The politics of forest governance in a changing climate: Political reforms, conflict and socio-environmental changes in Laikipia, Kenya

Benard Oula Muok [a], Marianne Mosberg [b,*], Siri Ellen Hallstrøm Eriksen [c], Dennis Onyango Ong'ech [d]

[a] Directorate of Research, Innovation and Partnerships, Jaramogi Oginga Odinga University of Science and Technology (JOOUST), P.O. Box 210, 40601 Bondo, Kenya
[b] Department of International Environment and Development Studies (Noragric), Norwegian University of Life Sciences (NMBU), Universitetstunet 1, 1430 Ås, Norway
[c] Department of Public Health Sciences, Norwegian University of Life Sciences (NMBU), Universitetstunet 3, 1430 Ås, Norway
[d] Reach Kenya Programme, University of Nairobi, P.O.Box 30197, GPO, Nairobi, Kenya

A B S T R A C T

In this paper, we explore the interactions between political, social and environmental changes and forest governance in Kenya, through a study of Mukogodo forest in Laikipia county. Drawing on findings from key informant and group interviews as well as analysis of policy documents, we argue that political reform processes – including devolution and changing land and forest policies – combined with "green militarisation" and socio-environmental changes have profound implications for the politics of forest governance in Mukogodo. The way policy reforms interact with wider political dynamics has important implications for the management of environmental change. We find that competing claims to authority both within and between communities are exacerbated by increasingly weaponised resource management regimes, electoral politics and a territorialisation of resource rights. Contestations and tensions between different social groups ensue as some gain secure access to forest resources while others do not. Claims to decision-making authority over resources or to socio-political positions in general are often made based on ethnicity, gender, age, clan, education levels or other dimensions of social differentiation. The way that groups and organisations portray others as mismanaging the forest – and themselves as solving the problem – also forms part of how authority claims are being made in forest governance. The result is a forest governance regime that exhibits less flexibility and cooperation between social groups living in and around the forest, thus undermining livestock mobility and other practices that are critical for the resilience of pastoral systems in a changing climate.

1. Introduction

Forest governance is at the heart of how environmental variability and change is managed in many societies. Within climate change policy discourses, the governance of forests and other natural resources is frequently touted as a means of building adaptive capacity and sequestering carbon, while also conserving biodiversity (Smith et al., 2019). Yet such governance, rather than consisting of a set of institutions functioning to balance diverse objectives, is increasingly recognised as a messy process of negotiations and contestations embedded within wider shifts in politics and policy (Benjaminsen, 2017; Asiyanbi et al., 2019; Woroniecki, 2019; Satyal et al., 2020). Instead, there is increasing awareness of how environmental governance policies and programmes,

including land, forest and climate change policies, often become an arena for struggle over authority and state–citizen relations (Sikor and Lund, 2009; Nightingale and Ojha, 2013; Nightingale, 2018). In order to understand the role of forest governance in responding to environmental change, we therefore need to deepen our understanding of how such governance is enrolled in wider political shifts, and how people's efforts to manage environmental shocks and changes are nested in such dynamic and politicised governance contexts.

Kenya, for example, which is currently pushing forward climate change adaptation planning at national and local levels, has been undergoing rapid political changes over the past decade, with political devolution from national to county governments in 2013, and changes in forest and land policies, such as the National Land Policy of 2009 and

the Community Land Act of 2016 (Republic of Kenya, 2009a, 2016a). These political changes have been associated with increasing competition for political positions at the county level, and competition between different groups over the recognition of land and resource rights (Lind, 2018). At the same time, evidence from around the world suggests that decentralisation reforms do not necessarily lead to more efficient or equitable use and management of natural resources (Ribot, 2003; Lund et al., 2018).

Instead, policy and socio-political changes co-emerge with environmental changes, such as changes in rainfall patterns, temperatures, extreme weather events and vegetation, which directly affect people's livelihoods (Ensor et al., 2019). The way that such environmental changes are perceived and described by different actors such as herders, forest users, local leaders, government and non-governmental organisations (NGOs) varies to a great extent (Goldman et al., 2016; Klenk et al., 2017). Contestations between actors over the nature of the problem and who has the expertise to solve it – while simultaneously identifying mismanagement by others as cause of the problem – often forms part of efforts to legitimise claims to authority to govern resources (Nightingale and Ojha, 2013). Authority to make decisions regarding forest resources is not only about access to material resources, but also represents a recognition of people's position in a society and as citizens in relation to the state (Lund, 2016; Nightingale, 2017). Subjectivity relations, such as those that position some people as more or less capable than others, form part of social ordering processes and authorise some to make decisions on behalf of others (Nightingale and Ojha, 2013). Consequently, resource rights and social ordering of society can be seen as two mutually constitutive features of authority and subjectivity relations, features which also shift as policies evolve.

To explore these processes in-depth, this study examines the case of forest governance under rapid and complex socio-political and environmental changes in Mukogodo forest in Laikipia county, one of the forests where participatory forest management (PFM) was first piloted in Kenya. The forest and its surroundings provide interesting insights into dynamics of cooperation and conflict in contemporary forest governance as the management of the forest is directly and indirectly influenced by simultaneous changes in national and local policies and laws, such as the shift from group ranches to new forms of land titles under the Community Land Act of 2016, land use changes, biodiversity conservation projects, and environmental changes. At the same time, Laikipia has seen increased commercialisation and privatisation of land for farming and conservation purposes, as well as fragmentation of grazing land (Unks et al., 2019a). Related to this, pastoralist livestock mobility based on ecological variability – such as moving with livestock in response to variations in rainfall and grazing – is increasingly constrained (Unks et al., 2019b). Conversion from group ranch to conservancy land, transitions from pastoralism to agro-pastoralism, and diverse livelihood adaptation strategies in the Mukogodo area have also been found to shift, and sometimes exacerbate, socio-economic differentiation and socio-political inequities (Ng'ang'a and Crane, 2020).

Drawing on qualitative analysis of policy documents and ethnographic fieldwork data collected in the Mukogodo forest area, this study addresses the following questions: How has the evolution of diverse policies shaped current forest governance, particularly in terms of shifting authority and subjectivity relations surrounding forest resources? How are environmental change responses embedded in such politicised forest governance contexts? What are the implications for the emergence of social tensions and conflict within the governance of environmental change?

In section 2, we provide an overview of research methods, case study context and analytical framework, while section 3 outlines the research findings. Section 4 discusses the implications of these findings for the governance of environmental changes, with an emphasis on changing patterns of subjectivities and authority. The conclusion, section 5, summarises the main findings and reflects on implications for pastoral lifestyles in a changing climate. We argue that overlapping claims to

authority, further fuelled by access to weapons and electoral politics, contribute to exacerbate tensions between different social groups. As some groups gain more secure access to forest resources, the exclusion of other groups from the forest creates resentment and contestations. New governance structures undermine traditional negotiation- and resource-sharing mechanisms important for managing environmental variability and change.

2. Research design

2.1. Research methods

This paper draws on two main sources of qualitative data. First, we conducted a qualitative review of current and past forest and land use policies in Kenya, with an emphasis on the National Land Policy of 2009, the Forest Rules 2009, the Wildlife Conservation and Management Act of 2013, the Community Land Act of 2016, and the Forest Policy of 2014 and its 2016 amendment (Republic of Kenya, 2009a,b, 2013, 2014, 2016a,b). The objective of this review was to trace shifts in the formal policy landscape over time and their implications for forest governance in the study site. Second, we conducted three rounds of fieldwork in Laikipia county for a total duration of five weeks, in March 2017 and in January and June 2018 (see Table 1 for an overview of interviews and informant characteristics).

The sampling frame used to identify respondents in this study was non-probabilistic and purposeful (Baxter, 2010), as the aim was not to arrive at a statistically representative sample of informants. Instead, we wanted to gain a qualitatively rich collection of interests and views. We first identified the key actors in forest-governance-related processes and approached them directly for key informant interviews. We then created an overview of demographic and socio-economic categories of people

Table 1
Overview of interview participants in this study.

	March 2017	January 2018	June 2018	Total # of participants
Interview style				
Individual key informant interviews	5	9	37	*51*
Double key informant interviews	3	2	6	*22*
Focus group discussions (# of participants in each)	1 (4)	2 (4, 8)	7 (10, 3, 3, 4, 3, 3, 6)	*48*
Total # of participants	*15*	*25*	*81*	*121*
Interview participants' characteristics				
Government staff	–	2	13	*15*
Non-governmental organisation (NGO) staff	9	2	9	*20*
Community forest association (CFA), group ranches and conservancy board members	–	4	9	*13*
Community-based organisation (CBO) members[a]	2	–	10	*12*
National police reservists (NPRs)	–	1	7	*8*
Chiefs, assistant chiefs and village elders	–	12	9	*21*
Pastoralists	4	3	10	*17*
Internally displaced people (IDPs)	–	–	8	*8*
Others (entrepreneur, nurse, pastor, lodge staff)	–	1	6	*7*
Total # of participants	*15*	*25*	*81*	*121*
Female	0	3	15	*18*
Male	15	22	66	*103*

[a] Forest user group CBO, Water resource user group CBO and women's group CBO.

whom we wanted to interview, to capture a wide diversity of voices and knowledges. We specifically tried to include the least powerful and most "invisible" groups in these villages; these were identified as people living in poverty, people with disabilities, migrants from other parts of the country and minority ethnic groups. With the help of local research assistants we identified and approached people randomly or purposefully until we reached a point of saturation within each category. Group interviews were conducted with groups of people who in various ways had something in common, in terms of gender, age or involvement in a certain group or institution.

It is, however, important to note that local cultural traditions and practical challenges made it difficult for our team to interview women, and in spite of our best intentions and efforts we unfortunately ended up with a heavily male-dominated group of interview respondents. These methodological experiences confirm our findings that women are marginalised in formal forest governance structures and political decision-making processes in the study area. The limited variety of female voices in our sample prevents us from going deeper into gender-related issues in this paper. Instead, we refer readers to Coulter et al. (2019)'s fascinating study on barriers and opportunities for female participation in decision-making about water in Laikipia, Kenya.

In March 2017, nine key informant interviews (NGO staff and water resource user associations) and one group interview with pastoralists representing group ranches around Mukogodo forest were carried out (see Table 1). These were carried out in the vicinity of Nanyuki town, the county capital of Laikipia (see Map 1), because violence and land invasions made travel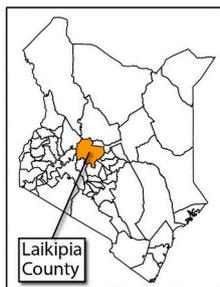 to the Mukogodo forest area and the surrounding rangelands unsafe. In January 2018, however, we could travel more or less freely in the area, and conducted a total of five key informant interviews with pastoralist men and women and one group interview in Il Ngwezi (eastern side) and Makurian (near Doldol, western side of the forest) and one group interview with Maasai elders in Leparua (southeastern side of the forest) in addition to eight key informant interviews with community forest association (CFA) members, and NGO and government staff in Nanyuki town. In June 2018, the team returned to conduct further interviews in a variety of sites inside and around the Mukogodo forest. Some interviews were also conducted in Nanyuki, Leparua, Lewa Conservancy and Archers Post in Isiolo county, and Westgate Conservancy in Samburu county. In addition to these interviews, we attended a two-day workshop about land and natural resource governance in Laikipia organized by an NGO, with more than 35 participants from different stakeholder groups.

