governance is important as it ensures that all citizens have equitable, reliable and sustainable access to water (Batchelor 2007). It is not just about technical solutions ensuring there is sufficient water to cope with increasing societal demands, but also that access is equitable to all sectors of society. Principles of good water governance include transparency, accountability, participation, non-discrimination/equity, rule of law, and performance/efficiency (Table 1). Representation of diverse interests in water-related decision-making and the role of power and politics are important components to consider when analysing water governance (UNDP 2013).

Good governance should guide policies and legal and institutional structures, as well as the behaviour of individuals and organisations responsible for managing water resources or delivering water services (Nordmann et al 2012). Water governance and water management are sometimes used interchangeably; this is because water governance and water management are interdependent issues in the sense that effective governance systems will enable practical management tools (UNDP 2013).

The water sector is especially vulnerable to poor governance as well as corruption (Nordmann et al 2012; Rampa 2011). Non-transparent procurement processes involving large sums of public money; the monopolistic nature of service delivery that prevents competition; low levels of accountability; and a lack of citizen awareness on rights and responsibilities that prevents citizens from receiving the services they are entitled to; all characterise the water sector (Nordmann et al

Table 1: Principles of good water governance (from Nordmann et al 2012)

Transparency	Processes, institutions and information on water resources and services are directly accessible and can be monitored.
Accountability	Decision makers in water sector institutions and companies are accountable and responsive to the public and stakeholders.
Participation	Citizens (i.e. consumers and water users) have an opportunity to influence processes and decisions in a meaningful way.
Non-discrimination/ equity	All citizens have opportunities to improve their wellbeing through equitable access to water supply and sanitation services.
Rule of law/ access to justice	Legal frameworks and regulations are fair and are enforced impartially.
Performance/ efficiency	Institutions and processes serve all stakeholders and produce results that meet needs while making the best use of resources

2012; Rampa 2011). Poor governance and corruption reduce the quality and quantity of services delivered, and increase the operational costs of water service provision, whilst decreasing revenues to government (Nordmann et al 2012). Poor governance also goes against the principles of social equity and cohesion, and results in unequal access to water resources and services, especially for poor and vulnerable groups such as women and children. Ultimately, poor water governance leads to poor social and environmental outcomes, and reduced human wellbeing.

Nordmann et al (2012) identify poor governance as the main bottleneck and challenge for water sector reform in Kenya. Despite what have been viewed as successful reforms in the water sector in Kenya since the Water Act 2002 (see section 5), poor governance acts as a bottleneck for policy implementation and limits the impact of these reforms (Nordmann et al 2012). Some of the problems identified include a lack of coordination among stakeholders, blurred governance functions, and weak accountability (Nordmann et al 2012; Rampa 2011). Rampa (2011) argues that unless certain dimensions of the governance context improve, the water sector reforms may fail to deliver their ambitious objectives. Improving water governance is thus a high priority for action to contribute to better performance and efficiency in Kenya's water sector, more accountable practices, and to realise the human right to water.

Camels drinking from a natural pond shortly after the rains

3. Water in the drylands

The complexity of dryland areas lies at the heart of challenges facing water development in the drylands. Too commonly governments and development planners have taken over-simplified views of water resource development, prioritising the delivery of water resources over the impact this has on the complex interactions between the land, environment and livelihood systems, and their links to wider political processes.

The emphasis on the construction of water development infrastructure has occurred at the expense of environmental and social considerations and sustainable management. A major problem in water development in dryland areas is that water has been developed in isolation from broader rangeland and natural resource management even though it is a key resource. Water is key to the sustainable management of pasture in the drylands. Water opens up land for productive use and 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.

Emphasis on global and national domestic water service targets (see Box 1) has seen the proliferation of boreholes and other water points in dryland areas. These have failed to integrate the specificities of the dryland areas for livestock water provision. Although successful in terms of increasing household access to domestic water, the placement of numerous new water points has led to adverse consequences for pastoral mobility, degradation of surrounding pasture land, and the creation of new settlement areas.

Box 1: Kenya's water service targets

In Kenya's Vision 2030, targets for the water sector aim to ensure water and sanitation is available and accessible to all by 2030, and to increase the area under irrigation to 1.2 million hectares by 2030.

In Kenya's National Water Service Strategy (2007-2017), water targets aimed to achieve access to safe and reliable water at a minimum of 80% in urban areas and 75% in rural areas by 2015 (Rok 2007). Furthermore, a target to reduce the distance to the nearest public/ communal water outlet was set at 2km (RoK 2007). These were not achieved, and Kenya's water coverage currently stands at 55% (WASREB 2018).

Due to an absence of understanding the need to differentiate water requirements for domestic use from that for livestock use, these water service targets, primarily for domestic use, have led to the proliferation of water points used by livestock. This has caused the creation of new settlements and the disruption of pastoralist mobility patterns.

Many studies recognise that water development in pastoral areas in East Africa has lacked acknowledgement, nor taken account, of mobile pastoral production (Gomes 2006; Mtisi and Nicol 2013; Nasseff and Belayhun 2012; IUCN 2014). Modern water development, and the construction of numerous inappropriately sited water supply points has disrupted customary forms of grazing management and spatial mobility patterns. Pastoral mobility is organised to respond to the seasonal and spatially heterogenous distribution of pastures, as well as to avoid disease and conflict, and to increase access to markets. Water service delivery to pastoral areas has commonly resulted in constraints to mobility, affecting pastoral production and economic performance.

Boreholes drilled in wet season grazing areas, have made water available all year round, encouraging permanent settlement and year-round grazing in the surrounding pasture. This can lead to rangeland degradation, conflict, as well as increased incidence of human and livestock health problems as livestock are concentrated for extended periods of time. Year-round grazing causes the perennial palatable plant species to disappear and become replaced by less palatable annual species dependent on low and erratic rainfall (Gomes 2006). This can have consequences to milk yield and the overall health of the family, and especially children. Moreover, as new water points encourage permanent human settlement, this has led to increased environmental consequences due to firewood collection and charcoal burning.

Water points such as pans and dams have also been constructed in dry season grazing areas encouraging prolonged use. Areas that used to be set aside for emergency grazing now have a supply of water all year round, encouraging year-round grazing and depletion of dry season pasture resources. The inappropriate placement of water points can thus lead to rangeland degradation and weaken local resilience to climate shocks.

Water provision in the drylands thus needs to be balanced with sustainable rangeland management. This requires matching the number of animals to the availability of pasture and water, which will differ in the wet and dry seasons and from year to year. The management of access to water regulates the influx of animals and controls the consumption of surrounding pasture. Therefore, changes in the way water is accessed or controlled can induce changes that lead to the appropriation of pastoral land surrounding those water sources.

In the drylands, pastoralists access to water for domestic and livestock use is determined by, 1) the infrastructure, investments and technology for physical control of and access to water; and 2) the institutions that make up the rules in use, power relationships, coordination and/or competition between users (Gomes 2006). Water scarcity in the drylands can thus occur not just because of a lack of physical availability of the water resource, but also due to inappropriate governance and technology factors.

Finally, water development in pastoral areas has focused on increasing the availability of water through infrastructure development without engaging local communities. There is a weak system of community engagement in water development in the rural dryland areas to ensure local needs are being incorporated into developing water priorities. This can exacerbate water scarcity in dryland areas and undermine rather than promote development in pastoral regions. It can also commonly lead to conflict over water and other natural resources.

4. Methodology

4.1 Aim of study

The main aim of this study is to identify policy and practical measures to improve the management of water in support of resilient pastoral livelihoods. Emphasis is given to water for livestock as this has been given least attention in policy and practice. The study aims to gain an understanding of the strengths and challenges in the current governance and management structures of Wajir's water sector institutions, particularly highlighting the needs and concerns of pastoralists, in order to identify possible areas for improvement.

The study objectives were to:

1) Understand the roles and responsibilities of the different institutions in the governance of water in Wajir.
2) Identify the needs of the different water institutions in terms of improved rural water functionality and governance, including technology, management and capacity needs.
3) Understand the extent to which pastoralists needs and preferences are integrated into water development and management.
4) Make recommendations for the improved governance and management of rural water points and water service provision.

The findings and recommendations of the study will be used to improve the effectiveness of water management practices by the different water actors, including the county water department, the Wajir County Water and Sewerage Company (WAJWASCO) and water users associations (WUAs). This knowledge, particularly in regards to the inclusion of pastoralists' voice in decision-making, will also be used to inform the current development of county water legislation and county spatial plan.

4.2 Co-production approach

The study approach taken ensured the study was designed to meet the needs of Wajir's water actors. The Wajir County Water Department and other key water sector actors in Wajir, including WAJWASCO, were involved in the study from the outset, from determining the focus of the study, to carrying out the fieldwork, analysis of the data, and report writing. This co-production approach was designed for greater opportunity to achieve policy impact.

A Task Force was set up, made up of representatives from the Wajir County Water Department, WAJWASCO, Mercy Corps and IIED, to identify the scope and focus of the study. Through successive engagements between the Task Force representatives, the main aims of the study were jointly agreed upon. This was supported by an in-depth review of water policies and associated legislation in Kenya, and specifically Wajir County, to understand the policy environment including the provisions for water for livestock use, and to identify any gaps in existing policy or implementation. These findings were used as a discussion point to guide the direction of the study.

