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RESEARCH ARTICLE

Scarcity, structures and scoundrels: water-related conflicts in northern Kenya

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ABSTRACT

Climate is often blamed for water-related conflicts in Isiolo County, Kenya. Using a qualitative approach we examine hotspot areas, to understand the relationships between climate, conflict and the political and institutional conditions that lead to scarcity and conflict. We conclude that amidst aridity, equitable resource-sharing can and does occur, mediated through formal and informal institutions. However, there is a tendency for water access to become politicized and commoditized, even corrupting the institutions that ought to govern equitable access, which often leads to conflict. This occurs in a wider context of state-led, foreign-funded expropriations of land for capitalist development.

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Introduction

'Water conflict leaves 5 dead in Isiolo' reads a headline from a national newspaper in May 2021, describing how heavily armed livestock herders from Somali and Borana ethnic groups clashed at a watering point in Kinna in Isiolo County. Despite the headline, a local politician claimed that the conflict was actually not about water and pasture at all, but purely territorial, alleging that the Somali groups, facilitated by political leaders, want to evict locals from their pastures and homesteads and extend their territory.

Water is the secondmost precious natural resource on earth after air (Angelakis et al., 2021) and adequate supplies are essential for growth, poverty eradication, environmental prosperity, development, peace and security (Saghir, 2018). Its scarcity, broadly defined as the lack of freshwater resources to meet water demand (Tzanakakis et al., 2020) and influenced by both physical and economic or political factors (UN Water, 2024), is manifested in food insecurity, economic deterioration, elevated displacement and increased conflict (World Bank, 2017). In arid and semi-arid areas of sub-Saharan Africa water scarcity is common and considered to be an important factor behind social conflict and violent clashes (Almer et al., 2017; Leal Filho et al., 2022; Gichuki, 2002).

Kenya is a water-scarce country, extracting 33% of its renewable water resources. Growing demographic pressures, land-use changes, environmental degradation and the

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apparent influences of climate change have intensified water scarcity over the past two decades (Mumma et al., 2011), while the ongoing allocation for investment and development projects has added to the strain upon water resources (2030 Water Resources Group, 2015). Approximately 80–85% of Kenya's land mass is arid or semi-arid with rainfall of less than 250 or 205–600 mm/year, respectively (Republic of Kenya, 2010). However, these areas are less densely populated, home to only 35% of the population (Republic of Kenya, 2010), of whom most are pastoralists relying upon seasonal mobility of livestock herds as a key survival strategy. The combination of aridity together with population movements leading to water scarcity in receiving areas has often been considered an important mechanism leading to intercommunal conflicts in these areas (Scheffran et al., 2019). However, a growing body of work emphasizes the importance of political, institutional and governance factors in water-related conflicts in Kenya (Agade et al., 2022; Geiger, 2006; Gichuki, 2002; Kiteme, 2020; Marks & Davis, 2012; Straight, 2009; Seter et al., 2018).

Using a qualitative approach and examining hotspots of conflict we contribute to a growing understanding of the relationships between climate, scarcity, conflict and political and institutional conditions. We conclude that amidst aridity, equitable resource-sharing can and does occur, mediated through informal and formal institutions. However, there is a tendency for water access to become politicized and commoditized, even corrupting the institutions that ought to govern equitable access, often leading to conflict. This is occurring in a wider context of state-led, foreign-funded expropriations of land for capitalist development.

We revisit the well-known discourse on the relationship between resource scarcity and conflict in this case, with regard to water. Homer-Dixon (1994) proposed that resource scarcity was an important determinant of conflict both directly and indirectly through inducing migration and other effects, and further, that climate change would likely lead to climate conflicts in various parts of the world. However, political economists have responded strongly against the centrality of scarcity in resource-based conflict, seeing it instead as a contextual issue or a 'threat multiplier', where power, access, control and struggle are more important (Le Billon & Duffy, 2018; Floyd, 2008; Hartmann, 1998; Peluso & Watts, 2001). Different definitions of scarcity, whether absolute or relative, and inclusion of political causes of scarcity led to revisions to Homer-Dixon's (2010) theory. More recently, an article by Mach et al. (2019) compiled the opinions of leading experts in the field on the question of climate change and armed conflict. It concluded that climate change is less important than intergroup inequality, low state capability, low socioeconomic development and recent conflict, but that a worsening of climate change could greatly increase its importance as a contributor to armed conflict.

In arid and semi-arid grassland areas of East Africa, conflicts between pastoralist groups frequently focus around access to pasture and water resources, and also cattle raids. Both quantitative and qualitative studies have been devoted to the links between climatic conditions, resources, political conditions and conflict. Ide et al. (2014) consider the climate–conflict link to be important only in select areas, those with high exposure and vulnerability to climate change, together with high general conflict risk. Witsenburg and Adano (2009) conclude that amongst pastoralists there are conflicts that are driven by drought while others, such as raiding, are not (given that they actually happen once the rain starts). Raleigh and Kniveton (2012) note that both dry and wet conditions could

lead to conflict or peace, dependent on how extreme the conditions are and upon motivations of either survival or greed, which are locally determined. Van Baalen and Mobjörk's (2017, p. 551) systematic review reveals four main mechanisms by which climate can relate to conflict, that is: by worsening livelihood conditions, by increased migration and changes in pastoral mobility patterns, by inducing certain tactical considerations by armed groups, and lastly by elite exploitation of local grievances.

Water scarcity is a relative concept, incorporating physical dimensions such as aridity, variability in precipitation and water bodies above- and belowground, together with the various economic, political and governance dimensions that determine distribution, supply and access to water (Damkjaer & Taylor, 2017). While we have good general data on rainfall patterns for the region of eastern Africa that is the focus of this paper (Nicholson, 2017; Palmer et al., 2023), Scheffran et al. (2019) note that water scarcity conflicts in river basins depend on local socioeconomic variables and specific management practices. Water sharing may be complex and geographically spread out and in the case of rivers, the relationship between the groups may be asymmetrical, where upstream users are at an advantage and have less to gain from cooperation with other users (Haftendorn, 2000). Thus water sharing is necessarily highly institutionalized. However, water governance is failing many people in many parts of the world, and has long been considered largely to blame for the lack of equitable access to reliable water supplies and sanitation, rather than physical scarcity (UNDP, 2007). Where issues of climate change are suggested as contributing to aridity, these and other 'multiple entanglements' contribute to a complex political economy of water management, as has been highlighted in a recent special issue of *Water International* (Ineke et al., 2025). In a recent quantitative study of intrastate/non-state water conflicts versus non-water conflicts in Africa by Konečná (2025), water scarcity alone was identified as insufficient to explain water conflicts, and other factors such as high agricultural dependency (she comments that irrigation is an important trigger) and socioeconomic inequalities and inadequate water infrastructure are important predictors. She comments that water-scarce countries like Namibia and Botswana have low levels of water conflict due to better institutions for water governance and conflict resolution, fewer ethnic divisions and greater political stability.