Guidelines for ethical research were followed in the entire process. A research permit was granted by the National Commission for Science, Technology and Innovation (NACOSTI) in Nairobi, and local government authorities were informed about the research project. Before starting each interview, we provided the research participants with comprehensive information in the local language about the format and objectives of the research project, the rights of research participants, protection of their personal information, purpose of using a tape recorder and so on. All research participants agreed to the terms of the interview and gave oral informed consent to participate.
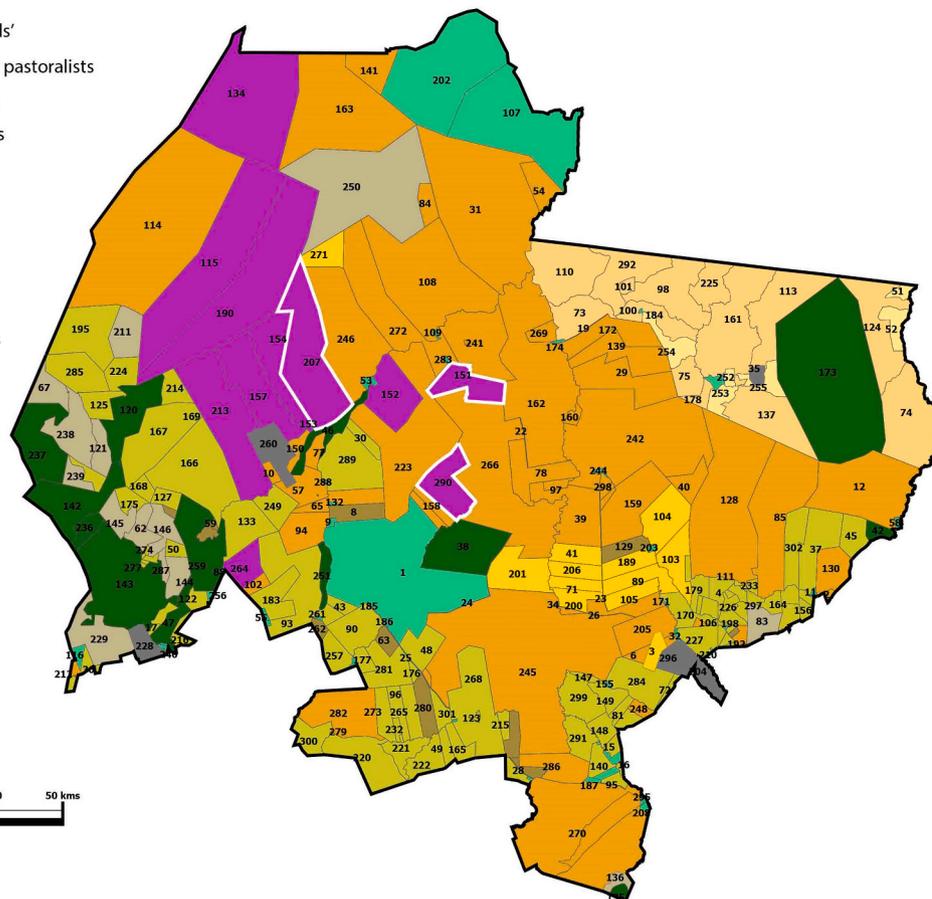

Map 1. Different landholding types in Laikipia county, Kenya
(Source: Laikipia Wildlife Forum). Study sites include No. 173: Mukogodo Forest Reserve, 113: Kurikuri group ranch, 137: Makurian group ranch, 74: Il Ngwezi group ranch and 124: Lekurruki group ranch. Some interviews were also conducted in No. 296: Nanyuki town, 35: Dol Dol town, and in four locations in Isiolo and Samburu county not included in this map: Lewa conservancy, Leparua group ranch, Archers Post town and Westgate conservancy.

2.2. Case study context

Mukogodo forest is located in the north-eastern corner of Laikipia – a county famous for wildlife tourism and spectacular landscapes, located close to the centre of Kenya. A variety of land tenure and land use types exist in Laikipia, including group ranches, privately owned ranches, community or privately owned wildlife conservancies, privately owned smallholder land, government land, and forest reserves such as Muko-godo (see Map 1). The Mukogodo forest lies in the drier northeastern part of the county, which receives between 250 and 500 mm rainfall annually (County Government of Laikipia, 2018). The forest was gazetted as a state forest in 1937, and it remains formally protected as a forest reserve, as defined by the Kenya Wildlife Conservation and Management Act, 2013 (Republic of Kenya, 2013).

The Mukogodo Forest Reserve covers 30,000 ha and is one of the few remaining dry forests in Kenya (M'mboroki et al., 2018). Dryland forests are a critical, though somewhat underexplored, point of interaction between environmental governance and socio-political changes. For example, hilltop and riverine forests in the Kenyan drylands are particularly important for biodiversity, for the livelihoods of pastoral-ists, farmers and other forest users, and for climate change adaptation. They also often become arenas over which national and local power struggles are fought (Eriksen et al., 2006; Eriksen and Lind, 2009). At the same time, there are serious concerns about the loss of forest cover in Kenya (estimated to be about 5000 ha per annum in recent years) owing to illegal logging, illegal squatters, the changing lifestyle of forest-dwelling communities, unclear forest zonation, the introduction of irregular settlements and expansion of agricultural land (Nkonya et al., 2016).

Mukogodo forest is considered to be the ancestral home of the Yakuu indigenous population (now also known as Mukogodo Maasai). The Yakuu were originally Cushitic people from Ethiopia who migrated to Mukogodo forest more than a century ago and settled in caves, where they largely depended on hunting, gathering, beekeeping, foraging and keeping small-scale livestock (Kagombe et al., 2004). However, between 1925 and 1936, the Yakuu were assimilated into Maasai culture, and largely changed from Cushitic-speaking foragers to Maa-speaking pas-toralists (Unks et al., 2019a). Mukogodo forest also provides a vital lifeline for the Laikipia Maasai community living around the forest. The forest forms part of the traditional migration route from the dry plains in the region and up to Mount Kenya, used by a variety of pastoralist groups to access water and grazing especially when droughts intensify. It has therefore served as a site of contestations and negotiations between different socio-ethnic groups from Laikipia and beyond for decades.

Competition over access to and control over resources commonly lead to non-violent, and at times violent, conflicts between different types of social actors in Laikipia, such as different pastoralist groups, farmers and conservationists (Bond and Mkutu, 2018; Fox, 2018). These conflicts are sometimes triggered by drought, but are often worsened by – or may even originate from – political tensions, especially in relation to elections (Greiner, 2013) when politicians covertly or overtly support violent actions to claim land access by "their" communities against the neighbouring communities in a bid to endear themselves to electorates (Bond, 2014). In the run-up to elections in 2017, Laikipia even made international headlines, when the British-born Tristan Voorspuy, co-owner of the Sossian ranch and nature conservancy, was shot to death by "armed herders" while inspecting a burnt lodge on his ranch (BBC, 2017). Just a few weeks later, Kuki Gallmann, internationally renowned author of *I Dreamed of Africa*, was ambushed and shot on her expansive private ranch and nature conservancy in Laikipia West (Al Jazeera, 2017). In response to these events, several zones of Laikipia - including Mukogodo East - were declared "dangerous" by the Internal Cabinet Secretary Joseph Nkaissery, and President Kenyatta ordered the deployment of military troops to restore law and order in the area (Ndirangu, 2017; Njuguna, 2017). Although the attacks on Gallmann and Voorspuy garnered the most media attention, the brunt of violence

was borne by local pastoralists and small-scale farmers already suffering from the ravages of an ongoing drought.

2.3. Analytical framework: authority and subjectivities in the politics of forest governance

We approach environmental governance as being interacting pro-cesses of decision-making regarding how environmental resources are used. In the context of this study, environmental resources include forest and surrounding grazing lands, denoted here as *forest governance*. Formal authority for governing a territory, resource or sector is often vested in government actors through policies, programmes, rules and regulations. However, environmental policy seldom consists of tidy, linear, decision-making processes; rather, policy forms part of processes of negotiation between multiple actors and is enmeshed in power re-lations (Keeley and Scoones, 2003; Asiyanbi et al., 2019). In addition, governance signifies much more than government actions; it also in-cludes how environmental systems are governed by various institutional arrangements and norms, including customary law and leaders, norms for interaction between groups, civil society action, as well as the private sector (Paavola, 2007). Hybrid modes of governance across the divisions of state, market, and community, often emerge (Lemos and Agrawal, 2006). As argued by Nightingale (2017), governance is not just about institutions such as rules, norms, policies and institutional and organ-isational design; governance takes place through struggles over au-thority to make decisions. Nightingale observes how, for the case of Nepal, environmental governance often becomes a site of both conflict and cooperation, as it evolves amid complex environmental and political changes, as well as competing understandings of problems and solu-tions. Accordingly, forest governance can be studied as the power re-lations through which decisions are made regarding forest resources.

Drawing on Nightingale (2017), Lund (2016), and Eriksen et al. (2015), we use subjectivity and authority as our empirical entry points for unpacking power relations and investigating how they shape the way that different social actors make decisions regarding natural resources. Of particular interest is how shifts in policies interact with local forest governance. Therefore, we investigate how formal shifts in rights over land and forest resources together with political devolution have altered authority relations in decision-making, such as who gets to access and use resources, and in which ways. Furthermore, we probe how these relations and power struggles are manifested in subjectivity relations, such as who is considered to be a "good forest manager" or who belongs to the "local community", legitimising their authority to access and/or make decisions over forest and grazing resources.

We see the concept of authority as being relations that are consti-tuted by daily interactions and decision-making processes. These re-lations are enacted by someone claiming the authority to decide on forest resources, and the way that such decisions are respected or con-tested through various means (Eriksen et al., 2015). In the context of the Mukogodo case, we interrogate both attempts to claim or resist partic-ular subjectivities and authority relations in daily decision-making and problem understandings by diverse actors. Moreover, various actors use policy formation and implementation as a platform for claiming au-thority, and for asserting rights as political and cultural citizens.

3. Forest governance in the face of political, social and environmental changes in and around Mukogodo forest

3.1. Political devolution and forest governance

Following the new Constitution in 2010, Kenya joined other African countries in devolving key state functions, such as agriculture, health, water and sanitation services and natural resource management, to lower administration levels. This devolution was institutionalised after the 2013 election, which brought 47 county governors into office for the first time (Nyandiko, 2020). Since then, the county government has been

mandated to manage services derived from natural resources in the county, while the forest resources themselves are national, and managed by the Kenya Forest Service (KFS). Being a forest reserve with wildlife, Mukogodo is also co-managed by Kenya Wildlife Services (KWS). This means that forest resources in principle are owned by the national government, while they are managed by a variety of national, county and local actors, like KFS, KWS and a local CFA (see an overview of different actors involved in natural resource management in Mukogodo forest in Appendix 1). The devolution in Kenya has brought competition and tension between national and county governments (Cheeseman et al., 2016; Bond and Mkutu, 2018; Lind, 2018; Mbuvi et al., 2018). This complexity of organisations with decision-making authority is not only a source of conflict and tension between the different government organisations and between resource managers; it also complicates decision-making processes regarding forest resources, and creates space for local and private actors to legitimise authority claims, largely following ethnic lines. For example, the ILMAMUSI CFA, supported by non-governmental actors such as the Northern Rangelands Trust, can now make decisions regarding who can access the forest and grazing areas, and how, while also having the power to police such decisions using armed forest rangers. This is further described in sections 3.3 and 3.4.

3.2. Changing land policies: towards community management paradigms

As mentioned earlier, the land tenure system in Laikipia has over the years been a source of conflict and, at times, of violent clashes between different types of land users (Fox, 2018). At independence, all land that was not in private or government ownership became trust land, under the control of county councils on behalf of the local populations. In total, approximately 78.5% of the total land area in Kenya, mainly in the arid and semi-arid lands (ASALs), was trust land. The Trust Land Act No. 28 of 1938 made provisions for different rights and controlled the occupation. The Act also provided for the procedures for the setting aside of land for a variety of purposes (Colony Protectorate of Kenya, 1938). Of particular relevance to forestry development was that the Act made provisions for general conservation, protection and controlled utilisation of trees and other forest products on land, other than gazetted forest reserves (Matiru, 1999; Republic of Kenya, 2012).

The Trust Land Act was vital in defining the history of settlement and land use in Laikipia county. During the colonial period, most of the Maasai population had been resettled south towards Narok and Kajiado through Anglo–Maasai treaties in 1904 and 1911 in order to give space to European settlers. The ranches and farms in Laikipia became part of what became known as the "White highlands". The inequitable land ownership that resulted from the displacement of the pastoralists is seen as the source of land grievances in Laikipia to date (Hughes, 2005; Bond and Mkutu, 2018). To try to resolve the situation, the post-independence government encouraged pastoralist groups to establish group ranches in the mid-1960s to mid-1970s, where a group such as a Maasai clan would manage the grazing resources communally. The definition of this "group" was outlined in the Land Adjudication Act, 1968, as "a tribe, clan, section, family or other group of persons, whose land under recognised customary law belongs communally to the persons who are for the time being the members of the group, together with any person of whose land the group is determined to be the owner under the proviso to section 23(2)(a) of this Act" (Republic of Kenya, 1968a). Four group ranches around Mukogodo forest were established between 1970 and 1974, namely Lekurruki, Kuri Kuri, Il Ngwezi and Makurian, in an effort to exercise "three functions: land-holding, resource management, and community organization" (Galaty, 1994: 110). The group ranches also collaborated among themselves to manage Mukogodo forest – in particular, forest grazing.