Following the initial meetings, the Task Force and field teams then participated in a three-day workshop and training exercise to jointly agree on the study methods and to train teams participating in the field. Methods were then piloted in the field and any adjustments made. The workshop was an opportunity to gather the perspectives of participants, specifically the county water department and WAJWASCO, on current water governance and development in Wajir.

After completion of the field work, meetings were held to discuss and deliberate on findings. A number of recommendations were

suggested by the team members which are included at the end of this report. These results and recommendations were then validated by the county water department and WAJWASCO and representatives from the NGO water sector during two feedback meetings. Each field team later compiled a summary report of findings which were combined and then elaborated upon here.

In April 2019, the County Chief Officer for Water participated in a radio broadcast and phone-in on the Wajir Community Radio to share and discuss finding of the study with radio listeners. The broadcast provided the opportunity for the county government to engage their citizens in a discussion on water development and governance in Wajir County and hear the views and concerns of the listeners. A summary of these discussions is presented in the Annex. On the 21st May 2019, findings from the study were shared by the county government at a multi-stakeholder policy workshop held in Wajir Town. Other knowledge products developed from the study include a policy brief and a technical brief (Bedelian 2019ab).

4.3. Methods

Field work was carried out at 16 water point sites spread across the six subcounties in Wajir County between the 9th and 19th October (Table 2; Figure 1). These were selected on the basis that they encompassed:

- A range of different types of water points, including boreholes, pans, mega pans, springs and shallow wells.
- Different management types, including management by WUAs, WAJWASCO, and private operation models
- A range of functionality status, including well-functioning high yielding boreholes, to lower-yielding boreholes, and saline water points.

Selection of field sites also drew upon data collected from a participatory GIS resource mapping exercise carried out across Wajir County between July-August 2018. Open source data on the RADIMA[1] mapping platform contains data on the location and characteristics of water points in Wajir as mapped by communities across the county. This data was also used to make maps of water points in each subcounty, which were referred to in the field.

Two field teams visited eight water point sites each, and carried out the following methods:

Interviews with water point operators

Sixteen interviews were carried out with water point operators and committee members of WUAs, WAJWASCO staff, and private individuals operating water points. Interviews were used to gather information on the management and use of the water point; the operation of the water point; accountability of WUAs or WAJWASCO; internal governance of WUAs; breakdowns and repairs, and technical and capacity related needs.

Focus group discussions (FGD) with men and women community members

At total of 18 FGDs were carried out; either separately with men (7) and women (3) groups, or with men and women combined (8). Approximately 10-15 people attended each meeting. Topics covered the domestic and livestock water sources used by the community; the roles of different actors in water provision; access and management of water points; perspectives of a well-functioning water point; impact of water points on settlements and pasture; and water related conflict.

Interviews with pastoralists

Fourteen interviews targeted male and female pastoralists at the water points in the sites visited. The interviews covered questions on

1. RADIMA is a natural resource open mapping platform, developed by the GeoData Institute, that supports community-based participatory mapping of natural resources. http://asal-wiki.geodata.soton.ac.uk/index.php/RADIMA_Wiki.

domestic and livestock water sources used; the roles of different actors in water provision; access and management of water points; mobility during drought; perspectives of a well-functioning water point; impact of water points on settlements and pasture; and water related conflict.

Key informant interviews (KIIs) with community members

Ten interviews gathered information from community leaders such as teachers, area chiefs, ward and town administrators, and religious elders. Topics covered were similar to those outlined in the FGDs.

A summary of the different interviews and FGDs carried out in each site is shown in Table 3. In two field sites visited, Tarbaj and Adhimsajida, interviews were recorded and later transcribed into English. Quotes taken from these interviews are used to illustrate findings throughout the report. In Wajir town, a few additional key informant interviews and discussions were held with county government staff, WAJWASCO staff, as well as NGOs, CBOs, research institutions, and other stakeholders involved in the water sector in Wajir.

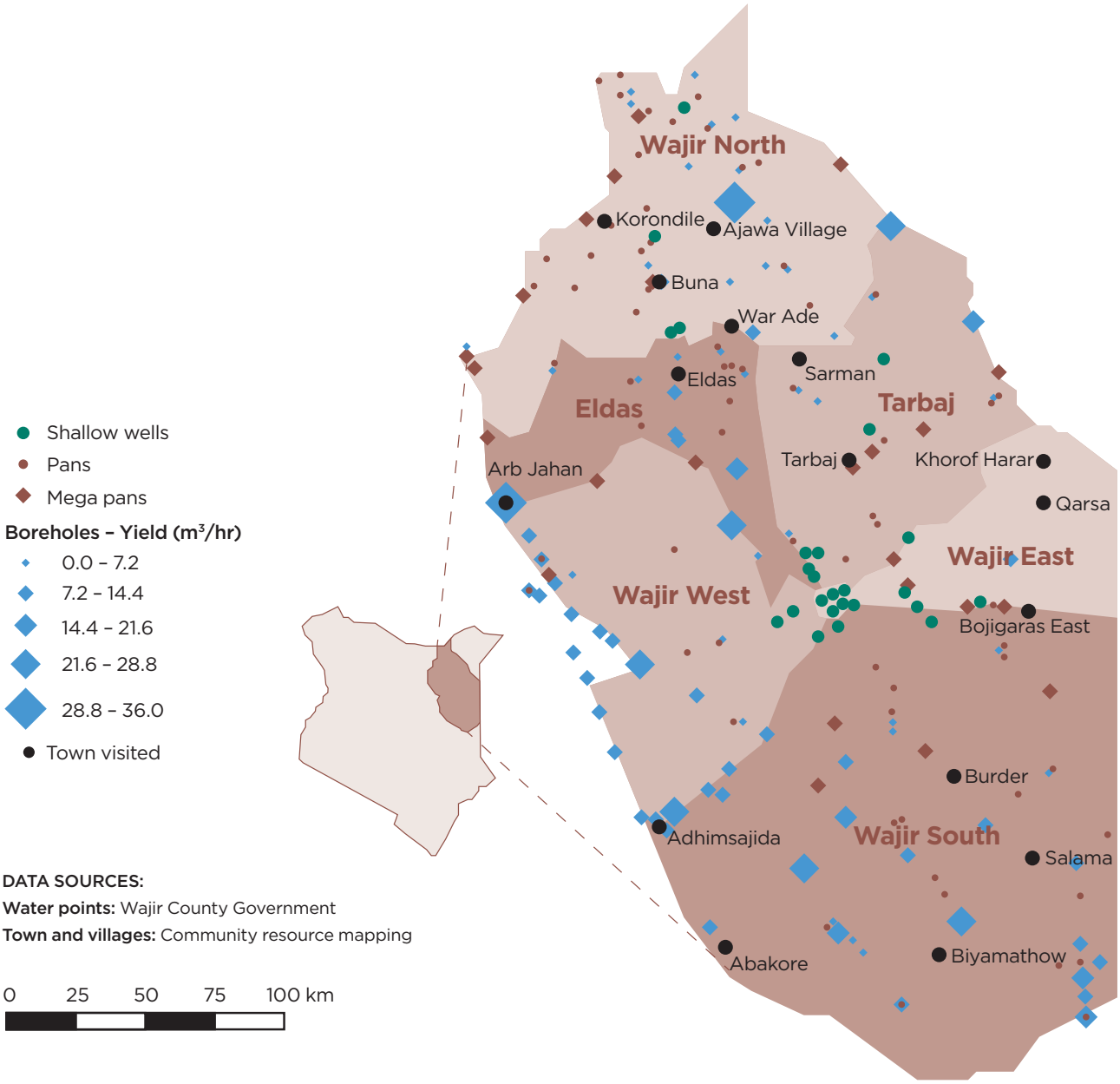
Interview with pastoralists in Ajawa Spring

Men FGD in Biyamathow

Cows drinking at Biyamathow borehole

Livestock at Tarbaj megapan

Figure 1: Map showing Wajir's water points and the 16 study sites visited during field work



Shallow wells access shallow groundwater. In many parts of Wajir the water table is very high. Shallow wells are privately owned and are particularly important in the dry season.

Water Pans are rainfed and are usually separated for livestock or domestic use. Water pans often dry up a couple of months after the last rains, but some can last throughout the dry season.

A Mega Pan is a large water pan and may hold water for the whole year during a year of normal rains.

A Borehole accesses what may be deep underground water. High yielding boreholes can serve households, livestock, institutions and water trucking. Low yielding boreholes may be rationed and only used for domestic use rather than livestock. Boreholes usually have associated infrastructure, such as troughs and kiosks, where people and livestock can access water.