Similarly, one issue frequently highlighted in resource scarcity discussions is the role of institutions, at all levels from indigenous to national and regional in resource governance and conflict mitigation (Buhaug et al., 2008; Witsenburg & Roba, 2007). In Southern Africa, despite predictions during the 1990s that certain river basins would likely see water wars, many studies subsequently revealed that cooperation predominated at both inter- and intrastate levels, and that water scarcity tended to drive cooperation, although sometimes leading to not very equitable agreements for non-dominant states (Swatuk, 2015). Our work, however, focuses on the intra-state level and the institutions that govern water at this level. Ostrom (1990), in her foundational work 'Governing the Commons', argued that local institutions for common-pool resource governance can and do work subject to certain conditions. Indeed historically, in many societies, institutions in general have been strongly oriented towards a 'we' (pluralistic) rationality characterized by reciprocity and redistribution (Vatn, 2008). Therefore, while formal structures for water governance are necessary and inevitable,

the informal structures may often be more useful and responsive in conflict resolution (Linke et al., 2015).

One of the factors driving water scarcity, but also an independent driver of conflict, is a boom in extraction and related mega-infrastructure developments in rural areas, driven by the need of industrialized nations to secure supplies of Africa's mineral resources (Enns & Bersaglio, 2020). This has come at the same time as agricultural land-use changes and green grabbing for carbon offsetting projects severely threaten land and other common resources. The perception of 'abundance' (Enns et al., 2023) at resource frontiers followed by the commodification and enclosure of land and land-based resources and the resulting dispossessions and inequalities that often fall along ethnic lines can also drive conflict (Greiner, 2012; Mkutu et al., 2021). Such trends are apparent in many other parts of Africa, notably in South Africa (Patrick, 2020).

Materials and methods

Fieldwork was conducted from February 2021 to July 2021 across six of ten Isiolo wards, and events have been informally followed up since then. The study took a qualitative approach, considered most appropriate to unearth details on conflict issues, which is a sensitive topic, requiring a process of building rapport. Hotspots of water-related conflict were purposively sampled after desk and archival research (particularly district annual reports from the early colonial era to date) and a key-informant interview with a national administrator at the local level: the County Commissioner, because of his key role as head of the county security committees and membership in the County Steering Group. This group brings together all civil society organizations in the county, many of which are implementing agencies for the government and civil society Water, Sanitation and Hygiene (WASH) project. The hotspots were chosen to represent a wide range of different contexts from semi-rural to remote rural areas with a particular focus on water developments. Again, purposive sampling and snowballing were used to find respondents concerned with water governance and water projects. A total of 41 interviews were conducted in Isiolo County with administrators, officials, civil society officers, members of the Borana Council of Elders and a wide variety of local residents often selected simply by visiting water points. Four focus group discussions were also conducted with both male and female community members of various ages selected with the help of chiefs, elders or local contacts (two of the authors have conducted other research in the county), and often included members of Water Resource Users Authorities, which are the local tier of formal water governance in Kenya. Focus group discussions were in Swahili and translated into the Borana language by a local translator. Being often opportunistic, interviews were highly variable in length from minutes to hours and were relatively unstructured, focusing on questions about water-related conflicts and their drivers. A few respondents were compensated for travel costs where they were brought from insecure areas, while all were provided with drinks. Processual informed consent was obtained through means of verbal explanation; the topic was not all that sensitive and special ethical consideration was not required.

The main questions explored first the dynamics and drivers of conflict at water sources or water developments and second, the effectiveness of mechanisms for water sharing, both informal and formal. Certain key informants were probed in more detail about

specific water governance institutions, their roles and challenges. In addition to empirical findings, the work also draws upon secondary sources such as archival data, policy and non-governmental organization (NGO) reports.

Isiolo County

Isiolo County (see Figure 1) is located in the geographical centre of Kenya, though considered to be part of the northern drylands. Its climate varies between semi-arid in south-western parts at the foothills of Mount Kenya to arid and very arid in the north-eastern parts bordering Wajir and Marsabit counties (see Figure 2). Eighty per cent of the county land is unsuitable for agriculture (Acacia Water, n.d.),[1] making pastoralism the main livelihood strategy. The population was 268,000 in 2019 from 143,000 10 years previously, an annual growth rate of 6.5% which is massive in comparison to the national growth rate of 2.2% (Kenya National Bureau of Statistics, 2009, 2019) and may represent migration, as will be described. Borana, Somali, Samburu and Turkana pastoralists occupy most of the county with some settled Meru agriculturalists around Isiolo town and near the border with Meru County (Mkutu et al., 2021). The county also hosts migrating pastoralists from neighbouring counties who are increasingly taking up semi-permanent residence. Isiolo is a conflict-prone area with a history of resource-based conflict between pastoralist groups that has strong ethnopolitical dimensions. The recent devolution of many powers to county governments in 2013 and the proliferation of megaprojects have raised the stakes for ethnopolitical control of resources and territory,

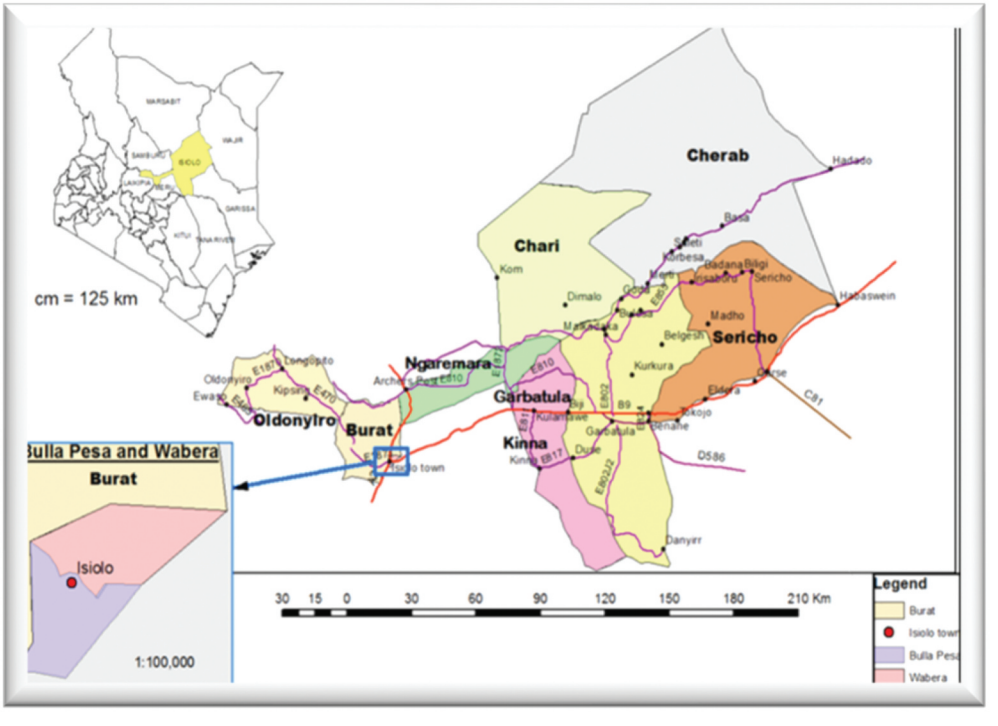

Figure 1. Wards in Isiolo County.