In an effort to bring about further land reforms in Kenya, two influential policy documents have been developed over the past two decades: The National Land Policy of 2009 and the Community Land Act

of 2016 (Republic of Kenya, 2009a, 2016a). The Land Policy of 2009 recognised and protected the rights of forest-, water-dependent or other natural-resource-dependent communities and facilitated their access to, co-management and derivation of benefits from the resources. The Community Land Act of 2016, on the other hand, gives effect to and provides guidelines for the practical implementation of Article 63 (5) of the Constitution; to provide for the recognition, protection and registration of community land rights; management and administration of community land; to provide for the role of county governments in relation to unregistered community land and for connected purposes. Under Article 5: Protection of community land rights (Republic of Kenya, 2016a: 7) – the Community Land Act states that:

1) Every person shall have the right, either individually or in association with others, to acquire and own property, in accordance with Article 40 of the Constitution—
   a) of any description; and
   b) in any part of Kenya.
2) Customary land rights shall be recognised, adjudicated for and documented for purposes of registration in accordance with this Act and any other written law.
3) Customary land rights, including those held in common, shall have equal force and effect in law with freehold or leasehold rights acquired through allocation, registration or transfer.

The Community Land Act 2016 has been lauded as a victory for indigenous peoples' rights, as it shifts authority relations by recognising local populations as capable and legitimate managers of land; however, its implementation has so far been slow (Wily, 2018). Awareness of the new Act remains very low among the pastoral populations, who were intended as the primary beneficiaries. In Laikipia, the group ranches are now supposed to re-register as community lands, and the group ranch committees should be replaced with community land committees. However, the implementation of this policy needs to be handled with care due to the potential conflicts it is bound to cause. For example, who should be registered as members of these new community land groups? The same as those who were originally registered as members of the group ranch, or not? Who belongs to these "communities" today? In the Act, a community is defined as "a consciously distinct and organized group of users of community land who are citizens of Kenya and share any of the following attributes: (a) common ancestry; (b) similar culture or unique mode of livelihood; (c) socio-economic or other similar common interest; (d) geographical space; (e) ecological space; or (f) ethnicity" (Republic of Kenya, 2016a: 528). This creates some ambiguity as to who belongs or does not belong to a certain community. For instance, should Samburu pastoralists living near Mukogodo forest also belong to the Maasai "community" there since they share similar culture and unique mode of livelihood? In effect, the Community Land Act may create competing subjectivity claims to be a "community member" or people with "common ancestry", in order to assert authority over land and resources. The issue of how to handle formal recognition of customary resource rights based on claims of indigeneity and belonging to an area has become highly contested in several forest areas in Kenya, such as the Mau forest,[1] and could potentially also further exacerbate tensions in the Mukogodo area.

The definition and scope of indigenous peoples' human rights are usually contentious in the context of Africa (Genugten, 2010). The African Charter established the African Commission on Human and Peoples' Rights (ACHPR) in 1987 with a mandate to protect and promote human and peoples' rights in Africa, which recognises and works to

---

[1] "Two years on, Kenya has yet to implement judgment in Ogiek case", Press release, Minority Rights Group. URL: https://minorityrights.org/2019/06/05/two-years-on-kenya-has-yet-to-implement-judgment-in-ogiek-case-mrg-statement/, accessed 31.10.2020.

promote the rights of indigenous people. Kenya has a multi-ethnic population and more than 25 communities self-identify as indigenous (IWGIA, 2012) However, the legal definition of indigenous people in Kenya remains unsolved. "Indigenous peoples" is not used as a legal term in the Community Land Act nor in the Constitution, but both acknowledge the rights of marginalised communities. These communities include hunter–gatherers and pastoralists, both communities who experience economic marginalisation and socio-political exclusion in a state dominated by the interests of larger agricultural groups (IWGIA, 2012). Section 30 of the Community Land Act 2016 cites non-discrimination policies and it states as follows: "(1) Every member of the community has the right to equal benefit from community land. (2) Equality includes full and equal enjoyment of rights of use and access. (3) Women, men, youth, minority, persons with disabilities and marginalised groups have the right to equal treatment in all dealings in community land" (Republic of Kenya, 2016a). Consequently, the ways in which claims to be part of a community come to be recognised or resisted – for example through historical residence or resource use and as mediated by institutions such as marriage, land registration and group ranch membership – is critical to land rights. The way that land rights are socially differentiated in the face of land reform are therefore co-shaped by power relations, including subjectivity relations along gender, ethnicity, age and livelihood dimensions.

3.3. Changing forest policies: towards participatory forestry paradigms

Forest management in Kenya has gone through considerable policy changes and paradigm shifts since the colonial era. Before the introduction of the current state-controlled system of forest conservation by the colonial government, through Sessional Paper No. 7 of 1957/58 (Colony Protectorate of Kenya, 1958), local and traditional institutions regulated forest resource ownership, access, and utilisation patterns. The first post-colonial and Sessional Paper No. 1 of 1968 followed the same trajectory as the colonial Sessional Paper No. 7 of 1957, with the central theme being the protective aspect of climate, water and soil and as a source of supply of forest produce for all uses by the inhabitants of Kenya, and as a revenue earner of high potential (Republic of Kenya, 1968b). Sessional Paper No. 1 of 1968 came into existence after the enactment of the Forests Act (Cap 385 Laws of Kenya [now repealed]), which was passed by the legislature in 1962 (Chebii, 2015), and recognised the role of indigenous forest for protection of water catchment areas. Forest scholars are mainly in agreement that these two documents failed in two fundamental ways. First, the approach failed to check the loss of forests through deforestation and degradation (Odera, 2009) and second, the approach failed to address the needs of communities for livelihoods and poverty reduction (Oduor and Githiomi, 2012; Chebii, 2015). For example, the national forest cover in 2010 was 6.99%, while protected forest areas cover was about 3.2% of the total land area compared to around 12% of the total land area 50 years ago (Republic of Kenya, 2016c). In the case of Mukogodo Forest Reserve, although Sessional Paper No. 1 of 1968 did not fully recognise the rights of the indigenous people in forest governance, the Yakuu (Mukogodo Maasai) remained in the forest with little interference.

The most significant post-colonial changes to forest governance in Kenya started with the introduction of participatory forestry management (PFM). PFM is often used as a general term to indicate local participation in forest governance, and it involves a multi-stakeholder approach where the private sector, institutions and communities are involved in the management of forests and sharing of benefits that accrue from them (Ongugo et al., 2008). The PFM approach was first introduced as a pilot project in the Arabuko Sokoke forest in 1997 (Mutune and Lund, 2016) and later extended to other forests, including Mukogodo forest in Laikipia county. After the piloting phase, the PFM approach was legalised through the enactment of the Forest Act in 2005 (Republic of Kenya, 2005). The Act was further reinforced by the adoption of the new Constitution in 2010 (Republic of Kenya, 2010a),

which introduced a devolved system of governance.

With the adoption of the Forest Act in 2005, a CFA[2] was formed to manage the Mukogodo forest, consisting largely of representatives from the four group ranches surrounding the forest. The CFA was named ILMAMUSI CFA, to denote the four group ranches it covers (described in section 3.2): *IL*Ngwezi, *MA*kurian, *MU*kogodo (also called Kuri Kuri) and *SI*eku (also called Lekurruki). The forest was, and still is, subdivided into four areas corresponding to the group ranch boundaries. The formation of the CFA added yet another layer of complexity to decision-making processes, on top of existing local forest management institutions such as clan leaders/elders and group ranch management committees.

The Forest Act of 2005 and its amendment of 2016 institutionalised PFM and were seen as turning points in Kenya's forest management. The implementation of PFM, however, has faced several challenges in Kenya and beyond. In Tanzania, for example, PFM has been found to have complex effects on forest governance and livelihoods, with mixed results from PFM in REDD+[3] related projects (Benjaminsen, 2017; Corbera et al., 2020). In the case of Mukogodo forest, we find that the implementation of PFM led to a new governance structure that replaced traditional and more flexible negotiation- and resource-sharing mechanisms with a more formalised and rigid system. Key informant interviews on all sides of the forest also revealed that women, despite their critical role in adaptation strategies (Ng'ang'a and Crane, 2020), are not allowed to register as landowners in the group ranch registry nor own cattle, and are dependent on husbands or male clan members to influence decision-making. This is because it is largely socially unacceptable for women to supersede men's decision-making roles or take up formal positions. For example, the chair of one of the group ranches said that women could not become members of group ranch boards since "in Maasai culture women are not supposed to speak up" and instead had to let their husbands take up matters with the elders or the group ranch boards. Yet, some of these patterns are shifting, with contestations over membership of committees exemplifying subjectivity relations and social differentiation across gender, age, education and livelihoods.

Past studies in Kenya have found that natural resource governance is highly gendered, leading to the exclusion of women from resource access and decision-making processes. In order to enhance gender equity, Kenyan national policy limits the representation of either men or women to two-thirds in any governance arrangement (Bikketi et al., 2016; Ifejika Speranza and Bikketi, 2018). Gender inequities are deeply embedded in social structures and relations and shifts are slow, especially in the context of Laikipia Maasai culture which is highly patriarchal (Ng'ang'a and Crane, 2020). Policy-led gender equity efforts at the national level are not necessarily reflected in specific policies such as those on forest or climate change adaptation. Neither the Forest Conservation and Management Act, 2016, nor the Community Land Act, 20 l6, discriminate on land ownership based on gender. For example, Article 48(1) of the Forest Act 2016 states that a member of a forest community may, together with other members or persons resident in the same area, register a community forest association. As mentioned in section 3.2, the Community Land Act gives every person the right to acquire and own property. Further, Article 7(5) states that "the community shall elect between seven and fifteen members from among themselves to be the members of the community land management committee as provided in section 15, who shall come up with a comprehensive register of communal interest holders". While the law states that all community members are included, no particular gender

---

[2] Currently, there are over 325 registered CFAs that are spread across the country, according to Kenya Forest Service's (KFS) website, URL: http://www. kenyaforestservice.org/ (accessed 31.10.2020).

[3] REDD+ are efforts aimed at reducing greenhouse gas emissions from deforestation in developing countries, and are linked to the climate convention URL: http://www.redd.unfccc.int (accessed 18.8.2021)

provisions are made that could address local social exclusion processes.

Furthermore, populations not included in the original four group ranches and the CFA are commonly excluded from access to grazing areas in the forest, especially during the drought seasons. As will be explained later in the paper, the access rights to Mukogodo forests are now enforced by armed rangers known as National Police Reservists (NPRs). In key informant interviews, both Samburu and some Maasai informants explained how past management regimes governed by grazing committees mainly made up of clan elders provided access to many groups for grazing at different times of the year. There were informal provisions for and access rights given to groups who were not within the immediate vicinity of the forest. Such rights were given on the understanding that access carries with it the responsibility to conserve the environment by not cutting trees. With the introduction of the CFA, however, only clans settled within the immediate vicinities of the forest were recognised as members of the CFA. This formal membership mainly meant that only the Maasai community could belong to the CFA, since they lived around the forest, unlike groups such as the Samburu. During interviews, Samburu pastoralists who have seasonally used Mukogodo as a drought grazing and migration corridor to Mount Kenya during severe droughts, voiced concern and resentment about increasingly being excluded from grazing lands around Mukogodo forest. For instance, a Samburu pastoralist argued as follows:

Before, people moved from one place, they talked to other communities, they all got together, they dressed together. If there was rains on the other side, you moved to the other side freely. (…) But you see when politicians get in and say, "You need to protect your land, stop other people coming in to your land". That is where conflict gets and people start fighting. (…) And also, you know, like the land issues. It is also, you know, brought by the police. Because they say, "Hey, this boundary here is only Maasai, no Turkana no Samburu are allowed to come and graze their livestock". Community themselves have their ways of solving boundary problems. They are neighbors and if my neighbour has a problem I will have to work with my neighbour.

[Interviewer: So, previously it was easier to negotiate access to those areas?

Respondent:] It was very easy. (…) Samburu and Maasai they speak one language, so you find your uncle on the other side, you find your in-laws, and it is all your people who are your blood. So, the community was very easy" (male Samburu pastoralist, 23.06.2018).

Membership in the CFA is an important source of authority and access. The CFA are legally recognised as co-managers of the forest by the Forest Management and Conservation Act of 2016 (Republic of Kenya, 2016b). The CFA has authority to enforce rules (in collaboration with KFS or other relevant government bodies), such as those aimed at preventing illegal harvesting of forest products. According to Section 49(2) of the Act, the CFAs manage and can accrue benefits from a range of forest products, including:

(a) collection of medicinal herbs; (b) harvesting of honey; (c) harvesting of timber or fuel wood; (d) grass harvesting and grazing; (e) collection of forest produce for community-based industries; (f) ecotourism and recreational activities; (g) scientific and education activities; (h) plantation establishment through non-resident cultivation; (i) contracts to assist in carrying out specified forestry operations; (j) development of community wood and non-wood forest-based industries; and (k) other benefits which may from time to time be agreed upon between an association and the Service" ([KFS] Republic of Kenya, 2016b: 712).