Table 2: Water point locations visited during the field study

	Water point location	Type of water point	Ward	Subcounty	Management model	Field team
1	Ajawa	Spring	Danaba	Wajir North	Individual operator	Team A
2	Arbajahan	Borehole	Arbajahan	Wajir West	WAJWASCO	
3	Buna	Boreholes, pans and shallow wells	Buna	Wajir North	WUA/WRUA	
4	Eldas	Boreholes and mega pan	Eldas	Eldas	WUA	
5	Korondile	Boreholes	Korondile	Wajir North	WAJWASCO	
6	Sarman	Boreholes, pans and shallow wells	Sarman	Tarbaj	WAJWASCO	
7	Tarbaj	Mega pan and pans	Tarbaj	Tarbaj	WUA	
8	Waradey	Boreholes and water pan	Anole	Eldas	WUA	
9	Abakore	Boreholes and water pan	Habaswein	Wajir South	WUA	Team B
10	Adhimasajida	Boreholes and water pan	Adamsajida	Wajir West	Private Operator	
11	Biyamathow	Boreholes and water pans	Banane	Habaswein	WUA	
12	Boji Garas	Borehole	Khorof harah	Wajir East	WUAs	
13	Burder	Water pans	Burder	Wajir South	WUAs	
14	Qarsa	Borehole and water pan	Khorof harah	Wajir West	WUAs	
15	Khorof Harah	Boreholes and water pan	Khorof harah	Wajir East	WAJWASCO	
16	Salelmaa	Boreholes and water pans	Diff	Wajir South	WUA	

Table 3: Number of FGDs and interviews carried out with different actors in each field site

	Water point operators	FGDs			Pastoralists (men or mixed)	Key informants
		Men	Women	Combined		
Ajawa	1			1	1	1
Arbajahan	1			1	1	1
Buna	1			1	1	1
Eldas	1			1	1	
Korondile	1			1	1	1
Sarman	1	1			1	1
Tarbaj	1	1			1 (mixed)	
Waradey	1			1		1
Abakore	1	1	1		1	
Adhimasajida	1			1	1	1
Biyamathow	1	1	1		1	1
Boji Garas	1				1	
Burder	1	1				
Qarsa	1			1	1	1
Khorof Harah	1	1	1		1	1
Salelmaa	1	1			1 (mixed)	
TOTAL	**16**	**7**	**3**	**8**	**14**	**10**

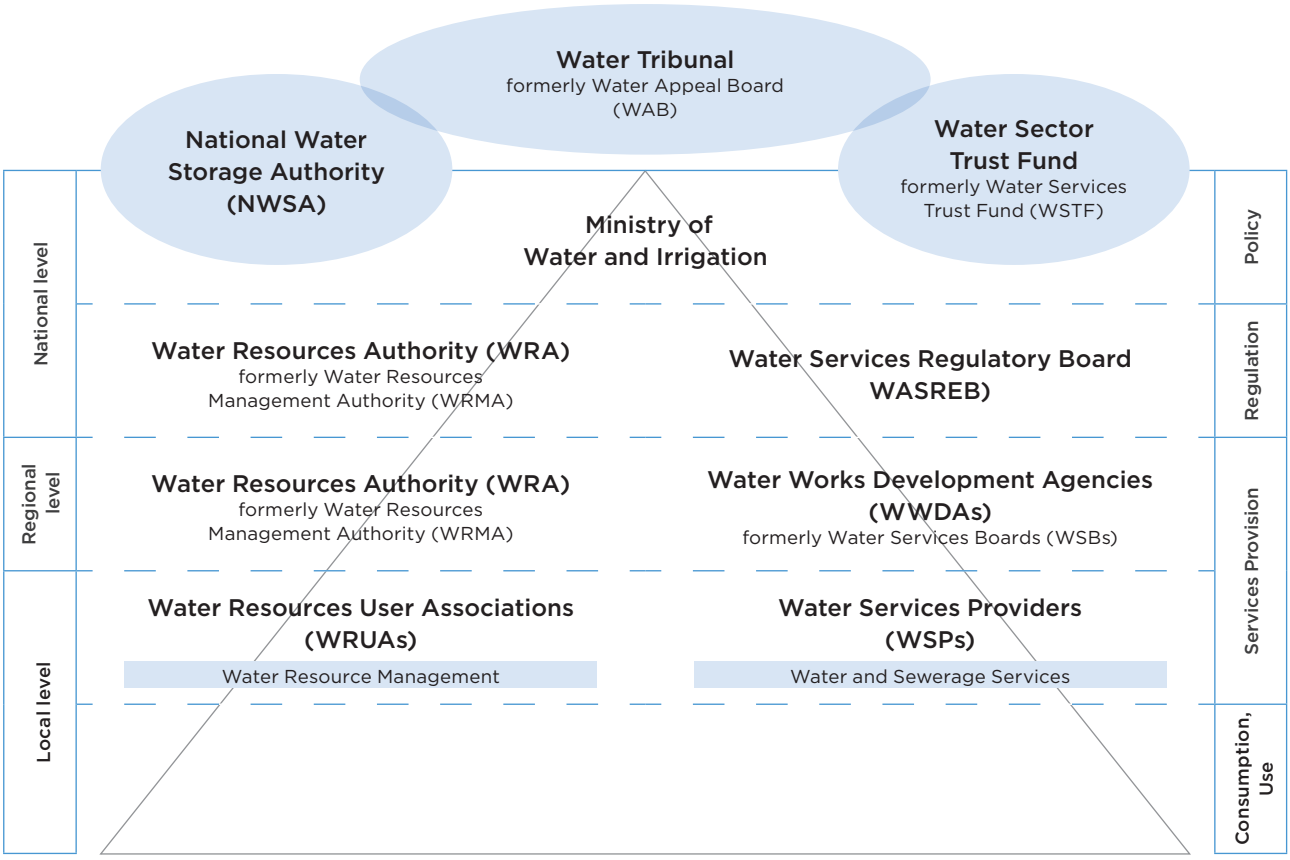
5. Kenya's water sector institutional framework

The Kenya Government introduced an ambitious programme of reforms in the water sector launched first by the National Water Policy 1999 and then the implementation of the Kenya Water Act 2002. This included reforms to the legal and institutional framework, and separating out the management of water resources from the supply of water services. Public spending to the sector increased eightfold (Nordmann et al 2012), and wide-ranging restructuring of the sector led to the creation of a number of new institutions.

The hierarchy of water institutions (Figure 2) included provision for peoples' participation in the management of water resources, and the separation of policy and regulation from service delivery and day-to-day management of water facilities. The role of the Ministry of Water and Irrigation was limited to policy formulation, overseeing the implementation of policies and resource mobilisation. The reforms also promoted equity, by aligning with the UN's concept of 'Human Right to Water', where every person is entitled to access to sufficient, affordable water and sanitation.

The reforms promoted good water governance principles, including that of subsidiarity and decentralisation, where decisions in the water sector are made at the lowest appropriate level. The reforms decentralised services to regional levels by creating Water Service Boards (WSBs) who issue service provision licences to Water Service Providers (WSPs) who in turn carry out operation and maintenance (O&M).

Figure 2: Kenya's water sector institutional design under the Water Act 2016 (WBG 2016).



The Constitution of Kenya 2010 and process of devolution brought new reforms. This devolved water and sanitation services provision to the newly established county governments and realigned the Water Act 2002 with the Constitution of Kenya. A new Kenya Water Act 2016 was enacted. As the Constitution transferred service delivery functions to the county government, WSBs became redundant. The new act aligns water management and water service provision with the requirements of the Constitution, particularly concerning devolving water and sanitation to the county governments. Counties now take the lead in developing water investment plans and service delivery through their water utilities, and are thus key to achieve national and global water and sanitation targets.

The Water Act 2016 requires county governments to establish WSPs on the basis of commercial viability. The goal is for county water services utilities to be commercially viable and able to cover their O&M costs. Furthermore, counties are obliged to ensure there is the provision of water services to rural areas which are not considered to be commercially viable. This is particularly relevant in the rural drylands which can suffer from dilapidated water infrastructure, limited service and O&M coverage, and high levels of non-revenue water.

The Constitution of Kenya 2010 states that access to clean and safe water is a basic human right and Article 43 of the Constitution provides that every person has the right to reasonable standards of sanitation as well as to clean and safe water in adequate quantities. The Constitution also includes affirmative action programmes to ensure water access for marginalised groups and an equalisation fund to provide basic services such as water to marginalised areas to the same extent as other areas. Marginalised communities, including mobile pastoralist people are specifically referenced to.

Research shows that changes introduced through devolution have helped produce faster and more cost-effective responses to drought and flood (King-Okumu et al 2018). This includes faster responses to emergencies led by county governments, cost savings in drought water trucking through the use of county government owned vehicles and better coordination across sectors led by county government (King-Okumu et al 2018). Nevertheless, devolution has also increased the number of actors involved in water governance and created some confusion due to overlapping jurisdictions between actors.

In WASREB's annual performance reports on water services in Kenya (the IMPACT reports), the most recent report shows a decline in governance performance in 2015/16 compared to previous years (WASREB 2018). The transition to county governments is a potential reason given for these declines. As counties, and county level WSPs, take on their new roles this means a realignment of institutions, and as a result, greater coordination is needed between institutions. A lack of coordination among institutions and stakeholders has been identified as a major problem in Kenya's water sector (Rampa 2011; Nordmann et al 2012).

6. Background to Wajir water sector

Wajir County faces problems of water stress and availability of water for domestic and livestock use, particularly during the dry season and drought years. This is associated with the inappropriate placement of water sources to ensure the sustainable utilisation of resources across the rangelands, a high percentage of failure of water investments, and weak water governance.