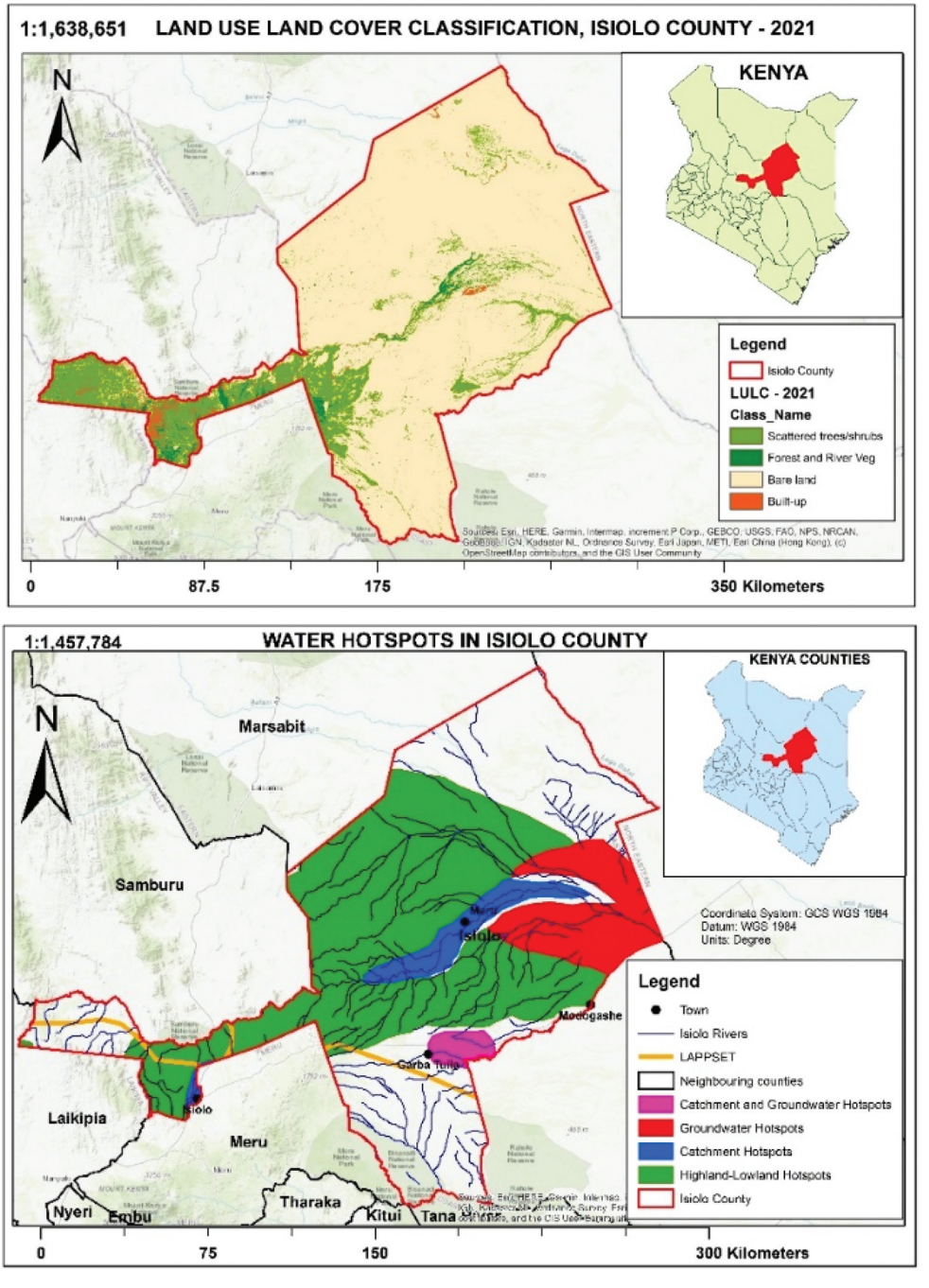

Figure 2. Isiolo County water scarcity hotspots, water sources and land cover. Source: Mkutu et al. (2022) sourced from LandSAT images from the United States Geological Survey website.

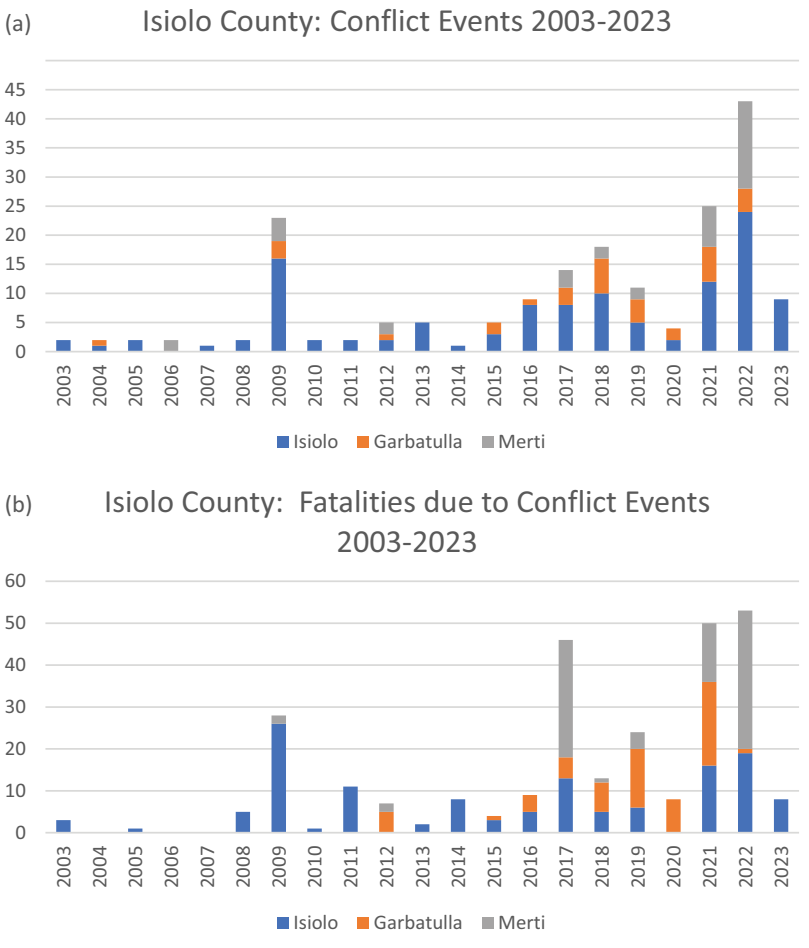

Figure 3. Isiolo County (a) conflict events and (b) fatalities due to conflict events, 2003–2023.

helping to fuel these conflicts (Elliott, 2016; Mkutu et al., 2021). Figure 3(a,b) show conflict events in Isiolo county in a 20-year period as documented by the ACLED project (see Raleigh et al., 2010). While spikes in Isiolo subcounty have often been politically driven, albeit often expressed in intercommunal conflicts, those in the more remote Garbatulla and Merti subcounties are usually related to natural resources and are also under-reported to the media (and therefore under-represented in the figures).