Section 49(1) (e) also authorises the CFA to enter into partnership with others in measures to ensure conservation and management of the forest. The CFA has increasingly become a common first reference point

for multilateral, bilateral and non-governmental development organisations seeking groups to work with or engage in community decision-making in project implementation. More generally, CFA membership signifies a recognition of belonging to "the community". Such belonging is increasingly important to be able to claim land access under the Community Land Act. Accordingly, membership of the CFA gives decision-making authority over and access to key resources, in addition to a position of influence within the community and in relation to external actors such as government and development organisations.

3.4. Environmental conservation: green militarisation and exclusion

Despite being located in the ASAL region of Kenya, Laikipia county is among the richest in biodiversity in the country (County Government of Laikipia, 2018). The biodiversity of Laikipia is however, as elsewhere in Kenya and the world, under threat from human population growth, increasing livestock numbers, climate change, as well as policy, institutional and market failures (Ogutu et al., 2016). Over the years, and supported by Kenya's Wildlife Conservation and Management Act 2013, there has therefore been a mushrooming of private and community conservancies to protect this rich biodiversity and keystone species. And it appears to have been at least relatively successful – the decline in wildlife numbers has been lower in Laikipia over the past 40 years (1977–2016) than in the 20 other rangeland counties (Ogutu et al., 2016). A study from 2012 also found that species richness was higher in conservancies and sanctuaries in Laikipia than in fenced private ranches and group ranches (Kinnaird and O'brien, 2012).

The Wildlife Conservation and Management Act defines a wildlife conservancy as "land set aside by an individual landowner, body corporate, group of owners or a community for purposes of wildlife conservation under the provisions of this Act" (Republic of Kenya, 2013: 1250). Conservancies in Kenya offer a potential means to tackle several critical issues through a common approach and framework, including poverty, wildlife loss, resource conflicts, environmental degradation and weak local governance. The first time the term "conservancy" was used to describe non-state protected areas was in 1995 with the establishment of Lewa Wildlife Conservancy (a private conservancy owned by a single large landowner), and Namunyak Community Conservancy (a community conservancy managed by Maasai groups). The conservancy movement has since blossomed with 22 conservancies being established in the 1990s, 57 in the 2000s and 69 by the year 2010 (KWCA, 2019). Laikipia has a host of numerous wildlife conservancies with the highest number of private conservancies in the country (nine conservancies covering 156,494 ha) including Ol Pajeta, Lewa and Borana, as well as community conservancies such as Il Ngwezi and Lekurruki.

The community conservancies have also become a focal point for development agencies and other stakeholders who want to support biodiversity conservation. A good example is the Northern Rangelands Trust (NRT), which has played a significant role in the establishment of the community conservancies. NRT has also supported the recruitment and payment of NPRs to serve as armed community rangers under the management of the conservancies, and they have Rapid Response Security teams which serves as a backup armed force to the conservancy rangers (see appendix 1 for more information about the mandate and role of NRT and the NPRs in forest governance). One of the NRT representatives interviewed for this study expressed the view that as a result of their organisation, the northern parts of Kenya have changed dramatically:

The north was something totally different from what we are talking about now. There was manslaughter, killing, hatred, cattle rustling, wildlife being poached. And all that. Over a span of thirteen to twelve years this has changed. Warring communities now can see each other face to face. They can share the smaller available resources. They can co-exist, talk, do business if possible. (…) If it were

not for NRT then the North could have been a no-go zone. But through our conservancies we were able to reduce highway banditry, we were able to reduce cattle rustling, we were able to reduce poaching – even some poachers are turning to be ambassadors of wildlife and talking good of wildlife (NRT staff member, 26.06.2018).

Through its role in supporting pastoralists in developing conservancies, a major part of which is strengthening security structures through the training, arming and organising of local people as NPRs, the NRT has in effect also claimed authority in the governance of Mukogodo forest and surrounding rangelands. Furthermore, by highlighting that the rangelands of Laikipia are seriously degraded and in need of better management systems, and implying that local people do not care enough about the environment and need better governance systems to protect their resources, the NRT are positioning themselves as an important and legitimate actor in the governance of resources in the area, as reflected in this interview extract:

You know how it is with rangelands. People are not focused on rangelands. Then definitely people and wildlife will not survive. Nearly 70% of the land is degraded. So conservancies also make sure they focus on rangelands to ensure that maybe the rangelands remain productive through regular rehabilitation. (…) If people don't see the benefits of conservation then people will never embrace it. If they don't benefit, they don't see the benefit. (…) They don't care. So as NRT we also make sure that we link conservation to livelihoods. To make sure we better our communities' livelihoods (NRT staff member, 26.06.2018).

Informants in this study expressed that these conservancies had brought gains to biodiversity and forest conservation, income from tourism and commercial activities, and a feeling of greater security from the presence of armed rangers. However, they also recounted how traditional dry season grazing areas had been limited by the shift of land use to wildlife conservancies, in particular where private conservancies had fenced off their land. These findings echo the results of a study from 2009 which found that the formation of the core conservation and buffer areas of the Lekurruki conservancy exacerbated conflicts with Samburu and Somali pastoralists who wanted to continue grazing their livestock on this previously "vacant land" (CDC, IISD, and Saferworld, 2009). Greiner (2012: 415) also found that the establishment of community conservancies in East Pokot led to an exacerbation of tensions and ethnic violence in two of the three conservancies studied, both supported by NRT, as a result of their embeddedness in "deeper intra-societal struggles over the reconfiguration and renegotiation of access to and control over land".

Furthermore, the NPRs and the rapid response teams were considered by many of our informants to be part of the problem rather than a solution to the increasing violence in the Mukogodo area. Several informants in this study complained that the arming of community volunteers as NPRs was contributing to the proliferation of guns in the area and increasing the risk of lethal violence. The NPRs are ostensibly recruited, trained and armed by the Kenyan police, and are under their formal command – but, in practice, they operate largely unsupervised, with minimal training (Njuguna et al., 2015). For instance, a young man in Mukogodo forest said:

In my opinion arming people in the name of NPRs doesn't bring peace. (…) they are warriors like us. Those who have been given guns have not been taught the law as the police who have been taken to Manyani and taught to follow orders. These are just the local people. They are just taught to use the gun that is all. So if you give a local person a gun and tell them to try and bring peace. He will not bring peace when he has a gun. He will only cause destruction. (…) Because when I have a gun there is nothing I will be afraid of. I will

think of going to steal. And in that process the one stolen from gets angry he comes to fight back. There is no day there will be peace. There is no day because you have a gun, I have a gun. (…) The government should stop arming the citizens (Maasai boy, 17 years old, 24.06.2018).

The NPRs and rapid response teams were actively involved in protecting the local population from armed raids and attacks or retaliating in such attacks in the Mukogodo area in 2017 and 2018, in particular in the violent run-up to the elections. During fieldwork, we heard several stories of NPRs being involved in shootouts with people from neighbouring communities while recovering stolen livestock, and NPRs we interviewed said that they could shoot to kill, if necessary, in these counter-raids. We also heard stories of violent clashes between groups that included NPRs from opposing ethnic groups, for instance NPRs from Maasai conservancies versus NPRs from Samburu conservancies. The potential for escalating violent conflict between Maasai and Samburu groups, fought by NPRs from both sides, was raised as a serious concern by several of our informants. Many informants also saw the arming of community volunteers as a failure of the government to provide proper security in Laikipia, by outsourcing the responsibility to deal with violent conflicts to community members themselves. A Maasai group ranch member made the following comments (15.06.2018): *"Each community is running to the government to give us guns and that is because there is a failure of government in providing security (…) So the people run to the government to give us guns. The NPRs are community militias."*

The formal status of conservancy land, combined with the armed scouting, serve to put force behind local and territorial claims and enable the exclusion of other groups from grazing. In section 3.3 of this study, we observed how shifting land and forest policies have contributed to forest governance that, to an increasing extent, strengthens some groups' claims to authority while reducing others' claims. This situation has been exacerbated by the deteriorating security situation in Laikipia and efforts to address security through establishing conservancies with armed rangers in pastoralist areas. While local rules and norms in the past focused on fluidity, management of ecological variability and on reciprocal (if sometimes violent) relations between groups, currently they are increasingly focused on managing threats to physical safety and securing rights to land and resources.

The arming of rangers may also be seen as a driver of increasing militarisation of natural resource management in the Mukogodo area. These findings resonate with literature on "green militarisation", or "militarised conservation", a field of research that explores the ways in which new forms of violence emerge in the governance and policing of protected areas, and the dynamics through which violence and extrajudicial killings "in the name of" environmental conservation becomes effectively legitimised and normalised (see Lunstrum, 2014, 2015, 2016, Duffy, 2014, Kelly and Ybarra, 2016, Duffy et al., 2019). Geographer Elizabeth Lunstrum (2014) was the first to coin the term "green militarisation" in her seminal paper on the militarisation of conservation and anti-poaching efforts in Kruger National Park in South Africa. There, she defined the concept as "the use of military and paramilitary (military-like actors, techniques, technologies, and partnerships in the pursuit of conservation)" (Lunstrum, 2014: 817).

3.5. Socio-environmental changes: climate change, land degradation and privatisation

Findings from key informant and group interviews in this study indicate that people living in and around Mukogodo forest have experienced changes in environmental and climatic conditions during the past few decades. They argue that weather conditions seem to have become more volatile and less predictable. Interviews suggest that changing climatic conditions, in combination with natural and anthropogenic environmental changes such as deforestation, overgrazing and invasive species, reduce access to water and pasture and have a

significant impact on people's lives and livelihoods in and around the forest. This adds to the pressure on existing forest governance structures, as the forest resources become even more vital for livelihood security and adaptation to climate change.

> [When I was young] the droughts were not prolonged like now. When one rainy season missed then the other seasons, like three, followed successively well without fail. But now it can rain like once in like five years (…) Mostly there is no rain. When the rainy season time is due, there is no rain. In many areas there is no rain (group ranch leader in his sixties, 16.06.2018).

> The environment has changed really, because when we were young, we had rainy seasons. Like in this area, we used to have two rain seasons. We had the long rainy season that began on mid-October to January. That is almost three months and a half. And then we have the other season that began like mid-March to maybe early May. Sufficient. Very successful. For the last ten years, I don't know, ok, let's say ten years, things changed completely. We have been getting the long rain season may be two months, or I can say a month. Sometimes we didn't get it (grazing coordinator in his late thirties, 28.06.2018).

These interview excerpts illustrate common perceptions among respondents of climate change in the Mukogodo area, namely a general reduction in rain, more frequent and prolonged droughts, and shortening of the March–April–May [MAM] rainy season (leading to insufficient rainfall for livelihood activities, expressed by the informant as 'no rain'). Respondents also mentioned that rainfall patterns had become more irregular and unpredictable, temperatures had increased, and intense rainfall events were now happening more frequently, leading to occasional flash floods. These perceptions confirm available data on climate trends in Laikipia and generally in Kenya. M'mboroki et al. (2018) found that average annual temperatures had increased by 1.5 °C in the period between 1986 and 2014 at the Laikipia Meteorological Station in Kalalu in the Mukogodo East Ward. Ogutu et al. (2016), analysing 5 km by 5 km gridded data blending station and satellite data, reported that average maximum temperatures and the average minimum temperatures in Laikipia county had increased by 1.6 °C and 1.3 °C respectively in the period between 1960 and 2013. While individual stations and smaller geographic areas can display larger changes and variability than averages across larger areas, this mirrors other data from Kenya and East Africa. These results indicate a higher rate of temperature increase in the northern counties such as Laikipia, than in the rest of the country (Republic of Kenya, 2010b). For instance, Funk et al. (2012) reported that the Kenya–Ethiopia area in general experienced an increase of about 0.7 °C in the period between 1969 and 2009, while noting significant geographical differences in terms of temperature and rainfall. Nicholson et al. (2013) found that the temperature had been increasing over the past 100 years in East Africa, the increase accelerating towards the end of the 20th century. In particular, the maximum and mean seasonal temperature as well as temperature extremes have increased, contributing to an overall drying (Gebrechorkos et al., 2018, 2019a, Ayugi and Tan, 2019).