The main waters sources in Wajir County are sub-surface water sources, including boreholes, water pans and shallows wells. There are no permanent surface water sources in Wajir except Lake Yahud, an underground permanent lake on the periphery of Wajir town. As per the recent CIDP, the county has 272 boreholes, 15 mega pans and 260 water pans (WCG 2018a). The county also has 14,360 shallow wells, although many of these have dried up due to erratic rainfall and degradation of water catchments and water ways (WCG 2018a).

Only 46% of the county population have access to improved water sources (WCG 2017). This falls below the national average of 55%, and well below the national target of 80% (WASREB 2018). Only 1.4% of Wajir's population have access to piped water, mostly those in centres (WCG 2017). There is very high water-salinity in many parts of the county. The water table is also very high, in some cases less than 10 metres, so susceptible to water contamination.

The water sector is a high priority for Wajir County Government and one of the biggest recipients of revenue from the National Government. In the recent CIDP 2018-2022, the water sector was allocated the largest budget (KSh 35.8 Billion), which includes KSh 32 Billion on water resource management (largely made up of one walled dam constructed by national government and partners – KSh 24 Billion), KSh 1.6 Billion for WAJWASCO, KSh 3 Billion on a water and sanitation project (World Bank funded), and KSh 1.4 Billion on administration and support services.

The increase in funding to the sector, combined with pressure to meet domestic water service targets, has seen the proliferation of boreholes and other water points in Wajir County (Figure 1). The number of boreholes increased from 98 to 272, and the number of water pans from 206 to 260 between 2013 and 2018 (WCG 2013; 2018a). This increase in water investments in the county has reduced the average distance to the nearest water point for households from 30kms to 15km over the same time period (WCG 2013; 2018a)

Although successful in terms of increasing household access to domestic water, and reducing the distance women have to walk to collect water, the placement of many scattered new water points has led to adverse consequences for pastoral mobility, degradation of surrounding pasture land, and the creation of new settlement areas. In Wajir, new water points have been developed without consideration for livestock's grazing areas, in part due to a lack of consultation between the county livestock and water departments. Furthermore, a number of these new boreholes are not in operation two years after installation or are not functioning well.

WAJWASCO is a water services provider formed by the county government to provide water services and sanitation services across the county. This is in line with the institutional framework outlined in the Kenya Water Act 2016 that states the decentralisation of water services to the counties. The company manages water service delivery in Wajir town and 15 other rural water points.

Outside of the main towns, Water User Associations (WUAs) manage rural water supplies. WUAs collect water revenue from community managed boreholes to fund repairs and other community needs. However, revenues are often insufficient to fund more substantial repairs and the capacity of WUAs to manage breakdowns and regular maintenance is low. Supporting and capacity building of WUAs is identified as a priority of improved water governance for the water sub-sector in Wajir's CIDP 2018-2022 (WCG 2018a)

Strengthening WAJWASCO and streamlining its operations is another priority identified for improved water governance in Wajir's CIDP. WAJWASCO's aim is to replace WUAs as the service provider in rural areas, a target also set in the CIDP, with the aim to increase the proportion of water supplies managed by WAJWASCO from a 21% baseline to 100% by 2022 (WCG 2018). Although likely an overly ambitious aim, it highlights the overlapping roles and responsibilities of the different actors in the governance of water in Wajir, which can create potential challenges and conflict over water management and use.

Of note is that WAJWASCO's draft Business Plan 2018-2022, gives little recognition to livestock water use, identifying pastoralism and its nomadic lifestyle as a social and cultural threat affecting water use (WAJWASCO 2017). This raises questions over the provisions that will be provided to pastoralists to support pastoral production, mobility and livelihoods.

Camels watering from a makeshift trough at Tarbaj mega pan

Wajir County Government is in the process of formulating its county sector policies. For the water sector, a county water management bill, policy and regulations are currently in review by the County Assembly. Earlier drafts had to sbe redeveloped due to an absence of public participation. The earlier drafts of the water management bill and water regulations contained little or no mention of the provision of water for livestock. This study aims to inform the development of the county water legislation, as well as the county spatial plan, and integrate issues of concern related to livestock and pastoralists use of water, to ultimately foster more sustainable water governance and resilient pastoral livelihoods.

7. Key findings

This section provides the main findings from the study, including the field visits to the 16 water points across Wajir County and interviews and focus group discussions with community members. It also provides information from discussions with the water department, WAJWASCO, and other water sector actors during interviews and feedback meetings in Wajir town.

7.1 Wajir County Government Water Department

The County Government Water Department are mandated with the overall responsibility of water in Wajir County. They have legal responsibility for ensuring access to water for domestic needs and water for production, including livestock, and have oversight over any related water issue in Wajir. A key role of the county government is in policy development and planning priorities, including the development of water policies and setting of plans such as the five-year County Integrated Development Plans (CIDPs)

Technical and management capacity challenges

It was recognised by water department staff that there is a lack of technical capacity in the water department. It was reported that there are few trained engineers, and perhaps only three or four electrical engineers to service over 200 boreholes in the county. Additionally, there is a lack of trained staff in operation and maintenance (O&M), which reduces the timely and effective functionality of the department. This contributes to inefficient maintenance systems when it comes to breakdowns and repairs. Water department staff recommended that boreholes upgrade to hybrid powered systems (combination of solar power and a diesel generator) to avoid breakdowns and reduce the need for repairs, however there may not be sufficient technical capacity in the department to install or maintain these systems. This calls for more technical training and the hiring of skilled staff within the water department.

Water department staff also reported there to be poor organisational and data management systems currently in use within the water department. This included a lack of organised paper work and a poor system of reporting in the county head office. There is incomplete recording of breakdowns at the county head office, although there may be a basic logging of information at the borehole level. Poor data management and record-keeping can be a common problem in the water service sector and preclude effective operation and management (Hermann-Friede et al 2014).

Centralised O&M and irregularities in procurement

Another key issue raised regarding O&M, included overreliance on one central county O&M team, leading to inefficiencies and irregularities in service delivery and breakdown repairs across a large county. Breakdowns are commonly reported directly to the County Chief Officer (CCO) for water, who dispatches an O&M team to repair the water point. Discussions with water department staff revealed irregularities in the central county O&M team stationed at Wajir town, who have a monopoly and may choose where they do or do not want to go. They also charge high fees to attend breakdowns and do repairs, which community members complained about. There were issues related to the false purchasing of new equipment, such as borehole pumps, when it was evident that the old pump was being recycled and reused. Other evidence shows how O&M systems can be prone to a lack of integrity (Hermann-Friede et al 2014).

This problem was associated with contract-driven water infrastructure development that is prevalent in Wajir. Irregularities in procurement processes result in contractors being selected due to political influence or links to government. Procurement and contracting of water infrastructure are well-known hotspots for corruption in the water development (Hermann-Friede et al 2014). Nordmann et al (2012) found in Kenya that projects are often awarded to the preferred contractor regardless of price or quality. The result of this is inflated prices of equipment and services, poor quality work by the contractor, leading to dysfunctional infrastructure and high maintenance costs. Another result of this style of development is that the design of water points can end up more contract-based than needs-based (see section 7.6).

Weak presence at the community level

Subcounty water officers work at the community level, with an officer in charge of each of Wajir's six sub-counties. Their main role is to supervise and coordinate water activities in their subcounties. They are responsible for ensuring that communities get safe clean water and to assist them in times of water stress. However, these roles are not easily borne out in practice because of a weak presence of the subcounty officers at the community level. Subcounty water officers are based in Wajir town rather than in their subcounties. Although they have offices at the subcounty level, these are not being used because resources, such as fuel, power, and logistical support are not devolved to the subcounty level. Site visits revealed that some subcounty water officers had not visited particular water points for a couple of years. When there is a breakdown, communities tend to call the CCO for water, as well as Chiefs, Members of Parliament (MPs) and Members of the County Assembly (MCAs), rather than the subcounty water officers. As a result, they may not be aware of water-related activities, such as the formation of water user associations (WUAs) or even the development of new water projects.

It was suggested that the subcounty water officers be based in their subcounties and report to the subcounty administrators, based in the subcounty headquarters, rather than the CCO in Wajir town. This would help the water department to become more active and have greater oversight at the community level. However, it was noted for this to be realised, it would require strengthening of the subcounty structures and political good will of the county leadership (the County Governor) to devolve resources to the subcounty level (KII with NGO actor). Ideally, this would be part of an O&M system devolved to the subcounty level, with each of the six subcounties having its own O&M team. Teams would require the appropriate training and capacity building and be led by a more experienced water engineer. The mentoring of subcounty water officers by more senior and experienced staff was recommended as a way to improve their skills and capability in carrying out their roles whilst providing on the job learning.

7.2 The Wajir County Water and Sewerage Company (WAJWASCO)

WAJWASCO is a water services provider and autonomous county government agency that was formed in 2014 with a mandate to supply water and improved sanitation services across Wajir County. WAJWASCO was established to take over the management of water point schemes managed by the locally formed WUAs, for a more professionally managed system. The company is responsible for the operations, maintenance and management of 16 borehole source water facilities in the county: Wajir town and 15 other rural towns. In the CIDP 2018-2022 it states the intention for WAJWASCO is to take over all the boreholes in the county (WCG 2018a).