The Ewaso Nyiro river, whose source and supply are the Nyandarua mountains and Mount Kenya in central Kenya, is a lifeline for Isiolo County. It traverses the county from west to east where it tapers out into the Lorian swamp. Despite being semi-arid, the county is also prone to floods and the Ewaso Nyiro floodplain is important for replenishing grassland for pastoralists. Since the subdivision of former settlers' ranches in the colonial 'White Highlands', the upper Ewaso Nyiro has become highly populated and water resources are heavily exploited through horticulture and high numbers of small-scale farms (Kiteme, 2020, Kiteme & Gikonyo, 2002). Dwindling flow is confirmed by records of the flow passing Archers Post. Respondents reported that rivers that were

known to be permanent in the 1990s have now dried up,[2] which they believed to be a result of both climate change and human activity. Regarding the question of climate change, the World Bank Climate Knowledge Portal shows an increase in temperature but no significant change in seasonal rainfall figures in Kenya over the past 120 years and increases in upstream abstraction are confirmed as noted. The county also has conservation areas such as Bisanadi, Shaba and Buffalo national reserves and Meru National Park, which bar access to pastoralists and their livestock, while several community conservancies generally allow grazing access with some restrictions (Mkutu & Boru, 2019).

The county has various water developments; traditional sources such as water pans, dams and shallow wells (which may be up to 18 feet deep) remain vital but often dry up in the dry season. There are around 140 boreholes, both old colonial-era and newer boreholes dug by government and civil society. Several are salty and suitable only for animals (Acacia Water, n.d.) and desalination is rare. Boreholes are accompanied by pumps, either diesel or solar. They serve huge numbers of animals, as many as 3000 heads of cattle, camels, sheep or goats on a daily basis (Isiolo County Government, n.d.). Water scarcity 'hotspots' are identified by the Centre for Training and Integrated Research in ASAL Development (CETRAD, 2020) (see Figure 2) and show that upstream–downstream dynamics are a cause of scarcity in a very large part of the county.

The county finds itself at the centre of development plans under Kenya's Vision 2030. These include the planned road, rail and oil pipeline known as the LAPSSET (Lamu Port–South Sudan–Ethiopia Transport) corridor, which passes through Archers Post town west and south-west as far as Garbatulla ward and into Garissa County. There is also the rehabilitated Isiolo–Moyale road, the Isiolo–Mandera road rehabilitation in progress (see Figure 1), the Isiolo airport and other planned developments including a controversial dam project north-west of the Isiolo town (Isiolo County Government, 2018), which may reduce downstream water levels to less than half even after impoundment is complete (Vilela & Bruner, 2017).

Water development and water governance in Kenya

A brief historical perspective is helpful to understand current stark disparities in water infrastructure and different tiers of water governance. Water development has moved from mainly shallow wells and dams in the pre-colonial era, to pipelines and dams serving British settler communities and urban areas of the colony, and later to boreholes and irrigation schemes instituted mostly in the years following the Second World War, when the British colonial government mounted schemes aimed to develop water resources in Kenya's northern territories (Kenya Ministry of Agriculture, 1955, 1962). After independence, in 1963, this state-led effort was continued, but increasingly with the assistance of NGOs and donor governments (Nyanchaga, 2016). At the same time, water governance also evolved and indigenous water stewardship became overlaid, but not replaced by state control (Anderson, 2002). By the 1990s, the emphasis shifted towards local-level initiatives (Conca, 2006; Ostrom, 1990) supported by the United Nations Millennium Development Goals, and subsequently the Sustainable Development Goals (Cleaver, 2012). The Water Acts of 2002 and 2016 created Water Resource Users Associations at the subcatchment level for participatory management of water resources. A Water Resources Authority at the national level formulates and enforces standards,

procedures and regulations while Basin Water Resources Committees advise the Water Resources Authority on management of five major basins (Lake Victoria, Rift Valley, Athi river, Tana river and Ewaso Nyiro river). While participatory management has shown great promise (Kiteme & Gikonyo, 2002) there are also many challenges (Kanda et al., 2013) including capacity, financial constraints, poor management, corruption and elite capture (Richards & Syallow, 2018). This national history of water management is important in enabling us to better understand the uneven development of water resources across the country, the northern territories being particularly neglected since the 1960s, while it also accounts for the complex and sometimes contradictory layering of local and national management structures (Anderson, 2002; Nyanchaga, 2016).

Results

The following subsections consider various dimensions of water-sharing and water-related conflicts across Isiolo County.

Water resources governance

All pastoralist groups have established effective practices for sharing water points and rangeland resources under the leadership of elders.[3] These are still used but are overlaid by modern institutions, and are strained by some modern conditions. The *Deedha* system is one such example of Borana indigenous natural resource management that remains useful, albeit with challenges. The *Deedha* system under the Borana Council of Elders has traditionally assisted to govern the management of the Borana ancestral rangeland resources (the larger eastern part of the county) including water sources such as springs, shallow wells and dams. Cormack (2016) explains how the system was weakened by the state marginalization of pastoralist interests and systems and revived, somewhat modified, with NGO support in 2008. There are now 14 *Deedha* in Isiolo County, having elders and water managers known as *Abairegas* who authorize the use of strategic boreholes during the dry seasons, schedule water use and enforce regulations and access rights. Orphans, widows and the elderly are given priority, and sheep and goats are given first priority over cows and camels which require more water.[4] A local missionary said '*Deedha* is working half–half', having being diluted by the many NGOs 'who have come with their ideas'. Sometimes these ideas are insufficiently discussed with communities, leading to problems such as siting a borehole in a place far from the pasture, making it more difficult to bring animals to drink, or failure to consider beforehand how to avoid settlement around boreholes which leads to pasture degradation.[5]

Modern public administration and elites have also challenged the authority and effectiveness of the *Deedha*. The system has been incorporated into the Isiolo (County) Rangeland Management Bill, which has stalled for several years, the main criticism being that it has failed to represent all ethnic groups.[6] Likewise, Borana pastoralists note that non-Borana pastoralists often object to *Deedha* rules, particularly during times of drought, and that conflict may result. As would be expected, other ethnic groups such as the Somali and Turkana have their own grazing and water governance systems (Helland, 1980). A Turkana respondent noted, '[Water] was managed by elders (. . .) if

the pipe was broken the elders would sell their animals, contribute and repair (…) During their time it was well governed.'[7]

In terms of high-level regulation and coordination, the Water Resources Authority in partnership with an NGO (CETRAD) have placed gauging stations along the tributaries of the Ewaso Nyiro to monitor and regulate upstream water abstraction.[8] However, a staff member at CETRAD explained how the technological solution alone was ineffective because of corrupt officials and powerful individuals (by way of explanation, tomatoes and onions are present in every Kenyan meal, and therefore highly lucrative).