In terms of precipitation, M'mboroki et al. (2018) reported a progressive decline in the March to May seasonal rainfall at the Kalalu Meteorological Station between 1986 and 2014 (from 359 to 112 mm average total precip/year), while the October to December rains saw a slight increase (from 185 to 228 mm average total precip/year). Combined, this has produced a modest decline of 26 mm in annual average rainfall over the period of 30 years (M'mboroki et al., 2018). This decline corresponds with a recent study of long-term spatial–temporal trends and variability of rainfall over eastern and southern Africa by Muthoni et al. (2019), which demonstrated a significant decline (0.1 to 3.6 mm/year decline) in the April (long season) rainfall over central, southern and northern Kenya between 1981 and 2017. This decline in

MAM rainfall has also been reported by a variety of other studies, such as that of Gebrechorkos et al. (2019a), which demonstrated a decreasing trend of 50 to 100 mm in MAM rainfall between 1981 and 2016 in large parts of Kenya, and Lyon and DeWitt (2012), who noted a 15% reduction from the 1979–1998 period to 1999–2009 in MAM rains averaged across land areas of East Africa. The decreasing trend of rainfall in the Mukogodo area contrasts with many climate change projections, which predict an increase in rainfall in East Africa by the end of the 21st century (Niang et al., 2014). Other projections do, however, suggest a continued decrease in the MAM long rains and an increase in the October–November–December (OND) short rains over most parts of Kenya (Gebrechorkos et al., 2019b). In addition to these changes in longer-term weather patterns, research also indicates a higher intensity and frequency of heavy rainfall events in the Upper Ewaso Ng'iro river basin (Franz et al., 2010), while droughts seem to have become more frequent, longer and more intense in all of East Africa (Nicholson, 2017).

On the ground, these complex climatic changes interact with vegetation changes, shifting land use, resource rights and livelihoods to shape people's daily experiences of environmental change. Several informants observed that the environment had been "healthier" when they were young than it was today. Now, they argued, pasture and forest cover had been reduced, and water availability had diminished. For instance, one local leader in Makurian (17.06.2018) explained that *"the environment here was wonderful before the rapid urbanisation set in. It was so green, and we never saw droughts before the 1980s. Since then, we have seen more and more droughts. The forest used to be so dense that people could barely pass through. However, now even a lorry can go through. Since then, the forest cover has badly reduced."*

Several informants spoke of invasive species such as *O. stricta* (prickly pear cactus) and *Acacia reficiens* on rangelands as being environmental challenges that lead to a reduction of grass cover, attract elephants to settlements (because of their fruits) and make livestock go blind (from prickles embedded in their eyes). This confirms findings from a study from the Mukogodo area by Strum et al. in 2015, which demonstrated a significant spread of the *O. stricta* in the area owing to a combination of environmental and anthropogenic factors. In particular, the study found that a greater concentration of livestock grazing caused by sedentarisation of pastoralists and a reduction in mobility "produced an ecological state transition to degraded rangeland which created the opportunity for the invasion" (Strum et al., 2015).

Perceptions of the environment were also embroiled in claims over who were the legitimate resource managers. During interviews, some Maasai informants argued that environmental degradation in Mukogodo forest was caused by the "careless behaviour" of migrating Samburu groups. This discourse of "irresponsibility" was in effect delegitimising the rights of these groups to access resources, and this problem understanding formed part of local arguments to more forcibly exclude "non-local" groups from accessing forest resources. An elderly informant, for instance, argued that during the drought in 2017, people from Samburu entered Mukogodo forest because they had degraded the environment in their own area and exhausted their own pasture. This Maasai pastoralist in his seventies (interviewed 28.06.2018) explained that *"here we have the pastures. We have conserved the forest, we don't destroy,* [therefore] *the Samburus came and attacked us. They start a war and drive us away. (…) they entered in the forest and destroyed it a lot. Cutting the forest and destroying the forest completely."* Another informant describing Samburu behaviour argued that:

> In their place, where they live, it is more destroyed. The environment has been destroyed. No more pasture, no water, and with a lot of even malaria and so forth. When these people, they cross over to Laikipia, to Il Ngwesi group ranch, they find very protected areas that are nice for grazing. They feel this is paradise, and therefore they would want to force people out so that they settle here and not go back there (elderly Maasai woman, 19.06.2018).

By contrast, Maasai informants portrayed themselves as always having managed the forest and its wildlife resources well. A male informant living in the south-eastern part of Il Ngwezi forest, for example, explained that their elders were and still are developing grazing plans, that their people did not graze in the forest except in the dry season, that none of their people lived inside the forest, just on the plains, and that there were no problems with charcoal-burning or poaching. They "let" animals roam around freely in the forest, and they now have a conservancy that protects wildlife, because they "love wildlife". The informant (interviewed 28.06.2018) continued: *"Sincerely we do not have issues of charcoal-burning here. Completely. It does not happen here. We do not have charcoal-burning, and poaching levels are very low. Like for instance in two years there can be no issue reported on poaching. What we have is a human–wildlife conflict."*

The predominant narrative presented in interviews with Maasai pastoralists in the Mukogodo area was that they were better at managing their resources than the Samburu, who had degraded their own range-lands and therefore entered the forest by force during drought situations to steal Maasai resources. The NPRs were then crucial in protecting the forest and keeping the Samburu people out, they argued. However, the Samburu pastoralists whom we interviewed argued that the Samburu were no longer able to negotiate access to the forest during drought through traditional mechanisms, and instead were kept out by armed community rangers.

4. Discussion: implications of the changing politics of forest governance

Above, we have described how political reform processes including devolution, changing land laws and forest policies, in combination with environmental conservation efforts, socio-economic developments and environmental changes, have led to shifts in the politics of forest governance in Mukogodo forest, Laikipia. In summary, this study has identified five key drivers of political, social and environmental change that have implications for the politics of forest governance in Mukogodo, including contestations over subjectivities and authority. These are summarised in Table 2 below as political devolution, land policy reforms, forest policy reforms, environmental conservation and green militarisation, and socio-environmental changes.

We identify three key implications of these shifts for the governance of environmental changes in the study area. The first relates to overlapping authorities and confusing roles and responsibilities in the governance of forest resources. Analysis of interview data and policy documents suggests that a plethora of institutions involved in managing

forest resources in Laikipia has emerged since the Kenyan independence from British colonial rule, with political devolution adding a layer of complexity to already overlapping and competing authority claims. In the post-independence era, elders and grazing committees, in part authorised by group ranch and clan social structures, were influential in setting rules for the use of forest and surrounding grazing land resources. Multiple governmental and non-governmental organisations now claim the authority to govern forest resources, based on various understandings of sustainability and environmental change.

There are, however, overlaps in the assumed roles, rights and responsibilities of these different actors involved in the governance of forest resources. This leads to a lack of coordination between different actors and their forest activities and management plans. For instance, the NRT mentioned that they help communities develop rangeland management plans. Given the unequal power relations between the NRT and group ranches – with the NRT representing security assistance, financial resources and expertise – such "help" in effect strongly directs how grazing plans should look. These plans may overlap with or contradict the separate grazing plans developed by group ranches, the CFA and community elders. This creates confusion, especially for pastoralists travelling from outside the county, who might also no longer know who to negotiate with for access to the forest and its surroundings. Traditional mechanisms for cooperation are replaced by a network of formalised committees and organisations.

Second, we find that the exclusion of some groups from decision-making processes and access to forest resources, in combination with the militarisation of environmental conservation and forest governance, exacerbates tensions, violence and conflict between different social groups. This further contributes to an erosion of social cohesion and reduction of adaptive capacity, features often associated with heightened vulnerability to environmental changes for affected populations (Adger et al., 2014; Ensor et al., 2018). A proliferation of legal and illegal small arms in the area has contributed to a vicious cycle of violent attacks and counterattacks between different groups, such as those between Samburu and Maasai pastoralists in 2017, with both sides supported by armed forest rangers. These findings also support the claim by Fox (2018) that the propensity for violent conflict in Laikipia can be traced to diverse forms of alienation and inequality, particularly in connection to land.

These issues are further embroiled in claims to authority. Claims of others' mismanagement or one's own sustainable management of the environment are part of how different actors – community members, NGOs and government organisations alike – seek recognition for their authority to make decisions over land and resources. Claims for access to

Table 2
Key drivers of change and implications for forest governance in Mukogodo forest, Laikipia county, Kenya.

Driver of change	Relevant developments	Implications for forest governance	Implications for subjectivities and authority
Political devolution	Devolution of authority for managing natural resources from national to county level	Confusion and overlapping of government authorities in charge for forest governance	Devolved government bodies gain more decision-making authority over the services rendered by natural resources, previously managed by national government bodies, who nevertheless retain formal ownership
Land policy reforms	Move towards community management of land	Establishment of group ranches and formalisation of community land rights leads to territorialising of land	People belonging to social groups who can claim ancestral rights to community lands gain authority in decision-making, while others are excluded
Forest policy reforms	Move towards participatory forest management (PFM)	Establishment of ILMAMUSI Community Forest Association (CFA)	People and groups represented in the CFA gain higher authority, while others are excluded
Environmental conservation/ green militarisation	Creation of wildlife conservancies, arming of forest rangers and wildlife patrols	Introduction of new actors involved in forest governance. Proliferation of legal and illegal weapons put force behind some groups' claims to authority	Some people or groups are labelled as "poachers", "bandits", "encroachers", or "criminals" while others are labelled as "forest rangers", "conservationists", "peace ambassadors" etc. People and social groups who gain access to legal or illegal weapons gain higher authority as they can use violence or the threat of violence to intimidate others
Socio-environmental changes	Climate change, invasive species, deforestation, forest degradation, privatisation of land and fencing	Reduced availability of water and pasture for livestock, create more pressure on forest resources, restriction of mobility for pastoralists	Some people or groups are labelled as "charcoal burners" and "forest destroyers" while others are "forest protectors" and "wildlife lovers". Private landowners gain higher authority by fencing and hiring security officers to protect their land

drought grazing resources to the exclusion of others were therefore closely linked to discourses of land degradation. Such claims to authority (or for exclusion) based on subjectivities such as being sustainable resource managers have also been observed in other studies in Kenya (Bond, 2014). Competing claims to indigeneity and land rights, risking exclusion of other users, may also escalate as groups formerly claiming land rights through group ranches - a tenure form no longer recognised under the new Community Land Act - strive to claim customary land rights through this Act.

Third, and related, we find that the territorialising of land rights, and the fencing and privatisation of land for various land use purposes, restricts the mobility of pastoralists and limits the availability of fodder and water for their livestock. This challenges their traditional way of life and jeopardises their adaptive capacity in the face of environmental changes. Since the colonial period, when many of the private ranches were established and forest reserves were gazetted, movements of pastoralists in Laikipia have been restricted, constraining their ability to sustain their livelihoods and to manage lands with seasonal and longer-term changes in climatic and vegetation conditions. This process is however being exacerbated by recent socio-political changes, such as fencing of private land and the increased demarcation and division of land into smaller pieces, which seems to be an accelerating trend in Laikipia (Letai and Lind, 2013). A non-Maasai NGO staff member whom we interviewed (13.06.2018) stated that in terms of climate change, communal ownership and continuing with the traditional Maasai way of life would be better than the ongoing process of privatising land, especially given that the land is not suitable for agriculture. He argued that *"This land is Maasai land,* [we] *cannot say that it belongs to any particular individual. The mentality now is that everyone wants to own a portion of land. Maasais started to paddock certain lands. Climate change is leading to a more fragile environment, though, so the best solution would be to continue with this way of life."*

5. Conclusion

The case of forest governance in Mukogodo, Kenya, suggests that policy changes – including political devolution, participatory forest management (PFM) and enhanced customary land rights – even if aimed at increasing the role of local populations in resource governance, can instead exacerbate a situation of overlapping authority claims, and local competition and tension over these claims. For example, while PFM efforts, as implemented through forest policies and community forest associations, have shown great promise in correcting mistakes from past forestry management regimes, such decentralisation efforts do not necessarily lead to more socially just and environmentally sustainable forest governance. The Community Land Act of 2016 also aimed to formalise customary land rights and resource uses in order to avoid excluding local populations from accessing and benefiting from forest resources, and thereby reduce tensions between user groups. However, implementation of these reforms remains rife with contestations and may have unpredictable outcomes for power relations and forest governance processes. Although legal mechanisms exist that are meant to hold actors accountable and distribute mandates in decision-making, as outlined in Appendix 1, the practices around forest management reproduce authority and subjectivity relations, including competing claims to decision-making power regarding management of and access to resources.