High versus low revenue boreholes

Four sites visited during field work were under WAJWASCO management - Arbajahan, Korondile, Sarman and Khorof Harah. All sites have high yielding boreholes. In these sites, community members perceived WAJWASCO to be managing and maintaining the boreholes well. Responses to breakdowns and the servicing of engines now occurred faster than when there was WUA management in place.

In two other sites visited - Buna and Adhimsajida - WAJWASCO had previously taken over management of the boreholes from the community, but then dropped them later on and handed them back to the community. This was said to occur because the discharge from the boreholes was low and WAJWASCO was unable to make sufficient revenue or pay their staff. In the case of Adhimsajida, WAJWASCO took over the running of two boreholes in 2016, but returned it back to the community less than a year later. A private operator is now managing the boreholes on behalf of the community. Community members complained that WAJWASCO had failed to add any value to the water point; they had failed to deliver on their promises when taking over the borehole, which included drilling a new borehole, fencing the boreholes, and installing a piping system and two elevated tanks. They also believed the revenue collected was mismanaged.

Where boreholes have a high yield, such as in Arbajahan, WAJWASCO has been more successful. It was report that initially, WAJWASCO took on boreholes without considering the yield and output, and later experienced problems managing the lower yielding boreholes. As a new company, WAJWASCO has not had the financial capacity to sustain the lower yielding boreholes. In feedback meetings, it was suggested that WAJWASCO needs better economic viability studies to calculate the expected revenues and yields and make informed decisions on the viability of sites, a requirement for any WSP as already stated in the Kenya Water Act 2016.

This suggests that the focus of WAJWASCO, at least until better established, should be on the urban and peri-urban water points that have greater commercial viability with higher yielding boreholes and many water users. It also highlights the challenges of small to medium WSPs, such as WAJWASCO, in fulfilling their mandates, particularly in the rural areas. This leaves an important recognised need for community management of the rural water points, that are lower yielding with fewer water users, and thus an important role for WUAs.

Reliance on the county water department

A challenge identified was the lack of trained WAJWASCO staff in O&M. WAJWASCO commonly relies on the county water department for technical assistance and purchasing of spare parts. Their borehole maintenance team were not well equipped to deal with more substantive repairs, hence having to fall back on the water department, who offer technical assistance if WAJWASCO staff do not have the technical capacity or are overwhelmed. The WAJWASCO borehole operators and managers at the four sites visited said they would like further O&M training. There were also slow response times from the WAJWASCO central office in responding to breakdowns and dispatching a technical team to carry out borehole repairs.

Problems related to WAJWASCO's weak technical and management capacity are recognised in a number of Wajir's draft water policy and legislation documents. These identify the water company as having weak management capacity that affects their service delivery. WAJWASCO's draft business plan states how operations are affected by poor machine performance and frequent breakdowns (WAJWASCO 2017). Being a new organisation, WAJWASCO also faces challenges of low institutional capacity and inadequate infrastructure and financing (WCG 2018b). WAJWASCO staff reported that the company is not financially independent and many staff are being paid by the county government rather than the company as it does not have the financial capacity. WAJWASCO's over reliance on the county budget allocation results in it not being seen as an independent autonomous institution, but rather a sub-sector of the water department.

Poor social accountability

Another major challenge commonly reported by community members and also the water department, was a lack of downward accountability from WAJWASCO to the community level. There was little community participation during the formation of the company leading to any unwillingness of many communities to hand over their water supply systems. Community members complained of little consultation in management and little financial transparency. They are rarely consulted on management issues and they are not clear on how their water fees are being used. Community members wanted to see better communication between WAJWASCO and the community, and more social accountability measures such as clear disclosure of revenues and accounts.

Overall, a clear gap was identified that WAJWASCO is not well integrated at the community level. WAJWASCO does not have a decentralised system of working with no representation at the local level. It was suggested that the structure of WAJWASCO be reviewed to incorporate more inclusive structures at the community level, including electing community-level members to the WAJWASCO board. This would help prevent the company from being seen as a foreign institution, instead of one that is locally integrated and able to address community water needs and priorities.

Political interference

WAJWASCO has suffered from a number of problems from the outset, without a clear concept behind it and issues over the correct registration. The company operated without a board in place for four years. There have also been a number of political issues, with the Chief Executive Officer of the company having changed twice already and the post being appointed by the County Governor rather than recruited competitively. There was also reported to be a lack of political goodwill from some of the local MPs who preferred constituency based WSPs (KII with NGO actor). As one of the study team members contributed, 'politics is killing the water company'.

Political interference in the management of WSPs affiliated to county government has been noted in other WSPs in Kenya, such as Vihiga County (Kanda 2018). Other Kenyan studies have found that it is quite common that the appointment of WSP board members is biased towards political interest and thus prone to patronage and nepotism (Nordmann et al 2012). This lack of integrity is a threat to the envisaged water sector reforms and operational independence of WSPs. To ensure integrity, board members should be selected by transparent election processes, and disclose information on decision-making and expenditure.

Exploring different models

As a result of the evident weaknesses in their management model, WAJWASCO are exploring different models of operation for their boreholes. Rather than the existing model (the direct model) where WAJWASCO staff are employed on the ground to manage the borehole, they are exploring models in which WAJWASCO hands over borehole operations to a private operator or individual (the private operation model), decided in consultation with the community. This is already occurring in Arbajahan where three individuals manage the borehole. In Korondile, WAJWASCO hope to work with one individual. Another model they are exploring includes a partnership with a registered WUA (the WUA model). This would build on and work with the WUA management in place at the water point.

7.3 Water user associations (WUAs)

WUAs are community level institutions that were established in Wajir in 1992 to manage rural water supplies. WUAs manage water points on behalf of the community and are responsible for, among others; ensuring safe, clean water to the community; setting the schedule of water use and the collection of revenues from water users; managing conflict; reporting breakdowns to the water department and handling repairs where they can. Despite WAJWASCO's aim to replace WUAs as a service provider in Wajir County, WUAs still play a major role in the management of, particularly, rural water points.

In the field study, 10 of the 16 sites visited were managed by WUAs (Table 2). In some sites, such as Eldas, WUAs manage multiple water points (e.g. a pan and borehole), whereas in other sites (e.g. Biyamathow and Abakore), different WUAs managed different water points in the area. When asked what the main roles were of the WUA managing the Tarbaj mega pan, elders explained:

'Elder 1: 'Their role is to protect the pan from the things that Tarbaj people don't want, for example livestock and children entering inside the pan, to ensure the hygiene of the dam. Also, to give a salary to those who are taking care of the pan. They must know everything that concerns the pan affairs, to ensure people get water in a less congested manner and take into consideration all complaints from the public if any matter arises. They convey matters to the other committee members to solve any pressing issue raised by any person or group.' (Tarbaj, FGD)

Elder 2: 'They act as peacemakers at the pan because here is a water point that attracts many people, and sometimes conflicts may erupt, so in such cases a prompt solution is needed to ensure no confrontation happens when people are fetching water... They provide easy access to water, especially during emergency times and they are ready to handle all cases.' (Tarbaj FGD)

Functionality of the WUAs

There were mixed responses on the functionality of WUAs across the study sites visited. In some sites, such as Eldas and Burder, FGD participants reported that their WUAs were active and functioning well. There was transparent financial accountability where the community was made aware of revenues during meetings or accounts were available on a public board. There was good management of the water point, and in Eldas it was reported water fees collected went to finance borehole operators' wages and borehole repairs. The WUA committees also held regular elections and had a mix of men and women members.

In other sites, community members reported that there was poor management by their WUAs. In Biyamathow, FGDs participants complained they did not know how their water fees were managed, the WUA does not report back to the community, and there were no women on the committee. In Abakore, participants believe there was misappropriation of the revenues collected by the WUA. Both sites wanted to see a change in the WUA committee or preferred to hand it over to a private operator. Out of the 10 WUAs interviewed in the field, most of the members had been on the committee for 3 to 4 years, although some had been for 10 years. Six committees were made up of both men and women, with women holding between one and four of the positions, whereas four were made up of entirely men.

Poor social accountability

Communities poor perception of their WUAs was usually related to what they saw as poor accountability and financial transparency. Wider discussions with key informants in Wajir agreed that WUAs have weak management systems that are not accountable; their committee members are self-selected or selected by area chiefs from the leaders in the community, rather than through elections. Even if elections are held, a chief may still pick who he wants on the committee or is bribed, so the WUA becomes more loyal to chiefs rather than being accountable to the community. WUAs can also be sensitive to clan issues and interference from local politicians. Similar findings have been raised in previous studies in Wajir, and WUAs found to be susceptible of being composed of elites, chiefs and more prominent community members (Oxfam 2012).

There were also no clear accountability measures in place for WUAs to be upwardly accountable to the water department. WUAs do not disclose their accounts to the county government, who mainly go only to provide technical assistance and fund repairs when called. It was evident there is a lack of coordination between the subcounty water officers and the WUAs, partly due to the issue of the limited presence of the subcounty water officers on the ground, as described earlier.