> These are the people farming tomatoes and onions. If you try to enforce, they are well connected and they know the Water Resources Authority officials and get inside warning before you catch them.[9]

The Water Resources Authority also monitors groundwater abstraction through regulation and metering of boreholes and often fines individuals found with illegal ones.[10] Another technological solution supported by NGOs is the remote sensing of borehole functionality to ensure repairs are done. Interestingly, however, many people are rather suspicious of these sensors, fearing that they are monitoring flows,[11] and that they will at some point be restricted or charged for what they see as their God-given right to free water.[12]

Water Resource Users Associations exist in various parts of Isiolo at the subcatchment level, and smaller committees exist to manage individual boreholes and other sources. However, they are often undermined by powerful figures, as a resident pointed out.

> When a governor can stand as say 'From today you will not pay for water, it's a free gift' so nobody would want to respect Water Resource Users Associations (…) Then another comes and says 'I hear these people are preventing you from accessing river water, if you elect me I will scrap it off.'[13]

Borehole committees often charge a membership fee to locals and operate a 'pay as you go' arrangement for outsiders. In all the areas visited, borehole committees are troubled by challenges of non-payment of membership fees and resulting difficulties in maintaining equipment.[14] On the other hand, there are frequent complaints from community members of unprofessional and sometimes corrupt management practices such as lack of accountability with funds, evidence of embezzlement, failure to hold elections or leave office, nepotism and politicization in water distribution. One committee in Ngaremara was allegedly channelling the community's water to construction sites where they could charge high rates. One way in which community members protest these injustices is vandalism; as noted 'Sometimes [the locals] even break the pipes just to punish the committee if they don't agree.'[15] However, at other times, instead of grievances, mercenary motivations predominate, such as in the theft of solar panels for powering borehole pumps.[16]

At the Bibimoliti borehole near Duse town in Kinna ward the borehole management committee is loathed by the locals for its corruption, lack of transparency and poor maintenance. At the time of the fieldwork the committee was accused of making high profits by regularly charging for more diesel than they were actually putting in the pump.[17] For this reason, solar panels, often installed by NGOs, are unpopular with local water management committees because they disrupt this opportunity for profiteering which surrounds the buying and charging for

diesel.[18] The Bibimoliti pump is now using solar power, although the first donation of panels by an NGO were stolen. The location between Kinna north and Duse also predisposes the borehole to ownership disputes between different Borana clans. There are allegations of nepotism in water distribution and the committee is dominated by one clan whose members try to retain their hold on power even through thuggish behaviour such as physical assaults.[19] Even the member of the County Assembly, the ward administrator and the chairperson of the water committee who are all from that same clan, are said to be supporting the current members.[20] Nepotism together with political influence is an important problem in Garbatulla too,[21] while in Dadacha Lafe, Cherab ward it was alleged that the chief, in collusion with other members, pockets about Ksh 120,000 (USD 1200) monthly.[22] Therefore, poor management, corruption, elite capture and ethnic politicization are almost universal problems of local water governance institutions.

Water developments as a focus of conflict

The Livestock Marketing Division land in Burat Ward, as it is popularly known, was a holding ground for livestock during the colonial era and has since been rather neglected and settled by various pastoralist groups who negotiate and conflict over resources. In an area called Mlango (gate), Turkana migrate in from the east and Samburu from the west during the dry periods where they conflict over water and pasture.[23] But conflict is not simply about resource sharing,[24] as the following quotes explain.

> Sometimes these drinking points become triggers for intercommunity conflicts the moment they converge at such places (. . .) so they become conflict hotspots.[25]

> [The Somali groups] claim that the Samburu are clearing the pasture, so their animals have nothing left as the vegetation has been cleared. The other problem is that the Samburu steal from other communities (. . .). Once you give them access to drink water and graze here for some time until the rains come, when they will be leaving, (. . .) they must steal from the community that hosts them, so it brings conflict. That is the biggest challenge why people do not like the Samburu.[26]

When Somali groups refused access to the Samburu, the Samburu vandalized the fence at a borehole known as Biliqo.[27] However, an inclusive system for water governance had just begun at the time of fieldwork.[28] Six Samburu youths had been elected to serve on the water management committee. A chief explained that it was working well:

> We have divided the two troughs. The Samburu drink in the morning and the Somali drink in the afternoon (. . .). Also, one trough is for the Somali and on the other side, there is a trough for the Samburu community. So, with that arrangement, there are no conflicts now. The cows like to drink very early in the morning and camels and goats, drink in the afternoon hours. We will keep this schedule until the rains come (. . .) So, the morans are from both sides and they work closely with those operating the borehole.[29]

Therefore, in this case a borehole became both a source of conflict, a site of opportunistic crime but also an opportunity for cooperation, illustrating that conflict is not an inevitable characteristic of water sharing in a water-scarce context.

Development projects and water-related conflicts

Ngaremara ward is the narrow section of Isiolo (see Figure 1) between the smaller western part of the county and the larger eastern part. It is cosmopolitan and conflict prone, and wild animals such as elephants also compete with humans for water sources and land. Since LAPSSET and the road rehabilitation projects were announced the ward has been experiencing rampant speculation, disputed land claims, land-use change, and creation of new boreholes (Mkutu et al., 2021), for which the Water Resources Authority has supposedly issued permits.

On the Meru–Isiolo border, there is a longstanding boundary dispute dating from the colonial era (Isiolo County Assembly, 2017) that features in discourses between officials and politicians and plays out at the local level in severe intercommunal conflict, vandalism, looting and livestock raids (Ngige & Abdi, 2015). The situation is exacerbated by development plans and the political interests of county governments since their creation in 2013 (Ngige & Abdi, 2015). Meru County government subsequently began to decisively administer the disputed areas, introducing small-scale development projects, titling the land and providing boreholes.[30] Private boreholes are also on the increase following land titling and purchase in disputed areas such as Gambela, outside Isiolo town.[31] The result of all these boreholes is that groundwater sources, including springs and shallow wells, may be depleted. Nevertheless, in the absence of effective governance and the tendency towards sedenterization of pastoral communities they are bound to keep increasing; a pastoralist peace worker described his own personal development ambitions, beginning with his hopes for a title deed.