Our findings underwrite previous findings regarding the way adaptation practices in Mukogodo are embedded in local socio-political relations and shifting land tenure (Ng'ang'a and Crane, 2020). We expand on these by showing how such socio-political relations are embedded in forest governance that evolves with both formal policy shifts and relations between different actors claiming authority to govern resources. Our analysis has identified several sources of tension in forest governance: between national and county-level government organisations, between government, community and NGOs all claiming authority to

make decisions over forest and rangeland resources, between different groups claiming authority based on customary rights to the forest and portrayals of their "good management of the forest", and between conservation and pastoral land uses (and related users). Tensions are in themselves not necessarily harmful and may form part of contestations over inequitable or socially and environmentally unsustainable management decisions by certain actors, or efforts to shift inequitable authority relations between the state and local forest users, for example. However, this case study clearly shows that multiple decentralisation processes (political devolution, the Community Land Act and participatory/community forestry models) do not necessarily lead to local populations and marginalised groups gaining more influence in the management of local resources. Instead, increasingly territorialised forms of resource rights combine with increased competition between overlapping authority claims by various actors, in ways that may lead to further marginalisation.

The result is that a forest governance regime has evolved in Mukogodo which exhibits less fluidity and interaction between groups and more exclusion from resource access, undermining livestock drought migration routes and other practices that are critical in the face of environmental change. The case of forest governance in Mukogodo accordingly shows how shifts in the policy and legal regime have fundamental implications for competing authority claims both locally and across scales. Nevertheless, our findings underwrite observations elsewhere that it is not necessarily the institutions or policies themselves, but the power relations that operate within (and sometimes despite) them that shape the daily practice of decision-making (Nightingale, 2017). These power relations operate in multi-faceted ways: our study highlights how portrayals of good or poor resource management are closely linked to processes of claiming authority and excluding others from access to resources in the face of climate change. These processes demonstrate that the way in which people position themselves and others as subjects of environmental change is related to authority relations (Eriksen et al., 2015). The ways that authority relations are reinforced or contested through daily practices has implications not only for efforts to support the sustainability of forests. Future efforts to address climate change, such as county-level adaptation plans, must pay close attention to the way that diverse problem understandings do exist and play an essential role in authority claims in environmental governance. In particular, the way that "sustainable forest governance" is understood in forest and climate change policies alike has implications for whose authority to manage the forest is recognised, and why.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Overview of key actors involved in natural resource management in and around Mukogodo fores

Actor/Organisation	Level of governance	Establishment	Mandate as relevant to NRM	Role in management of Mukogodo forest
County Government of Laikipia, Department of Water, Environment & Natural Resources	County level, devolved from the national level.	Established in 2013 after the County Government Act 2012 gave effect to the devolution set out under Chapter 11 of the Constitution of Kenya, 2010.	"Formulation, implementation and monitoring of legislation, regulations and policies in the water, environment, climate change & natural resources sector." The Department is also responsible for "Forestry including farm forests extension services, forests and game reserves formerly managed by local authorities excluding forests management by Kenya Forest Services (KFS), national water towers and private forests." According to the Forest Conservation and Management Act, 2016 art. 21. "(1) Each County Government - (e) shall advice and assist communities and individuals in the management of community forests or private forests."	Following its prescribed mandate, the Department of Water, Environment & Natural Resources is supposed to serve a supporting role for the Community Forestry Association in the sustainable management of the Mukogodo Forest Reserve. According to an interview respondent from the department, the Department has also assisted in building fences around conservancies to prevent human-wildlife conflicts in Laikipia, as well as doing livestock off-take programmes, build sand dams, etc. They are also doing environmental education programmes for people in the County. "We have been trying to educate them on how they can manage their resources", an informant from the department said.
Kenya Forest Service (KFS)	National level with Conservancy and Ecosystem Offices. Laikipia is under Central Highlands Conservancy and headed by Ecosystem Conservator, Laikipia.	KFS is a corporate body established under the Forest Conservation and Management Act no 34 of 2016, operationalised on the 31st March 2017.	"to provide for the development and sustainable management, including conservation and rational utilisation of all forest resources for the socio-economic development of the country and for connected purposes."	Functions of KFS include, among others: "a) Conserve, protect and manage all public forests in accordance with the provisions of the Act; b) Prepare and implement management plans for all public forests and, where requested, assist in preparation of management plans for community forests or private forests in consultation with the relevant owners". KFS has a forest officer responsible for Mukogodo forest which sits on the board of ILMAMUSI CFA.
Kenya Wildlife Service (KWS)	National level with county-level office. The Laikipia Office is based at Nyahururu.	The Kenya Wildlife Service (KWS) is a state corporation that was established in 1989 by an Act of Parliament (Cap 376), now repealed by the Wildlife Conservation and Management Act, 2013.	KWS has the mandate "to conserve and manage wildlife in Kenya, and to enforce related laws and regulations. KWS undertakes conservation and management of wildlife resources across all protected areas systems in collaboration with stakeholders."	KWS sits on the board of the ILMAMUSI CFA and has an office in Dol Dol, near Mukogodo forest. Their main role is to conserve wildlife and work with different stakeholders to monitor wildlife, prevent poaching, reduce human-wildlife conflicts, and facilitate compensation in cases of wildlife-induced damage.
National Environmental Management Agency (NEMA)	National level, but decentralised to county level with representatives in Laikipia.	The National Environment Management Authority (NEMA), was established under the Environmental Management and Co-ordination Act (EMCA) No. 8 of 1999 amended in 2015.	The mandate of NEMA is "to coordinate, supervise and manage all matters relating to the environment in Kenya." NEMA is responsible for Environmental Impact Assessments (EIAs) and do environmental audits and inspections.	Engaged in evaluating and sanctioning projects and that might have an environmental impact in the Mukogodo forest area, such as sand harvesting, building fences or digging trenches to prevent unwanted livestock and people to enter.
National Drought Management Agency (NDMA)	National level with offices at county level including Laikipia.	The National Drought Management Authority (NDMA) is a public body established by the National Drought Management Authority Act, 2016. It previously operated under the State Corporations Act (Cap 446) of the Laws of Kenya by Legal Notice Number 171 of November 24, 2011	NDMA is mandated to "establish mechanisms which ensure that drought does not result in emergencies and that the impacts of climate change are sufficiently mitigated." Preventing and responding to drought is a core shared function between the National Government and the County Government. In situations where the county is	NDMA provides support to people living in the Mukogodo forest area in drought situations, such as facilitating livestock off-take, provide water and supply feeds to livestock, do disease control and vaccinations. NDMA also provide early warnings, forecasts and develop contingency plans. Assists in organising peace forums to

(*continued*)

Actor/Organisation	Level of governance	Establishment	Mandate as relevant to NRM	Role in management of Mukogodo forest
			overwhelmed, the national government can support. The mandate of WRA is to "safeguard the right to clean water by ensuring that there is proper regulation of the management and use of water resources, in order to ensure sufficient water for everyone- now and in the future."	mediate conflicts between neighbouring communities.
Water Resources Authority (WRA)	National level with county-level offices including Laikipia.	Water Resources Authority (WRA) is a state corporation established under Section 11 of the Water Act, 2016. However, it has been in existence for 12 years following its establishment under the Water Act, 2002 as the Water Resources Management Authority (WRMA).		The WRA in Laikipia is working with Water Resource Users Associations (WRUAs) in and near Mukogodo forest to assist them in managing the water resources in their sub-catchment area, such as building sand dams. WRA develops sub-catchment plans, and coordinate with other relevant stakeholders. Assist in mediating water-related conflicts.
ILMAMUSI Mukogodo Community Forestry Association (CFA)	Situated in Laikipia North sub-county.	ILMAMUSI CFA was formed by the four group ranches surrounding Mukogodo Forest Reserve (Ilngwesi, Makurian, Mukogodo and Sieku) in 2003. The CFA is governed by a board of directors with representation from the four group ranches. The board also includes four group ranch chiefs, and representatives from the KWS, KFS, Borana and Lewa Conservancies, NRT and Laikipia Wildlife Forum (LWF). The CFA also has a secretariat of about 14 staff, plus 12 NPRs (numbers from June 2018). There are also a number of Community-Based Organisations (CBOs), or user groups, under the umbrella of the CFA, involved in beekeeping, traditional medicine etc. There is also a grazing committee.	According to the Forestry Conservation and Management Act 2016, art. 49. (1): "Where a community forest association has been granted permission to participate in the management or conservation of a forest in accordance with the provisions of his Act, that association shall — (a) protect, conserve and manage the forest or part of the forest in accordance with an approved management agreement entered into with the Service and the provisions of the management plan for the forest; (b) formulate and implement sustainable forest programmes that shall be consistent with the traditional forest user rights of the relevant forest community", etc.	"ILMAMUSI Forest Association exists to foster and ensure sustenance of the biological, ecological, environmental, and social-cultural values of the Mukogodo forest in perpetuity in order to protect the natural forest and water catchment areas and to improve the living standards of the surrounding communities through sustainable livelihoods projects and forest management". "ILMAMUSI CFA is responsible for managing access into the forest by surrounding community groups and permission to enter the Forest as a visitor must be secured through the CFA's HQ".
National Police Reservists (NPRs)	National level, under the Kenya Police Service or the Administration Police Service, but decentralised to local police offices.	In 1943, a voluntary police service, the Kenya Police Reserve (KPR), was established by the colonial government to deal with security issues in rural areas. After the National Police Service Act 2011 the service was slightly reformed and renamed the National Police Reserve (NPR) (Njuguna et al., 2015).	According to the National Police Service Act 2011, art. 110 (3), the mandate of NPRs is to "assist the Kenya Police Service or the Administration Police Service in their respective mandates including in the - (a) maintenance of law and order; (b) preservation of peace; (c) protection of life and property; (d) prevention and detection of crime; (e) apprehension of offenders; and (f) enforcement of all laws and regulations with which the Service is charged."	NPRs connected to the ILMAMUSI CFA assist in the protection, monitoring, reporting and surveillance of Mukogodo forest, in collaboration with the Police, NRT, Lewa and Borana conservancies, KFS and KWS. Each guard are responsible for each their section of the forest, but they also work together. NPRs are given firearms, ammunition and training by the police. They do not receive a salary from the government, but some receive allowances from NRT, the CFA and/or conservancies. According to respondents in this study, NPRs in the Mukogodo area patrol the forest to help "communities to protect their land", and they respond to cases of cattle rustling by following the tracks and trying to recover the stolen livestock.
Group Ranches (Lekkuruki, Kurikuri, Makurian, Il Ngwezi)	Situated in Laikipia North sub-county.	There are 13 group ranches in Laikipia, four of which cover parts of Mukogodo forest. These four were established between 1970 and 1974. According to Galaty (1994: 110), these group ranches "exercised three functions: land-holding, resource management, and community organisation".	Following the Land (Group Representatives) Act, 1968, a committee of 3–10 group ranch representatives should be elected at annual general meetings. This Group Ranch Committee "shall assist and encourage members to manage the land or graze their stock in accordance with sound principles of land use, range management, animal husbandry and commercial practice."	The four group ranch committees that covers land in and around Mukogodo forest work together through the ILMAMUSI CFA to manage forest resources, but they also function separately to organise the sustainable management of resources. The group ranch committees develop grazing plans, and acts as a link between the group ranch members and the government, and other stakeholders and donors.
Community Conservancies (Lekkuruki, Il Ngwezi, Makurian)	Situated in Laikipia North sub-county.	Il Ngwezi was the first Maasai Group Ranch in Laikipia to register as a community conservancy in 1996, while the Lekurruki	According to the NRT website, "A community conservancy is a community-based organisation created to support the management	Conservation areas are set aside inside/near the Mukogodo forest to ensure the protection of wildlife in those areas.