It was suggested that there could be more supervision and stronger links between WUAs and the water department, as well as better coordination and monitoring of the WUAs by the subcounty water officers. Stronger upward accountability measures, such as regular reporting and clearer requirements to disclose their accounts to the county government, might help reduce the opportunities for the misappropriation of revenues by WUAs. One suggestion was the use of a performance related framework, linked to appropriate incentives, to foster more accountable management practices. The financial and management capacity of WUAs could also be strengthened through appropriate trainings.

WUAs need stronger selection processes

In feedback meetings it was suggested that WUA committees require major reforms and a much stronger process of selection of their committee members. This should entail a very transparent process of elections with all the community invited to participate, rather than only the leaders and elders. This should also be attended by the water department and other actors in the water sector, such as NGOs and CBOs, to ensure transparent procedures are followed. Then, any WUAs that are formed without the knowledge of the water department and other relevant actors, should be dismantled.

In electing WUA committees, lessons could be taken from establishing and electing members of the Ward Climate Change Planning Committees (WCCPC) formed as part of the devolved county-level climate finance mechanism, such as in the case of Wajir County Climate Change Fund. These committees are responsible for prioritising and determining investments in the county that strengthen the community's wellbeing and contribute to the local economy. Enshrined in the constitution of each committee are principles to avoid discrimination against marginalised groups, and include youth and women representatives. Moreover, committee members selection criteria are not based on technical capacity of skills, but on the community's assessment of an individual's integrity and commitment. In the process of setting up the WCCPCs, ward level public meetings are held to vet committee members, involving hundreds of community members. Members are then selected through public discussion and consensus by the community. WUAs could take on similar criteria to help in establishing credible and representative committees.

Limited technical capacity

Another issue commonly reported in field sites was that although WUAs may be able to manage routine maintenance and repairs of water points, for more complex repairs they rely on the water department for technical assistance and spare parts. Discussions with the water department and WAJWASCO revealed that the capacity of WUAs to manage breakdowns and carry out maintenance was limited. Also, most WUAs have to come to the county water offices for spare parts as they lack the basic equipment for the operation of boreholes. All WUA borehole operators spoken to agreed and reported that the water department provides the technical help to fix repairs and usually pays for the spare parts. This issue was apparent even where the borehole was viewed as well managed by communities, and the borehole was high yielding generating good revenues, such as in Eldas.

This questions the core roles and responsibilities of WUAs and whether they are in fact suited to carry out technical roles such as O&M, which for boreholes requires specialised skills and training. Or whether they should be more focused on managing access to the water point, collecting fees, and ensuring peaceful community relations. For the technical part, a possible alternative includes sub-contracting O&M to a skilled private sector operator. Nevertheless, a number of WUAs and borehole operators spoken to sought greater technical training and capacity building to function better. Although some had received training from the county government and local NGOs on O&M, there was a clear demand by WUAs for more technical training.

7.4 Private management

In Wajir, there are few privately managed waterpoints or cases where the borehole is managed in partnership with the private sector. In Adhimsajida, the borehole is being managed by an individual from the community through an informal private arrangement. It is informal as he is not licensed by law as a water service provider. The individual took over management of the borehole from a WUA in 2013 and it was agreed by the community that he would manage the borehole on behalf of the community. He has hired three staff to help him. It was widely thought that he was managing the borehole better than the WUA, and also better than a brief period under WAJWASCO management.

In Adhimsajida, there was a good relationship reported between the manager and the community with regular communication. The manager described how he made changes and decisions concerning the borehole and the water fees together with the community. There was also transparent financial accountability reported under this model and the community said they were aware of the revenue paid into the borehole account. The manager informs the community when money is withdrawn from the account for expenses and he is audited by community elders at the end of the year. He gets little assistance from the water department when doing repair work, but usually organises repairs with external technicians and engineers, and pays for the spare parts.

In discussions with WAJWASCO and the water department there was interest in public-private partnerships that engage the private sector to manage rural water supplies, as illustrated in WAJWASCO's private operation model (section 7.2). The private operation model has the potential to offer more professional management of water service delivery over what can be large cumbersome community associations, and also supports the rural private sector. This also supports the finding above made in relation to the technical capacity of WUAs. Other projects assessing water functionality in Kenya's rural areas have shown that by commercialising practices and offering more efficient O&M strategies, private sector operations can improve service levels in reliability, access, cost and water quality (SNV undated). Also, by engaging private sector firms in the provision of water services to communities, such as through public-private partnership models, this can enhance the overall sustainability of the water supply schemes (SNV undated).

7.5 Community preferences for domestic and livestock water use

To understand local priorities and preferences for domestic and livestock water use, we asked participants in FGDs and pastoralist interviews what criteria they thought made a well-functioning water point. Table 4 gives the top five most commonly mentioned criteria and a description of each criteria as explained by participants. These applied to both domestic and livestock water use.

The quality of the water was perceived as the most important criteria. For domestic use, people particularly prioritised water that is clean, fresh and fit for consumption. A number of water points in Wajir have saline water, so accessing fresh water is a primary consideration. Management was the second most important criteria and good management and the personal character of the water point manager was said to help reduce stress when watering animals (Burder FGD). An elder in Adhimsajida FGD, emphasised the importance of good management:

'There is a Somali saying which goes, "Mamul xuma abar kadaran" meaning poor management is worse than a drought. For us there is good management of our water that has brought us to this level, but there is not plenty of water...'

Management also referred to setting tariffs and handling water revenues. In cases, residents felt they were being overcharged for water, particularly when some water points charged more for water than others. In the main towns, such as Arbajahan, residents preferred piping systems and metered water for domestic water as they thought it was cheaper, as well as more convenient. For the same reason, water users preferred solar power water supply systems as this was most cost effective with no operational costs in the form of fuel. Despite preference for metered water for domestic use, this was not the case for livestock use, and pastoralists were against the use of metered troughs for livestock. A fixed watering cost per animals was likely to be cheaper, especially for the larger livestock, such as camels, that consume a lot of water.

Security was the third most important criteria and referred to having a well secured waterpoint that was fenced and/or had a watchman to supervise the borehole facility or the pan. This helped to prevent any unregulated access by livestock or people that could vandalise the waterpoint, contaminate the water and reduce the quality, or result in human or livestock injury.

Maintenance is an important characteristic that determines how well a water point functions, how often breakdowns occur, and how quickly

Table 4: Top five criteria and description of a well-functioning water point as perceived by Wajir residents

	Criteria	Description
1	Quality	Having fresh water is important for domestic and livestock consumption. If saline or the water point is contaminated this is a health hazard
2	Management	Proper management in place that is active as well as honest. Management is accountable to the community, who are well informed. Otherwise, this can lead to conflict and the misuse of resources
3	Security	A secure waterpoint that has fencing to deter unregulated entry by livestock or people and to reduce contamination. A watchman to maintain security of the water point
4	Maintenance	The water point is well maintained and well serviced. There is quick response to breakdowns and timely repairs
5	Accessibility	The water point is conveniently located and within good reach of its consumers. It is also easily accessed through livestock troughs, kiosks, or piping. Water is accessible at many times of the day

Table 5: Preferred characteristics for domestic and water points by Wajir residents

Domestic water	Livestock water
• Conveniently located water points that are safe and avoid women having to walk long distances to collect water	• Well positioned livestock troughs, placed outside of the fence of a borehole or water pan to avoid livestock entering the water and contamination
• Water is easy and quick to extract to reduce the time women spend waiting to collect water	• Troughs strategically located outside of town to avoid livestock needing to enter town
• Piping systems and meters for direct access to households and institutions	• Regulated access to a controlled number of animals to ensure access to water is determined according to pasture availability
• Conveniently located water kiosks in town to quickly extract water	
• Water is accessible 24 hours a day	

they are fixed. Having a well-maintained water point is crucial, as the impact of breakdowns can be serious for both people and livestock who have to migrate in search of water in distant places (Biyamathow KII). Children may be sent to look for water and so are absent from school (Salelmaa FGD). Furthermore, breakdowns cause overcrowding at water points, which in turn leads to conflict.

The preferred technical characteristics of a water point were also differentiated depending on whether it was for domestic or livestock water use (Table 5). This involved an important gender dimension since it is women who regularly collect water for domestic use and men who usually take livestock to water. Accessibility is an important critertia that was differentiated between domestic and livestock water use. Athough women prefer easily accessible domestic water close to home, and available throughout the day, access to water for livestock needed to be more regulated and determined according to pasture availability in the surrounding area (see section 7.8). These differences point to the need to distinguish the needs of livestock and domestic water use in terms of the design, positioning, technical characteristics and governance structures.

7.6 Community voice in water development

In field sites, residents commonly reported that they were not regularly involved in decisions made concerning the development of water projects and the design of water infrastructure. It was more common for politicians and elected leaders, as well as local elders, to be involved in these decisions. For example, the area MCA and community elders may bring up the need of a water point in a certain area. Even if the community do request for a certain water project, they may not be consulted on the process. As one elder in Tarbaj commented:

'The people of Tarbaj are not consulted on issues concerning water. Everything is facilitated from Wajir Town.' (Tarbaj FGD)

In other areas, residents said that they were involved; although politicians may influence the decisions on water point establishment, the community do also make decisions in consultation with government officers (Biyamathow KII). In Arbahajan, FGD participants said they request for improvements in the development of water sources through the subcounty water officer to the Directors of the water department. If the request is approved, the department holds a public participation and the project starts.