> It's a small document but very precious (. . .) In fact if I own it, my sons and daughters will not work. I will just sink a borehole and they will work in their farms (. . .) And we will be very happy . . . So in fact when the mega-projects will start (. . .), we can also embark on growing tomatoes and onions. One day I got 2.8 million Kenya Shillings ($ US 28,000) from onions . . . only in four acres of land. As a pastoralist, I will not look after livestock now, I'm not ready because it is hardship.[32]

However, as noted, the increase in irrigation agriculture is causing severe hardships for other users as a Borana farmer in Gambela explained:

> Down here we can't even get water for our farms, yet we depend on water from a spring not far from here. So the water has been diverted to farms in Tigania (Meru). There is a natural river up there but for the last 22 years now we have been suffering, that is when they started doing intense farming and the river stopped flowing downstream.[33]

Similarly, a local administrator commented:

> We are killing the future. In 1990s there were two rivers, Gambela and Ngaremara, they were all flowing (. . .) The place is all dry now. Why?[34]

In this area, again it is corruption in governance which is fuelling conflict; at one borehole the committee members have overstayed their terms, and try to control the water and schedule to whom they choose. Members of the community break water pipes in protest. It is also likely that the committee members are motivated by the anticipated opportunities of development which will make commodified water sources more lucrative.

Further west, Kinna ward is experiencing the same challenges following heavy upstream abstraction from the Bisanadi river, affecting downstream flows for both pastoralists and farmers at the Rapsu Irrigation Scheme, a 200-acre project by the National Irrigation Authority. The situation was severe but has been greatly improved by the formation of an inclusive Water Resource Users Association.

> There was an outcry to the county and national government from communities in Rapsu and Kinna. As a result, some organizations (NGOs) and various governmental departments came together and formed the Water Resource Users Association (. . .). They even visited that area and saw that water there is being misused and that is why community members from Kinna, Rapsu and Igembe formed their Water Resource Users Associations so that they can work together. Of late, from what we hear from Rapsu, there has been an improvement as the people there are getting adequate water for their farms.[35]

In Kinna and Garbatulla wards, pasture and water-resource conflicts between pastoralists from Borana and Abudwak Somali groups are complicated by anticipated benefits of development project, such as compensation, job opportunities and boreholes. The Somali move seasonally from Garissa County but often disregard the *Deedha* and its directives, which brings severe conflict,

> Like this year we have lost 16 people due to the conflict between the Somali and Borana (. . .). Out of the 16, 14 are from Kinna ward and the other two were from Meru. That conflict escalated to the point of shutting down two schools and moving the chief and subchief offices from Eskot to Garbatulla (. . .). There is a young boy aged 15 years who got lost with 114 goats at a place called Eskot. The boy was strangled to death and the culprits took away the goats (. . .).[36]

Sometimes, the conflict goes beyond pasture and water as permanent settlements develop and territorial claims begin to emerge.[37]

> Our area has good soils and the best pasture thereby sustaining our pastoralist lifestyle (. . .) The Borana thought that we are fighting with the Somalis because of pasture but we have come to realize that they are fighting for that land (. . .). They have started making names [of towns] and they are building. They started appointing chiefs, constructing schools, and have so far built 11 towns (. . .). [The Cabinet Secretary] had put orders this year for everyone to go back to their place and their chiefs who are in this side of Isiolo (. . .), they do not want. They have settled in the area they were told to leave because their leaders are backing them (. . .).[38]

Several Borana pastoralists similarly complained that the Somali had come in to settle in order to benefit from development projects and were displacing the Borana from the same.[39] The resulting contestation is intense, with several fatalities, injuries, displacements and school closures (Mkutu et al., 2021). It is testament to the insecurity that the researchers were given armed police to accompany them to the notorious Eskot–Algesa area, around 40 km from the border with Garissa County. Both groups used to coexist there but the Somali had allegedly forced out the Borana, who went back to claim the area resulting in conflict and burning of the settlement. When the Somali moved to make another camp at Malkamagado, the Borana burned this village too, along with pastures around the Bisanadi river.

A dam called Hargesa along the Eskot road is also prone to conflicts because dams attract settlement and subsequent degradation of pasture.[40] In Karsa, an interior area

about 80 km from the border with Garissa County, the Somali have moved in with their armed militia after failed negotiations with the Borana *Deedha*.[41] At one particularly memorable place called Madojaldesa a human chain of 13 Borana men passed weighty jerricans of water (10–20 litre containers) one to another from 30 ft belowground. As they worked, it was necessary that six armed men guarded the operations from attack by Somali pastoralists. Here insecurity had deterred NGOs from water development and locals lamented that the government only came to collect bodies of people killed in the conflict.[42]

Therefore, development projects have added another layer to resource and ethnopolitical conflict with Borana fearing that they will not see the hoped-for opportunities, or resenting having to share them with in-migrating groups.

Clashes and corruption in remote rangelands

Chari is a remote and marginalized ward in the north of Isiolo that has received little in the way of government services but has some wells dug by conservation NGOs.[43] What seems to be a straightforward water conflict exists on the western edge of the ward, on the border with Samburu County, at Kom spring, a wetland area used by many pastoralists from surrounding areas including Samburu, Borana and Rendille. The area becomes very violent particularly during dry times, with the Borana claiming that the Samburu have been settling around the spring and moving further and further into Borana territory.

However, the situation is more complicated than it looks. There is a wildlife conservancy nearby whose rangers have been armed and their presence exacerbates conflict, with claims of deadly armed attacks by the Samburu against Borana communities (Mkutu, 2020). Again as in Burat ward, some said that it is the stealing of cattle by Samburu that dissuades them from sharing the pasture in the area.[44] Intercommunal conflict in other areas also leads to the displacement of pastoralists to Kom. Thus conflict is also a cause of water scarcity. Lastly, the presence of artisan gold-mining in the area may also be a factor in the Kom conflict (Mkutu, 2020).

Cherab ward is our final example in a similarly remote area. In Yamicha, around 130 km from the Wajir border, there is a strategic borehole, so named because its use is reserved for the driest times; at other times the pump is removed and stored. From 20 years ago until recently it was managed by the Rangeland Users Association (RUA), a hybrid institution led by Borana elite community members, supported by government and civil society. Through the RUA, livestock feeding in strategic reserves (during dry seasons) was paid for by external communities/non-native Borana. However, two of the RUA officials were accused of receiving kickbacks for welcoming Degodia Somali to the borehole without community consent.