(*continued*)

Actor/Organisation	Level of governance	Establishment	Mandate as relevant to NRM	Role in management of Mukogodo forest
		Community Conservancy was registered in 1999 as a Trust and not-for-profit company in 2011. Makurian established in 2004 a conservation area within its section of the Mukogodo forest (Blair and Meredith, 2018), while Kuri Kuri was in 2018 still planning to set it up. The first two are registered under the NRT and the Kenya Wildlife Conservancies Associations (KWCA), while the last two are still in process.	of community-owned land for the benefit of livelihoods. They are legally registered entities, governed by a representative Board of Directors and run by a locally-staffed management team."	The conservancies are governed by a board, as well as a secretariat managing the trust/company.
Water Resources User Associations (WRUAs)	Local level.	Water Resource User Associations (WRUAs) were mentioned in the Water Act 2002, but their establishment was greatly facilitated by the Water Resources Management Rules, 2006. There are several WRUAs in Laikipia, one of the closest to Mukogodo forest is Loisukent WRUA, and it was established in 2008.	According to the Water Resources Management Rules, 2006, WRUAs are associations "of water users, riparian land owners, or other stakeholders who have formally and voluntarily associated for the purposes of cooperatively sharing, managing and conserving a common water resource". According to the Water Act 2016, art. 29. (2), their mandate is to collaboratively manage water resources and resolution of conflicts concerning the use of water resources.	WRUAs inside/near Mukogodo forest ensure the sustainable management of water resources. The Loisukent WRUA said they got donor support to build sand dams and boreholes, as well as put iron sheets on roofs and water tanks in schools.
Northern Rangelands Trust (NRT)	National level NGO.	The Northern Rangelands Trust (NRT) is a membership organisation that was established in 2014 and is owned and led by the 39 community conservancies it serves in northern and coastal Kenya. The NRT is managed by a Board that is accountable to an over-arching Council of Elders, which is comprised of the elected chairpersons of all the member conservancies.	"NRT was established as a shared resource to help build and develop community conservancies", and "NRT is tasked by community leaders to support indigenous communities in their own objectives to: Cooperatively develop locally-led governance structures that complement traditional, indigenous systems, Run peace and security programmes, Take the lead in natural environment management, Manage sustainable businesses linked to conservation. NRT also: Raises funds for member conservancies, Shares advice and guidance on management, and Supports training and performance monitoring"	NRT works with the ILMAMUSI CFA to support their activities, as well as Il Ngwezi and Lekkuruki. According to NRT, the community conservancies they support are independent institutions with their own boards, and the "NRT team purely provide an oversight and again build capacity." NRT provides allowances to NPRs working under these conservancies. NRT also has a Peace Team with Peace Ambassadors that works to facilitate dialogue between neighbouring communities, and 9–1 Rapid Response security teams that provide backup to NPRs in the conservancies. Furthermore, "on a landscape level we have what we call regional grazing committees. (…) And in every conservancy, we have employed a rangelands coordinator, that works with those committees to make sure those grazing plans are in place", one of our NRT informants said.
Laikipia Wildlife Forum (LWF)	National level NGO.	Laikipia Wildlife Forum (LWF) is a membership driven NGO founded in 1992. The Forum includes 6000 members, many of which belong to community natural resources management groups such as Community Forest Associations, Water Resource User Associations, Wildlife Clubs and Conservancies of group ranches. Secretariat in Nanyuki.	According to their website, the mission of LWF is "to nurture and support stakeholder institutions that champion wildlife conservation and sustainable natural resources management in Laikipia and among its neighbors".	LWF works closely with ILMAMUSI CFA, group ranch and conservancy committees, NRT and other stakeholders to support the sustainable management of resources in Mukogodo forest.

Information about the different actors are taken from their respective official websites, interviews with representatives, as well as relevant policies and laws.

References

Adger, W.N., Pulhin, J.M., Barnett, J., Dabelko, G.D., Hovelsrud, G.K., Levy, M., Oswald, Ú.S., Vogel, C.H., 2014. Human security. In: Field, C.B., Barros, V.R., Dokken, D.J., Mach, K.J., Mastrandrea, M.D., Bilir, T.E., White, L.L. (Eds.), Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (pp. 755–791). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Asiyanbi, A., Ogar, E., Akintoye, O., 2019. Complexities and surprises in local resistance to neoliberal conservation: multiple environmentalities, technologies of the self and

the poststructural geography of local engagement with REDD+. Polit. Geogr. 69, 128–138. https://doi.org/10.1016/j.polgeo.2018.12.008.

Ayugi, B.O., Tan, G., 2019. Recent trends of surface air temperatures over Kenya from 1971 to 2010. Meteorog. Atmos. Phys. 131 (5), 1401–1413. https://doi.org/10.1007/s00703-018-0644-z.

Baxter, J., 2010. Case studies in qualitative research. In: Hay, I. (Ed.), Qualitative Research Methods in Human Geography, third edition. Oxford University Press, Oxford, UK, pp. 81–97.

BBC, 2017. Tristan Voorspuy killing: Suspect arrested in Kenya. In: BBC News, 15.03.2017. Available at: https://www.bbc.com/news/world-africa-39257546 (Accessed 31.10.2020).

Benjaminsen, G., 2017. The bricolage of REDD+ in Zanzibar: from global environmental policy framework to community forest management. J. East. Afr. Stud. 11 (3), 506–525. https://doi.org/10.1080/17531055.2017.1357103.

Bikketi, E., Ifejika Speranza, H., Bieri, S., et al., 2016. Gendered division of labour and feminisation of responsibilities in Kenya; implications for development interventions. Gend. Place Cult. 23 (10), 1432–1449. https://doi.org/10.1080/0966369X.2016.1204996.

Blair, A.G., Meredith, T.C., 2018. Community perception of the real impacts of human–wildlife conflict in Laikipia, Kenya: capturing the relative significance of high-frequency, low-severity events. Oryx 52 (3), 497–507. https://doi.org/10.1017/S0030605316001216.

Bond, J., 2014. A holistic approach to natural resource conflict: the case of Laikipia County, Kenya. J. Rural. Stud. 34, 117–127. https://doi.org/10.1016/j.jrurstud.2014.01.008.

Bond, J., Mkutu, K., 2018. A "patchwork" for peace: institutions and activities in Kenya's northern drylands. Local Environ. 23 (3), 293–315. https://doi.org/10.1080/13549839.2017.1417360.

CDC, IISD, Saferworld, 2009. In: Climate Change and Conflict. Lessons from Community Conservancies in Northern Kenya. The Conservation Development Centre (CDC), the International Institute for Sustainable Development (IISD) and Saferworld, November 2009a.

Chebii, J.K., 2015. Forest Management and Conservation in Kenya: A Study of the Role of Law in the Conservation of Forest Resources. PhD Thesis. University of South Africa.

Cheeseman, N., Lynch, G., Willis, J., 2016. Decentralisation in Kenya: the governance of governors. J. Mod. Afr. Stud. 54 (1), 1–35. https://doi.org/10.1017/S0022278X1500097X.

Colony Protectorate of Kenya, 1938. The Trust Land Act no. 28 of 1938. Nairobi, Kenya.

Colony Protectorate of Kenya, 1958. Sessional Paper No. 7 of 1957/58: Report of the 1956 Game Policy Committee. Nairobi, Kenya.

Corbera, E., Martin, A., Springate-Baginski, O., Villaseñor, A., 2020. Sowing the seeds of sustainable rural livelihoods? An assessment of participatory Forest management through REDD+ in Tanzania. Land Use Policy 97 (102962), 1–14. https://doi.org/10.1016/j.landusepol.2017.09.037.

Coulter, J.E., Witinok-Huber, R.A., Bruyere, B.L., Dorothy Nyingi, W., 2019. Giving women a voice on decision-making about water: barriers and opportunities in Laikipia, Kenya. Gend. Place Cult. 26 (4), 489–509. https://doi.org/10.1080/0966369X.2018.1502163.

County Government of Laikipia, 2018. Laikipia County Integrated Development Plan 2018–2022. Nairobi, Kenya.

Duffy, R., 2014. Waging a war to save biodiversity: the rise of militarized conservation. Int. Aff. 90 (4), 819–834. https://doi.org/10.1111/1468-2346.12142.

Duffy, R., Massé, F., Smidt, E., Marijnen, E., Büscher, B., Verweijen, J., Ramutsindela, M., Simlai, T., Joanny, L., Lunstrum, E., 2019. Why we must question the militarisation of conservation. Biol. Conserv. 232, 66–73. https://doi.org/10.1016/j.biocon.2019.01.013.

Ensor, J., Forrester, J., Matin, N., 2018. Bringing rights into resilience: revealing complexities of climate risks and social conflict. Disasters 42 (S2), S287–S305. https://doi.org/10.1111/disa.12304.

Ensor, J.E., Wennström, P., Bhatterai, A., Nightingale, A.J., Eriksen, S., Sillmann, J., 2019. Asking the right questions in adaptation research and practice: seeing beyond climate impacts in rural Nepal. Environ. Sci. Pol. 94, 227–236. https://doi.org/10.1016/j.envsci.2019.01.013.

Eriksen, S.H., Lind, J., 2009. Adaptation as a political process: adjusting to drought and conflict in Kenya's drylands. Environ. Manag. 43 (5), 817–835. https://doi.org/10.1007/s00267-008-9189-0.

Eriksen, S.H., Gachathi, F.N., Muok, B., Ochieng, B., Owuor, B., 2006. Synergies in biodiversity conservation and climate change adaptation: The case of hilltop forests in Kitui, Kenya. In: Mistry, J., Berardi, A. (Eds.), The Savanna Biome System, (pp. 187-226). Ashgate.

Eriksen, S.H., Nightingale, A.J., Eakin, H., 2015. Reframing adaptation: the political nature of climate change adaptation. Glob. Environ. Chang. 35, 523–533. https://doi.org/10.1016/j.gloenvcha.2015.09.014.

Fox, G.R., 2018. Maasai group ranches, minority land owners, and the political landscape of Laikipia County, Kenya. J. East. Afr. Stud. 12 (3), 473–493. https://doi.org/10.1080/17531055.2018.1471289.

Franz, T.E., Caylor, K.K., Nordbotten, J.M., Rodríguez-Iturbe, I., Celia, M.A., 2010. An ecohydrological approach to predicting regional woody species distribution patterns in dryland ecosystems. Adv. Water Resour. 33 (2), 215–230. https://doi.org/10.1016/j.advwatres.2009.12.003.

Funk, C., Michaelsen, J., Marshall, M.T., 2012. Mapping recent decadal climate variations in precipitation and temperature across eastern Africa and the Sahel. In: Wardlow, B.D., Anderson, M.C., Verdin, J.P. (Eds.), Drought and Water Crises, Remote Sensing of Drought: Innovative Monitoring Approaches. CRC Presss/Taylor & Francis, Boca Raton.

Galaty, J.G., 1994. Ha(l)ving land in common: the subdivision of Maasai group ranches in Kenya. Nomadic Peoples 34/35, 109–122. http://www.jstor.org/stable/43124076.

Gebrechorkos, S.H., Hülsmann, S., Bernhofer, C., 2018. Changes in temperature and precipitation extremes in Ethiopia, Kenya, and Tanzania. Int. J. Climatol. 39 (1), 18–30. https://doi.org/10.1002/joc.5777.

Gebrechorkos, S.H., Hülsmann, S., Bernhofer, C., 2019a. Long-term trends in rainfall and temperature using high-resolution climate datasets in East Africa. Sci. Rep. 9 (1), 11376. https://doi.org/10.1038/s41598-019-47933-8.

Gebrechorkos, S.H., Hülsmann, S., Bernhofer, C., 2019b. Regional climate projections for impact assessment studies in East Africa. Environ. Res. Lett. 14, 044031 https://doi.org/10.1088/1748-9326/ab055a.

Genugten, W.v., 2010. Protection of indigenous peoples on the African continent: concepts, position seeking, and the interaction of legal systems. Am. J. Int. Law 104 (1), 29–65. https://doi.org/10.5305/amerjintelaw.104.1.0029.

Goldman, M.J., Daly, M., Lovell, E.J., 2016. Exploring multiple ontologies of drought in agro-pastoral regions of northern Tanzania: a topological approach. Area 48 (1), 27–33. https://doi.org/10.1111/area.12212.

Greiner, C., 2012. Unexpected consequences: wildlife conservation and territorial conflict in Northern Kenya. Hum. Ecol. 40, 415–425. https://doi.org/10.1007/s10745-012-9491-6.

Greiner, C., 2013. Guns, land, and votes: cattle rustling and the politics of boundary (re)making in northern Kenya. Afr. Aff. 112 (447), 216–237. https://doi.org/10.1093/afraf/adt003.

Hughes, L., 2005. Malice in Maasailand: the historical roots of current political struggles. Afr. Aff. 104, 207–224. https://doi.org/10.1093/afraf/adi033.

Ifejika Speranza, C., Bikketi, E., 2018. Engaging with gender in water governance and practice in Kenya. New World 125–150. https://doi.org/10.1007/978-3-319-64046-4_7.

IWGIA, 2012. Country Technical Notes on Indigenous Peoples' Issues. The Republic of Kenya.

Jazeera, Al, 2017. Kuki Gallmann shot as land invasions surge in Kenya. Al Jazeera. 23. April 2017. Available at: http://www.aljazeera.com/news/2017/04/gunmen-wound-conservationist-drought-stricken-kenya-170423144926618.html (Accessed 31.10.2020).

Kagombe, J.K., Mbuvi, M.T.E., Masere, D., 2004. Participatory Forest Management in Mukogodo-Laikipia District: Strengthening Community Structures to Participate in Natural Resource Management. FORREMS project report [unpublished].

Keeley, J., Scoones, I., 2003. Understanding Environmental Policy Processes. Cases from Africa. Earthscan, London, UK.