In comparison, when talking to pastoralists watering their livestock at water points, they reported they are rarely consulted on water development or in development projects in general. Some herders rationalised this as being because they are rarely around due to their livestock movements. As a pastoralist in Tarbaj explained:

'As herders, we are far away from the town, so when making such deliberations on development plans we just hear what is going on, but do not have the opportunities to get involved in the decision making. We don't have any clue whatsoever on what the government or any concerned body do. Why? There is no information about it, we only see it when it is being implemented. Regards the piping system that is currently underway, we have just seen that the contractor on site is ready to execute his tender, but as pastoralists we are less advantaged in knowing or giving our views on developmental matters or issues. There is no consultative forum called for pastoralists.'

A clear point made was if pastoralists are at all consulted, this only happens when projects are ready for implementation or execution, as also stated in Boji Garas and Burder. Pastoralists have little voice in decision-making, and are only informed once decisions have been made.

Speaking to women during the FGDs it was also clear that even if some community members are consulted on water development, women are not consulted at all. For example, in Biyamathow and Qarsa, women said men are consulted, but women's views are not considered and they are not aware at all. The elders may inform women that a project is being implemented, but they are not consulted in advance and only see it in the implementation stage or when a project is being commissioned. Both men and women thought this was wrong since women are the real water users, responsible for domestic water provision.

Another important issue raised was that the development of new water points in Wajir is frequently driven by contractors who have links with the government. In Burder, FGD participants said they are not consulted in water development, the process is initiated by a contractor and the community are only informed during the implementation stage. Discussions with the water department agreed that the design of water points can often be more contract-based than needs-based, and thus do not always go where they are specifically needed. Tender wars can also erupt and lead to a temporary cancellation or complete halt to a project. In Tarbaj, the problem with contract-driven infrastructure development was described and how communities must have a greater voice in water development:

Elder: first when anybody whether county or national government, want to craft plans on water, either dam construction or any other related water provision they must do a public consultation or public participation. The power given to contractors should be stopped by the county government. Contractors are the peddlers of the department making all the decisions rather than a publicly orientated bid in executing projects in certain areas. The demands of the residents must be looked at, not just given kickback consideration. The common men and women must be involved in governance.' (Tarbaj FGD)

The development of water points can create a conflict due to different interests and priorities. In Burder, community members described how there are misplaced priorities on water development, since the county government have constructed water pans for irrigation, while there is no mega pan for domestic use and their settlement does not even have a borehole.

There is also the issue of political interference, where politicians want facilities put where their clan members live for political favour and are able to push their personal interests. This political pressure causes the mushrooming of settlements as people are attracted to the sites around newly established water points.

7.7 Water development and settlements

Across sites visited it was evident that people were attracted to settle close to water points for easier access to water for both domestic and livestock use. This was particularly the case for high yielding boreholes, such as those in Arbajahan and Sarman, where residents said that the population had increased as people had now made permanent settlements to access the boreholes from surrounding areas with little or no water. This had occurred even in areas designated as a catchment area, where accordingly, settlement should be

prohibited, such as in Nyatta. As a result, there had been a reduction in the supply of water to Korondile town, 9km away, which is reliant on water piped from Nyatta. In Adhimsajida, residents said the water point had led to a population increase in the town by people who wanted metered connections to their homes and an easily accessible supply of domestic water. In comparison, water points with a low yield or discharge (e.g. Ajawa spring), or that are saline (Waradey), attracted limited population and settlement growth.

Respondents discussed the impacts caused by the growth in settlements and population. Water points were increasingly congested due to the large number of people and livestock visiting, encouraging interclan conflict over water use. Increasing settlements made it difficult for large livestock, such as camels, to access the water points, as reported in Biyamathow and Khorof Harah. The expansion of unplanned settlements was also creating pressure on infrastructure, and increased the demand for resources such as firewood, such as in Arbajahan and Buna, as well as an increased amount of waste. Increasing numbers of livestock using the water points also caused degradation of pasture around the town (see below). In Biyamathow and Qarsa, residents thought the increase in settlements and livestock visiting the water point had increased the prevalence of hygiene related diseases due to the high quantities of cow and donkey dung. This was especially a problem because the boreholes were located in the centre of town. Residents and water point operators said they preferred if the livestock troughs were situated out of town so livestock did not need to enter the town.

There were also positive impacts of the growth in settlements, which included an increase in business and trade at some water points as more people came to buy commodities, and in Boji Garas, the development of the village including a school and dispensary.

However, water department staff explained that the mushrooming of settlements meant that it was difficult to plan water development priorities. The spread of settlements would need to be controlled in order to adequately plan water development in the county over the next five to ten years. This was an important challenge to address and would be dependent on politicians who prefer to push for settlements in order to gain political favour.

7.8 Water and pastoral range management – the pasture water balance

In Wajir, the location of new water points has been more aligned with the issue of settlements rather than considering seasonal range management and the need for protecting grazing areas. A key issue raised by residents was that water points and settlements have been placed in or close to dry season grazing areas, encouraging the overuse of these pasture reserves. For example, in Biyamathow, a number of water pans have been established that have led to the inward movement of people during the dry season, affecting the pasture availability. In Tarbaj FGD, elders discussed the problems of the water points and settlements for pasture:

Elder 1: '...it is bringing too many problems, for example, the erosion of nutrients from the land,...wiping out pasture as a result of over population, and overgrazing of the pasture land that would be used for the dry season but is finished before the next season arrives and many more.'

Elder 2: 'it's better we have a site that can be used during the drought but if everywhere is settled then there will be a huge problem in future. Making every water point a settlement is not good.'

Another issue was the overgrazing caused by high populations of livestock around permanent borehole sites. High numbers of animals, particularly around the high yielding boreholes, come to water for long periods and cause the depletion of pasture around the water point. This contributed to animal disease outbreaks due to the overcrowding of livestock, as mentioned at a number of water points, including Arbajahan, Buna, and Eldas. In areas where water discharge or yield was low, this inhibited the number of livestock coming to water. In these areas, residents said the water point had little effect on pasture availability.

The high development of boreholes in Wajir has made water available all year round, and encouraged permanent settlements. Although good for domestic water users, this has caused year-round grazing in the surrounding pastures.

To prevent the permanent year-round grazing of pasture around the borehole points, in a number of study sites there are rules that specify livestock must graze outside of the town during the wet season. This rule was reported in Arbajahan, Buna, Korondile, Khorof Harah, Adhimsajida, and Tarbaj, amongst others. Herders are not allowed to graze within or on the periphery of town. Commonly, herders must move 10km out of town to graze, saving the grazing areas closer to town for the dry season when animals are weak and cannot travel far.

A similar rule governs the use of water, and specifies that livestock must finish the natural ponds and pans before any other water point is opened, as reported in Biyamathow and Korondile. In cases, the same rule also applies for domestic water. Boreholes and some pans are closed during the wet season if there is available water elsewhere, to save these for dry season use. Despite these rules, community members explained how customary rules for rangeland management are not very well defined in Wajir, without areas clearly specified for settlement or for grazing or for moving between grazing areas. As an elder in Tarbaj FGD explained:

'There are no such laws in Tarbaj, no stringent method to govern that during the rainy season certain land will not be used, or that certain land is closed for the drought season. There are no such rules, everyone settles or grazes anywhere they wish. We believe that if such rules were established and implemented them such steps will make a breakthrough, and it will be a kind of mitigation for this global warming and conflicts that erupt sometimes.'

In Khorof Harah, FGD participants agreed with this and said there are no defined rules governing the rangelands because of the ongoing proliferation of settlements. Politically-driven settlements had disrupted rangeland management and livestock mobility patterns. It was now difficult to move between grazing areas and people reported grazing within their locality. Moreover, the seasonal movement of livestock between wet and dry season grazing areas had become increasingly less defined within Wajir. During drought, pastoralists across sites in Wajir, reported migrating to a neighbouring county, such as Marsabit and Isiolo, or across the border into Ethiopia or Somalia.

Besides the proliferation of settlements, the lack of consideration in the siting of water points in relation to grazing pastures and livestock mobility, was thought to occur because of weak coordination between the county water and livestock departments, as well as weak consultation with pastoralists.

Camels walking to the grazing area after taking water

8. Conclusion

In the pastoral drylands, the emphasis on water development infrastructure has occurred at the expense of good water governance, including 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 development is not just about effective technical solutions and financial investments, but also good governance. In the drylands, water governance requires a strengthened capacity of state and local institutions to understand and implement water and rangeland management. Good water governance occurs when rules and institutions are transparent, inclusive and equitable. This will lead to a more efficient, effective and accountable water sector. Good water governance is also an effective conflict management strategy.