> The officials in that organization are the ones who took advantage of the community and started selling water (. . .). For example, the Somali camels were not accepted by the Borana to feed in their rangeland, yet the RUA officials agreed to this and allowed the Degodia to water their camels at night. When the elders of the Borana community discovered that, they decided to sleep at the borehole overnight. (. . .) At some point, the elders wanted to change the leadership of the borehole to include the Degodia, but it never happened because the

> community felt that the RUA officials benefitted from the borehole at their expense. For example, the Somalis would pay like even 100,000 shillings to the management for water.[45]

The Degodia groups began to settle in the area, which put pressure on pasture resources, particularly because camels are more destructive to the rangeland. The RUA officials then built a school using funds from the Degodia Somali and the centre's growth was further advanced by input from the former governor of Isiolo County.[46]

> This is a strategic borehole that is supposed to be specifically used during the dry season and we would agree when it was time to open the borehole (. . .) Before there was no permanent settlement and the water was enough until the management of the RUA moved here and settled (. . .), and that is how permanent settlement began. (. . .). The Hurura School built by the RUA officials had 21 children of the Degodia and only five were children of the Borana. Due to this dynamic, the Degodia had the strength to claim the land because they had built the school and registered their children.

The Borana community demanded the 200 Degodia households to leave their settlement within 6 months, a place where they had by now lived for 11 years, and return to Wajir, as the rains had come. Grace periods of 6 months and then a month were given, but the Degodia did not move.[47] Armed conflict then erupted, lasting for a month, leading to the deaths of several people on each side and vandalism of properties.[48] During the fieldwork the researchers were able to walk around and view the burned and abandoned town.

Respondents believed that the Yamicha conflict was more about access to grazing and water than about a boundary dispute, although they also added that 'Somali wanted to expand their boundary, so they wanted everything.'[49] It was also noted that the Somali groups are armed enough to be able to force their way in, leading to an arms race with the Borana. Brokers sell arms to both sides.[50] In another borehole known as Urura 40 km away, elders and youths noted:

> The Somalis come here and start to fire bullets, some were even killed in their homestead while sleeping, two guys were killed. (. . .) They came armed, wanting to push us away so that they can take this place. However, there have been times when leaders of the Somali have met with the national government, resulting in an agreement and they got water and left peacefully, the problem has been when there is settlement.[51]

A Somali peaceworker explained that drought has decimated livestock keeping in Wajir to the point of leading many pastoralist youths to drop out of pastoralism and migrate to urban centres. He added that the new developments may in fact be the best hope they have by facilitating alternative livelihoods.[52]

Discussion

A tour of water-related conflicts in Isiolo County reveals a range from small-scale or insidious conflicts to severe and deadly clashes, involving firearms and explosives, and leading to displacements which make it even more difficult for communities to access water. It is helpful at this stage to reflect on Turton's (2000, pp. 36, 37) definition of 'water wars', which distinguishes between true conflicts over water resources, conventional conflicts in which water is a target, and conflicts that happen to be fought in and around waterways but primarily are not really about water and may be called 'quasi water wars'.

All of these are evident in the cases above on close examination, even though a superficial analysis may often suggest physical water scarcity and even climate change is to blame.

Nonetheless, physical water scarcity is undoubtedly an important contributor to water-related conflicts in Isiolo, particularly the droughts in Wajir and Garissa counties whose detailed analysis is beyond the scope of this work. While pastoralism is a mobile livelihood adapted to aridity, extremes of aridity cause increasing mobility of pastoralists and increasing desperation to secure access to water points. There is a greater convergence of different ethnic groups upon the same water points and strategic grazing areas. This having occurred, pre-existing hostilities are reignited and there is an opportunity for greed-motivated cultural practices such as raiding, which in turn dissuades other groups from peaceful water-sharing arrangements with the perpetrators.

The effectiveness of institutions in cooperation over water and in mitigating conflict is an important focus of the work. Finite resources require institutional arrangements for sharing whether informal/indigenous or formal/state led. Both are effective to a point and in their own particular contexts (local or national), and both are placed under strain in situations of increased scarcity. Sometimes one type of governance is more suitable; upstream–downstream inequalities that occur over a wide geographical area such as a river basin are less amenable to indigenous conflict resolution and state-led interventions are needed. Similarly, where different groups of users do not share similar culture or livelihoods and may resent the rules of the other group, state leadership may be required. However, the state can be partisan, corrupt or lacking in capacity; upstream water users include not only small-scale farmers, but large commercial farms and elites with economic and political muscle able to manipulate the weak Water Resources Authority institutional controls.

Similarly, Swatuk's (2015) review of water conflicts in southern Africa notes that local-level water conflicts are often solved through local conflict resolution mechanisms and out of necessity, but as the geographical scale of water conflicts increases, they tend to become complicated by broader issues of power and politics. Swatuk (2015) argues that improved governance, better participation and conflict resolution is often seen as the solution for rural water conflicts, but that different solutions may be needed at a larger scale – solutions that address unequal societal relations. However, we note that while inclusivity in local water governance can be successful in averting conflict, even at the local level, institutions are compromised by ethnopolitical interests and personal interests of elites, particularly in the capitalist frontier context. The work also observes to some degree that technical assistance is not always effective, and technological 'solutions' can miss the point, particularly failing to address the political dimensions of water scarcity. This is in line with Aggestam (2014) who, discussing water shortages in Palestinian territories, points out that while water conflict is frequently framed as a scarcity problem with a technological solution, the political component is sidelined and left unresolved.

Development projects and land-use changes bring further competition for water in an area that has traditionally been communal. Both water development and other development projects encourage settlement, often resulting in enclosure and commodification of common resources such as water and rangelands. We also see how because of development, water points become strategic gains in a territorialized intercommunal conflict, and how creation of water points has been a way of validating a territorial claim within a political conflict. Similarly in

southern Africa, rural people frequently find their access to water limited by national projects that tend to privilege national elites and private actors (Swatuk, 2015).

As concerns regarding climate change have permeated Kenyan society at all levels, conflicts over water have become both more pervasive and more intense in many rural areas (Mkutu et al., 2022). The politics of this are affected by Kenya's devolved system of government implemented since 2013. Since this time, resource conflicts of all kinds have become more prevalent, especially in the north, where water scarcity is already a key determinant for settlement and livelihoods. The character of county government has tended to emphasize ethnic claims to resources. Elaborate plans for the development of these northern territories – after many decades of neglect – have created new incentives to control and manage resources in a more effective and often a more exclusive way (Enns & Bersaglio, 2020), and this has also played into a pattern of ethnic conflict. Local communities are now more often likely to want to establish 'ownership' of resources, rather than to accept older ideas of communal access and use (Kiteme, 2020). Such changes are not yet seen everywhere, and they are far from complete, but conflicts spawned by the anxieties of communities who fear the possible worsening effects of climate change have focused in the north on water points (Adano et al., 2012; Elliott, 2016). Here, perception of a threat to resources may often be more potent than is the reality. The climate change narrative tells people that matters can only get worse: their reaction may be to seek to better secure for themselves those resources that they are able to control.