Kelly, A.B., Ybarra, M., 2016. Introduction to themed issue: "green security in protected areas". Geoforum 69, 171–175. https://doi.org/10.1016/j.geoforum.2015.09.013.

Kenya Wildlife Conservancy Association (KWCA), 2019. 4th Annual National Conservancies Leaders Conference. Nairobi, Kenya.

Kinnaird, M.F., O'brien, T.G., 2012. Effects of private-land use, livestock management, and human tolerance on diversity, distribution, and abundance of large African mammals. Conserv. Biol. 26 (6), 1026–1039. https://doi.org/10.1111/j.1523-1739.2012.01942.x.

Klenk, N., Fiume, A., Meehan, K., Gibbes, C., 2017. Local knowledge in climate adaptation research: moving knowledge frameworks from extraction to co-production. WIREs Climate Change 8 (5), e475. https://doi.org/10.1002/wcc.475.

Lemos, M.C., Agrawal, A., 2006. Environmental governance. Annu. Rev. Environ. Resour. 31 (1), 297–325. https://doi.org/10.1146/annurev.energy.31.042605.135621.

Letai, J., Lind, J., 2013. Squeezed from all sides: Changing resource tenure and pastoralist innovation in the Laikipia plateau, Kenya. In: Catley, A., Lind, J., Scoones, I. (Eds.), Pastoralism and Development in Africa: Dynamic Change at the Margins. Routledge, London.

Lind, J., 2018. Devolution, shifting Centre-periphery relationships and conflict in northern Kenya. Polit. Geogr. 63, 135–147. https://doi.org/10.1016/j.polgeo.2017.06.004.

Lund, C., 2016. Rule and rupture: state formation through the production of property and citizenship. Dev. Chang. 47 (6), 1199–1228. https://doi.org/10.1111/dech.12274.

Lund, J.F., Rutt, R.L., Ribot, J., 2018. Trends in research on forestry decentralization policies. Curr. Opin. Environ. Sustain. 32, 17–22. https://doi.org/10.1016/j.cosust.2018.02.003.

Lunstrum, E., 2014. Green militarization: anti-poaching efforts and the spatial contours of Kruger National Park. Ann. Assoc. Am. Geogr. 104 (4), 816–832. https://doi.org/10.1080/00045608.2014.912545.

Lunstrum, E., 2015. Conservation meets militarisation in Kruger National Park: historical encounters and complex legacies. Conserv. Soc. 13 (4), 356–369. https://doi.org/10.4103/0972-4923.179885.

Lunstrum, E., 2016. Green grabs, land grabs and the spatiality of displacement: eviction from Mozambique's Limpopo National Park. Area 48 (2), 142–152. https://doi.org/10.1111/area.12121.

Lyon, B., DeWitt, D.G., 2012. A recent and abrupt decline in the east African long rains. Geophys. Res. Lett. 39, L02702 https://doi.org/10.1029/2011GL050337.

Matiru, V., 1999. Forest Cover and Forest Reserves in Kenya: Policy and Practice. IUCN, Regional Office for Eastern Africa. Nairobi, Kenya.

Mbuvi, M.T.E., Ndalilo, L., Cheboiwo, J., 2018. Challenges to actualization of decentralization Forest management functions: experiences and lessons on devolving forestry management functions in Kenya. Public Policy Administ. Res. 8 (10).

M'mboroki, K.B., Wandiga, S., Oriaso, S.O., 2018. Climate change impacts detection in dry forested ecosystem as indicated by vegetation cover change in —Laikipia, of Kenya. Environ. Monit. Assess. 190, 255 (2018). https://doi.org/10.1007/s10661-018-6630-6.

Muthoni, F.K., Odongo, V.O., Ochieng, J., Mugalavai, E.M., Mourice, S.K., Hoesche-Zeledon, I., Mwila, M., Bekunda, M., 2019. Long-term spatial-temporal trends and variability of rainfall over eastern and southern Africa. Theor. Appl. Climatol. 137 (3), 1869–1882. https://doi.org/10.1007/s00704-018-2712-1.

Mutune, J.M., Lund, J.F., 2016. Unpacking the impacts of 'participatory' forestry policies: evidence from Kenya. Forest Policy Econ. 69, 45–52. https://doi.org/10.1016/j.forpol.2016.03.004.

Ndirangu, M., 2017. Government declares parts of Laikipia dangerous. Daily Nation. 15. March 2017. Available at: https://www.nation.co.ke/counties/laikipia/Government-declares-Laikipia-dangerous-/1183290-3851582-wss5mmz/index.html (Accessed 31.10.2020).

Ng'ang'a, T.W. & Crane, T. (2020). Social differentiation in climate change adaptation: one community, multiple pathways in transitioning Kenyan pastoralism, Environ. Sci. Pol., 114, 478–485. Doi: doi:https://doi.org/10.1016/j.envsci.2020.08.010.

Niang, I., Ruppel, O.C., Abdrabo, M.A., Essel, A., Lennard, C., Padgham, J., Urquhart, P., 2014. Africa. In: Barros, V.R., Field, C.B., Dokken, D.J., Mastrandrea, M.D., Mach, K. J., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., et al. (Eds.), Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel of Climate Change, pp. 1199–1265. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Nicholson, S.E., 2017. Climate and climatic variability of rainfall over eastern Africa. Rev. Geophys. 55, 590–635. https://doi.org/10.1002/2016RG000544.

Nicholson, S.E., Nash, D.J., Chase, B.M., Grab, S.W., Shanahan, T.M., Verschuren, D., Asrat, A., Lézine, A.M., Umer, M., 2013. Temperature variability over Africa during the last 2000 years. The Holocene 23, 1085–1094. https://doi.org/10.1177/0959683613483618.

Nightingale, A.J., 2017. Power and politics in climate change adaptation efforts: struggles over authority and recognition in the context of political instability. Geoforum 84, 11–20. https://doi.org/10.1016/j.geoforum.2017.05.011.

Nightingale, A.J., 2018. (2018). The socioenvironmental state: political authority, subjects, and transformative socionatural change in an uncertain world. Environ. Plann. E: Nat. Space. 1 (4), 688–711. https://doi.org/10.1177/2514848618816467.

Nightingale, A.J., Ojha, H.R., 2013. Rethinking power and authority: symbolic violence and subjectivity in Nepal's Terai forests. Dev. Chang. 44, 29–51. https://doi.org/10.1111/dech.12004.

Njuguna, E., Ndung'u, J., Musoi, K., 2015. Matching Needs with Resources: National Police Reserve and Community Security in Kenya's Frontiers. Saferworld, London, UK and Nairobi, Kenya.

Njuguna, S., 2017. Leaders seek dialogue over Laikipia security operation. Daily Nation, 24. August 2017. Available at: http://www.nation.co.ke/counties/Laikipia/Leaders-differ-Laikipia-operation/1183290-4068772-kpq1xo/index.html (Accessed 31.10.2020).

Nkonya, E., Mirzabaev, A., von Braun, J., 2016. Economics of Land Degradation and Improvement – A Global Assessment for Sustainable Development. Springer Cham Heidelberg New York Dordrecht London.

Nyandiko, N.O., 2020. Devolution and disaster risk reduction in Kenya: progress, challenges and opportunities. Int. J. Disaster Risk Reduct. 51, 101832. https://doi.org/10.1016/j.ijdrr.2020.101832.

Odera, J.A., 2009. The Changing Forest Management Paradigm in Africa: A Case for Community Based Forest Management System. Discovery and innovation, SFM Special Edition No 1, Vol. 21. https://doi.org/10.4314/dai.v21i3.48207.

Oduor, N., Githiomi, J.K., 2012. Strategies for sustainable wood fuel production in Kenya. Int. J. Appl. Sci. Technol. 2 (10), 21–25.

Ogutu, J.O., Piepho, H.-P., Said, M.Y., Ojwang, G.O., Njino, L.W., Kifugo, S.C., Wargute, P.W., 2016. Extreme wildlife declines and concurrent increase in livestock numbers in Kenya: what are the causes? PLoS One 11 (9), e0163249. https://doi.org/10.1371/journal.pone.0163249.

Ongugo, P.O., Mogoi, J.N., Obonyo, E., Oeba, V.O., 2008. In: Examining the Roles of Community Forest Associations in the Decentralization Process of Kenyan Forests. Paper Presented to the IASC Conference, 11-19th July 2008, England.

Paavola, J., 2007. Institutions and environmental governance: a reconceptualization. Ecol. Econ. 63 (1), 93–103. https://doi.org/10.1016/j.ecolecon.2006.09.026.

Republic of Kenya, 1968a. The Land Adjudication Act no. In: 35 of 1968. Nairobi, Kenya.

Republic of Kenya, 1968b. Sessional Paper No. 1 of 1968: A Forest Policy for Kenya. Nairobi, Kenya.

Republic of Kenya, 2005. The Forest Act of 2005. Nairobi, Kenya.

Republic of Kenya, 2009a. Sessional Paper No.3 of 2009b: The National Land Policy. Ministry of Lands, Nairobi, Kenya.

Republic of Kenya, 2009b. The Forests (Participation in Sustainable Forest Management) Rules of 2009. Nairobi, Kenya.

Republic of Kenya, 2010a. The Constitution of Kenya. Published by the National Council for Law Reporting with the Authority of the Attorney-General. Nairobi, Kenya.

Republic of Kenya, 2010b. National Climate Change Response Strategy. Nairobi: Kenya.

Republic of Kenya, 2012. Trust Land Act Chapter 290, Revised Edition 2012 [1982]. Nairobi, Kenya.

Republic of Kenya, 2013. The Wildlife Conservation and Management Act No. 47 of 2013. Kenya Gazette Supplement No. 18. Nairobi, Kenya.

Republic of Kenya, 2014. National Forest Policy. Nairobi, Kenya.

Republic of Kenya, 2016a. The Community Land Act No. 27 of 2016. Kenya Gazette Supplement No. 148. Nairobi, Kenya.

Republic of Kenya, 2016b. The Forest Conservation and Management Act No. 34 of 2016. Kenya Gazette Supplement No. 155. Nairobi, Kenya.

Republic of Kenya, 2016c. National Forest Programme 2016–2030. Ministry of Environment and Natural Resources, Nairobi, Kenya.

Ribot, J.C., 2003. Democratic decentralisation of natural resources: institutional choice and discretionary power transfers in sub-Saharan Africa. Public Adm. Dev. 23 (1), 53–65. https://doi.org/10.1002/pad.259.

Satyal, P., Corbera, E., Dawson, N., Dhunganad, H., Maskey, G., 2020. Justice-related impacts and social differentiation dynamics in Nepal's REDD +projects. Forest Policy Econ. 117 https://doi.org/10.1016/j.forpol.2020.102203.

Sikor, T., Lund, C., 2009. Access and property: a question of power and authority. Dev. Chang. 40 (1), 1–22. https://doi.org/10.1111/j.1467-7660.2009.01503.x.

Smith, P., Nkem, J., Calvin, K., Campbell, D., Cherubini, F., Grassi, G., Korotkov, V., Hoang, A.L., Lwasa, S., McElwee, P., Nkonya, E., Saigusa, N., Soussana, J.-F., Taboada, M.A., 2019. Interlinkages between desertification, land degradation, food security and greenhouse gas fluxes: synergies, trade-offs and integrated response options. In: Climate Change and Land: an IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.- O. Portner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)].

Strum, S.C., Stirling, G., Mutunga, S.K., 2015. The perfect storm: land use change promotes Opuntia stricta's invasion of pastoral rangelands in Kenya. J. Arid Environ. 118, 37–47. https://doi.org/10.1016/j.jaridenv.2015.02.015.

Unks, R.R., King, E.G., Nelson, D.R., Wachira, N.P., German, L.A., 2019a. Constraints, multiple stressors, and stratified adaptation: pastoralist livelihood vulnerability in a semi-arid wildlife conservation context in Central Kenya. Glob. Environ. Chang. 54, 124–134. https://doi.org/10.1016/j.gloenvcha.2018.11.013.

Unks, R.R., King, E.G., German, L.A., Wachira, N.P., Nelson, D.R., 2019b. Unevenness in scale mismatches: institutional change, pastoralist livelihoods, and herding ecology in Laikipia, Kenya. Geoforum 99, 74–87. https://doi.org/10.1016/j.geoforum.2018.12.010.

Wily, L.A., 2018. The community land act in Kenya: opportunities and challenges for communities. Land 7 (1), 12. https://doi.org/10.3390/land7010012.

Woroniecki, S., 2019. Enabling environments? Examining social co-benefits of ecosystem-based adaptation to climate change in Sri Lanka. Sustainability 11, 772. https://doi.org/10.3390/su11030772.