Under the new Kenya Water Act 2016 and the Constitution of Kenya 2010, counties are now responsible for the provision of water services in rural areas. Devolution and the decentralisation of water services have brought benefits, including the establishment of new water projects and facilities, and service delivery closer to the local level. However, it has also increased the number of actors involved in water governance, such as the recently formed WAJWASCO, and created some confusion due to overlapping roles and responsibilities across levels. The county water department, WAJWASCO, and WUAs, all share responsibility for providing safe, clean water and water supply services to water users. All also share technical, management and financial capacity gaps that challenge the sustainability of their operations.

Furthermore, livestock needs for water have been neglected and presumed to fall within those provisions made for domestic water. This is due to a lack of consideration of the needs for livestock water use in draft water policy, weak collaboration between the county livestock and water departments, and a poor system of community consultation in decision-making. In dryland counties such as Wajir, this is surprising since livestock make-up the principle local livelihood. However, this neglect can be viewed as part of a broader long-standing political rhetoric which sees pastoralism as unproductive, uneconomic and outdated, and in need of replacing with cultivation, and in the case of Wajir, irrigated agriculture.

In the pastoral drylands, water development can promote resilience or it can undermine resilience, depending on how it is applied. There needs to be a more coordinated approach to water development in the drylands, with greater collaboration between the county water, livestock, and other relevant sector departments, and among all the institutions involved in the governance of water. Project interventions should also be decided in consultation with local communities and take account of the local context, community priorities and knowledge, and customary governance institutions.

The following section gives a number of evidence-based policy and practical recommendations to improve water governance and development practices that support more sustainable rangeland management in the drylands. It is hoped that the findings and recommendations of this study can be used to inform the effectiveness of rural water supply for both domestic and livestock use and support more resilient pastoral livelihoods in Wajir County.

9. Recommendations

The following policy and practical recommendations are identified as measures to be addressed in the ongoing development of Wajir's County water 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.

- Strengthen water governance beyond the current focus on water development. This should clearly define the roles and responsibilities of the different institutions involved in the water sector.
- Develop stronger coordination between the different institutions in the water sector to avoid repetition and conflict, and to maximise efficiency. This includes between; national and county governments, county livestock and water departments, WAJWASCO and WUAs, as well as all water sector actors.
- Devolve O&M to the subcounty level to provide faster and more-effective service delivery. Strengthen subcounty level resources and structures so each subcounty has a small team of well-equipped and trained staff, and subcounty water officers are based in their subcounties.
- Support greater institutional strengthening of WAJWASCO by reviewing their structures, policies and functions. This includes incorporating social accountability measures, providing more consultation and feedback to water users; more transparent use of water fees; and greater community representation on the WAJWASCO board.
- Outline the structure and functions of WUAs in county water legislation and ensure these regulations are implemented. This should include regulations to ensure the participation of all social groups on WUA committees and more transparent financial management systems.
- WUA committees should follow transparent selection processes, with all community members invited to attend, as well as subcounty water officers, and other water sector actors. Communities should also be sensitised on their needs for equitable and inclusive community-manged water points and be made aware that they can hold their WUA committees to account.
- Enhance the supervision and monitoring of WUAs by subcounty water officers through setting up communication channels and monitoring performance and accounts. Establish a performance framework linked to incentives to encourage more accountable and successful management practices by WUAs.
- Create a system of community engagement and feedback to strengthen community voice and participation in water development. Ensure there are more inclusive public participation processes before projects are initiated, involving both men and women in the community.
- Harmonise water tariffs across water points and management systems to avoid conflict.
- Ensure water point pump systems are robust with a sustainable spare-parts chain, easily sourced and maintained by local operators.

- Explore private sector operation models for more professional management and repair of water points, through partnerships with WAJWASCO or WUAs.
- Support enhanced technical, management and financial training for all water actors including the water department, subcounty water officers, WAJWASCO, and WUAs.
- Differentiate the needs of domestic and livestock use in the development of water points to avoid the overgrazing of pastures. This includes, considering the differential needs in terms of the positioning of water points, the supporting infrastructure, and rules that govern the schedule and number of users.
- Align the establishment and distribution of water points more strategically with pastoral range management. This should consider the placement of water points with respect to wet and dry season grazing areas, the spacing between neighbouring water points, and the discharge rates of water points that determine the concentration of livestock on the rangelands. Existing water infrastructure should be rehabilitated where possible.
- Limit the mushrooming of new settlement areas to avoid extra stress on grazing areas. Settlements should be planned according to local domestic and livestock priorities for water development rather than being politically-driven and disruptive to rangeland management.
- Strengthen traditional conflict resolution mechanisms to ensure peaceful access to water, and ensure they are incorporated in the management and governance of water points.

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Annex

Summary of the Wajir Community Radio broadcast on the water study

The Wajir Community Radio broadcast a talk show to share findings of the Wajir water study on Sunday 5th May at 6pm. Halima Kahiya, the presenter, hosted the County Chief Officer (CCO) for Water, Yussuf Dayib, and both discussed the key findings from the study and invited listeners to phone in and ask questions. The show ended 13 minutes behind schedule at 7:13pm because there were many callers. Twelve callers were given time to ask questions or give their comments to the CCO.

One of the first issues raised by the presenter was that the community directly call the CCO when there is a breakdown or problem with a water point, rather than the subcounty water officers who are responsible for water in the subcounties. The CCO responded that this happened because the subcounty officers do not have offices at the subcounty level, but he would soon operationalize the subcounty water offices.

The CCO also thought that having the subcounty water officers based in the subcounties would prevent the operation and maintenance (O&M) staff from the water department, overcharging the community for repairs. This was a key issue brought up by callers. One caller commented that the public have to pay the allowances of water department staff when a borehole breaks down, but asked shouldn't this be paid by the water department? The CCO clarified that the water department pay for the spare parts, but the staff allowances should be funded by the water users associations (WUAs), using the revenue they collect from water fees. The CCO thought that if the subcounty water officers were operationalized, they would be able to oversee the management of the WUAs and ensure the water revenues are deposited into a bank account. One caller, a member of a WUA in Lagboqol, said that his WUA pays for the spare parts, and the water department just provides the technical expertise. The CCO said he would try and address this so that the water department paid for the spare parts.

The presenter asked the CCO for clarity on the mandate of WAJWASCO. The CCO replied that WAJWASCO are responsible for managing and maintaining boreholes, although they only managed 20 of the 277 boreholes in Wajir. The CCO explained how WAJWASCO suffered from a number of challenges, including a lack of trained staff and problems in their O&M. One caller asked why was the department employing incompetent staff, and were they going to be replaced with more experienced staff? The CCO said training and capacity building was a key recommendation highlighted in the study.

The CCO clarified that instead of WAJWASCO, most boreholes are still managed by the WUAs. There were also challenges with their management, such as many WUA committees being based on clans. The CCO thought that once the subcounty water officers were in place, they can partner with the WUAs for more transparent revenue collection and better operation of boreholes.

The presenter asked the CCO about the system of water charging for domestic and livestock use. The CCO said the department have recently built water kiosks for domestic use, and piped water for some households where people are charged through meters. Livestock are counted per head (between 15-20 Ksh), but using metered troughs for livestock was a challenge.

The CCO explained the current drought conditions were making it difficult for people to access water and pasture. Although it

should now be the rainy season, the county have been relying on water trucking to many areas since January due to a shortage of rain. The CCO explained how the county does not have a good system of using wet and dry season grazing areas to support pasture, such as they do in Isiolo, and the county government should come up with better policies to guide this.

Another caller complained that they were being charged for water from water trucking when they know the water is supposed to be free. The CCO replied that the water department don't sell during water trucking, but it might be the private kiosks doing that, and he would follow up on the issue.

The CCO said that instead of drilling new boreholes, the water department are installing more piping in some areas, such as Diff and Awsmudule. The CCO also spoke of plans for piping water to Wajir town in response to the water shortage and shallow wells drying up. This was to use funds from the World Bank otherwise they would look elsewhere. Callers agreed that the drilling of new boreholes should stop, as it is leading to pasture reduction, and instead there should be more water piping to areas. Other callers made the point that there are so many dams in Wajir that need desilting as they do not retain water for long e.g. in Harakoba. The CCO responded that they will do more desilting of dams and also divert running water to the dams. One caller asked the CCO for the water department to fence dams.

Many callers complained about the lack of permanent water in their areas which caused much hardship, and in Barmish, Wajir West, great thirst. In the case of Barmish, the CCO replied that a new borehole will be opening soon to provide water there. Some callers said they regularly suffered from water rationing, such as in Lafaley, which although only a few kms from Wajir Town, might be without water for days. The CCO replied this was due to a high-power bill, which he would try and offset.

Callers in other areas complained the water is too salty for human consumption, such as in Tarbaj and Elyunis. The CCO replied that the water department were trying to replace the metal pipes with plastic pipes to prevent them spoiling due to salty water.

One caller from Tarbaj town appreciated the efforts of the government for piping water from Sarman to Tarbaj, as they no longer had a problem in getting with water. The CCO warned that the problem now is people destroying the piping system in towns along the piping route where water is not easily available. To overcome this problem, the water department are trying to provide water to the people in these areas.

The CCO was positive on the water study and appreciated the findings. He promised to implement the study recommendations and overcome the challenges raised. He said his offices were available to the public seven days a week in case any assistance is required.