Kenya's complex mosaic of legislation and management in the water sector defies any easy solution to this problem. As we have shown, in some parts of Isiolo County communities are able to navigate these challenges using existing institutions – both local and national, both 'traditional' and modern. Yet in the water conflict 'hot-spots' such compromise has either proved unfeasible or has been rejected. There is no easy policy solution that can address this: the outcomes depend upon local authorities being able to resolve disputes without conflict. But recognizing the character and growing scale of the problem is a first step towards addressing the issues that lie behind it.

Conclusion

We conclude that physical water scarcity in pastoral areas is important, but perhaps more important is 'political' water scarcity, compounded by devolution and development, commodification of other commons resources and the undermining of institutions for commons resource-sharing. Within this context, water developments can solve conflict but also exacerbate it by enabling development on a larger scale, benefiting those who are least in need. In Kenya pastoralists have been inherently disadvantaged by historical expropriations of better-watered land for agriculture and conservation, as well as policies which promote ethnic territorialization and undermine customary land tenure. While extensive reforms in state institutions are desirable and would help enforce law and order locally, perhaps a more practical approach would be to empower locals most affected by inequitable distribution and corruption to enable them to participate more in water governance structures and to better hold corrupt leaders and greedy elites to account.

Notes

1. The project from which the factsheet was produced took place from 2015 to 2020.
2. Group interview Ward Administrator Tractor and Assistant Chief Gambela, 5 July 2021.
3. Interview local administrator of Turkana ethnicity, Bomen Hotel, Isiolo Town, 10 February 2021
4. Focus group discussion, Borana elders and male youths, Urura Borehole, Cherab Ward, 3 March 2021.
5. Interview, staff member in Catholic Peace and Justice Commission. March 2021.
6. Focus group discussion with VSF-Suisse Offices, Isiolo Town, 9 February 2021; Senior Administrator, Isiolo Municipality Offices, Isiolo Town, 9 February 2021; IWI/4, Ministry of Agriculture, Isiolo County Office, 8 February 2021.
7. Interview, officer at CARITAS, a faith-based relief organization, Isiolo Town, 1 March 2021.
8. Interview with Officer at WRA Offices, Isiolo Town, 10 February 2021; interview with research scientist, CETRAD Offices, Nanyuki Town, 5 March 2021.
9. Interview, staff member at CETRAD, Nanyuku County, 4 March, 2021.
10. Interview with Officer at WRA Offices, Isiolo Town, 10 February 2021; interview with research scientist, CETRAD Offices, Nanyuki Town, 5 March 2021.
11. Sensors monitor electrical current, thereby providing data on hours of pumping each day, not water flows per se. These are transmitted via mobile or satellite telemetry to NGOs/ government offices. See Butterworth et al. (2021), 'Near real-time borehole functionality monitoring for strengthening water supply asset management' Sustainable WASH Systems, USAID, https://www.globalwaters.org/sites/default/files/near_real-time_borehole_functioninality_final.pdf
12. Several interviews, March 2021.
13. Interview, resident of Gabra ethnicity, Gotu Ngaremara, 1 March 2021.
14. Interview with village elder of Sakuye ethnicity, Gotu Center and Water Resource Users Associations chairman, former chair of Nakuprat Gotu Conservancy, Gotu, 4 March 2021.
15. Interview, staff member of local NGO, Bomen Hotel, 1 March 2021.
16. Interview, officer at CARITAS, a faith-based relief organization, Isiolo Town, 1 March 2021.
17. Interview, local administrator, Duse Centre, 8 July 2021.
18. Interviews, March 2021.
19. Interview, peace committee member, Kinna Town, 8 July 2021.
20. Interview, local administrator, Duse Centre, 8 July 2021.
21. Focus group discussion, Garbatulla peace committee, Garbatulla Town, 7 July 2021.
22. Focus group discussion, elders and borehole managers at Dadacha Lafe, 3 March 2021.
23. Interview, senior staff member at NDMA Offices, Isiolo Town, 10 February 2021.
24. Interview with Somali businessman with land in the Livestock Marketing Division, Bomen Hotel, Isiolo Town, 9 February 2021.
25. Interview, officer at CARITAS, a faith-based relief organization, Isiolo Town, 1 March 2021.
26. Interview, operator at the Mlango borehole, Burat Ward, 11 February 2021.
27. Interviews, operators at the Mlango and Ngare Ndare boreholes, Burat Ward, 11 February 2021.
28. Interview with senior staff member at Ewaso Nyiro North Development Authority (ENNDA) Offices, Isiolo Town, 10 February 2021.
29. Interview, operator at the Mlango Borehole, Burat Ward, 11 February 2021.
30. Interview, resident at Gambela Centre, 1 March 2021; interview, local administrator for Mutharua special ward, Bomen Hotel, Isiolo Town, 8 February 2021.
31. Observation, February 2021.
32. A Borana peace worker, quoted in Mkutu et al. (2021).
33. Interview, Borana farmer in Gambela, 1 March 2021.
34. Group interview, local administrators from national and County, Bomen Hotel, 5 July 2021.
35. Group interview with senior local administrators, Kinna Town, 6 July 2021.
36. Group interview with senior local administrators, Kinna Town, 6 July 2021.

37. Group interview with senior local administrators, Kinna Town, 6 July 2021.
38. Focus group discussion, Garbatulla peace committee, Garbatulla Town, 7 July 2021.
39. Focus group discussion, Garbatulla peace committee, Garbatulla Town, 7 July 2021; group interview with peace workers, Kinna Town, 8 July 2021.
40. Focus group discussion, Garbatulla peace committee, Garbatulla Town, 7 July 2021.
41. Group interview with peace workers, Kinna Town, 8 July 2021.
42. Focus group discussion with community members, Madojaldesa Well, Garbatulla, 7 July 2021.
43. Interview, a peace ambassador, Biliqo Bulesa centre, Chari ward, 2 March 2021.
44. Interview, senior local administrator, Merti subcounty, 2 March 2021; this was supported by a report which revealed that conflicts in the area increase when new initiation ceremonies take place and Samburu warriors determine to prove their manhood though raids and territorial gains (Karmushu, 2021).
45. Focus group discussion with two Borana elders and four police officers, Yamicha police camp, 3 March 2021.
46. Focus group discussion with two Borana elders and four police officers, Yamicha police camp, 3 March 2022.
47. Interview, senior local administrator, Merti subcounty, 2 March 2021.
48. Several interviews; focus group discussion with two Borana elders and four police officers, Yamicha police camp, 3 March 2022.
49. Focus group discussion with two Borana elders and four police officers, Yamicha police camp, 3 March 2022.
50. Group interview, two Borana elders, Yamicha police camp, 3 March 2022.
51. Focus group discussion, Borana elders and youths, Urura borehole, 3 March 2021.
52. Interview, peace worker with Wajir Peace Initiative, Nairobi, 23 November 2022; confirmed in an interview with an MP from Wajir, Nairobi, 24 October 2022.

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