Colonial and Post-colonial Rangeland Enclosures amid Climate Uncertainty: The Case of Maasai Pastoralists of Kajiado County, Kenya

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Declaration

I declare that this study is a presentation of my original research work. The ideas drawn from the contribution(s) of others have been acknowledged or indicated clearly with due referencing. I understand that copying the works of others and presenting them as mine is wrong. This thesis has not been submitted in the past, nor is it being submitted at any other institution.

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Abstract

The enclosure of common resources in Kenya's rangelands became more pronounced after Kenya's independence because of adverse land reform policies, which proved ineffective in addressing the prior injustices of the forceful dispossession of Maasai pastoralists by the British colonial authority. The ongoing enclosure of common resources by both state and private capital for economic gain has left the herder community exposed to the adverse effects of climate change. The purpose of this thesis is to examine the adaptive capacity of Maasai to the intersecting stresses of climate change and resource enclosure. It examines the implications of common-resource enclosures for the Maasai livestock economy and the coping mechanisms they have undertaken to build adaptive capacity to changing climate conditions. The analysis employs an ethnographic approach using interviews and participant observation to collect data from field research in Ildamat-Oloyiankalani, Kajiado County, Kenya. The study is embedded in the daily herding and resource foraging practices of Maasai that took place during the prolonged drought period of 2017 and 2018 and in their ongoing experience of the intersecting stresses of climate change and common-resource enclosures. The study unveiled three major insights. First, that a tightening grip over common resources by private property growth has undermined the consensus-based democratic governance of resources, disrupted herders' access rights and exposed them to climate risks. Second, that pastoralists developed collective grazing arrangements and acquired exclusive grazing rights as mechanisms to improve herd mobility and resource access to cope with the intersecting stresses of climate change and the enclosure of grazing commons. Lastly, the study found that the implications of growing resource pressure and climate risk have driven pastoralists to actively assemble to disrupt further enclosure of their commons and to protect their rights. These insights confirm the importance of pastoralists' access rights to rangeland resources. In conclusion, the thesis broadly argues that facilitating extractive capitalism by disrupting pastoralists' access rights through common-resource enclosures adversely affects their ability to cope with the intersecting stresses of climate and environmental change. Therefore, it is critical that resource-governing policies facilitate the democratisation of grazing and water resources to protect the commons from further enclosure and to ensure equitable access. This would restore the commons approach and protect the remaining herders' access rights, lowering their vulnerability to the intersecting stresses of climate and environmental change.

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List of Acronyms

ALDEV	African Land Development Programme
ASAL	Arid and semi-arid lands
CPR	Common property resources
FAO	Food and Agriculture Organization of the United Nations
GHG	Greenhouse gases
GoK	Government of Kenya
IMF	International Monetary Fund
INDC	Intended Nationally Determined Contribution
ICT	Information communication technology
IPCC	Intergovernmental Panel on Climate Change
KANU	Kenya African National Union
KEL	Kipeto Energy Limited
KoTDA	Konza Technopolis Development Authority
KES	Kenyan shilling
KNBS	Kenya National Bureau of Statistics
LTWP	Lake Turkana Wind Power
MCA	Member of County Assembly
MKWDCS	Maasai Kajiado Women's Dairy Cooperative
MUF	Maasai United Front
NDMA	National Drought Management Authority
NAP	Kenya National Adaptation Plan
NCCAP	National Climate Change Action Plan
NCCRS	National Climate Change Response Strategy
New-KCC	New Kenya Cooperative Creameries
NGO	Non-governmental organisation
RMD	Rangeland Management Division
SAPs	Structural adjustment programs
SDG	Sustainable development goals
STFS	Settlement Transfer Schemes
TARDA-MUMIAS	Tana-Athi River Development Authority
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change
UN-OCHA	United Nations Organization for the Coordination of Humanitarian Affairs
USD	United States dollar
WMO	World Meteorological Organization

Table of Contents

List of Figures

List of Images

(Images by the author unless otherwise stated)

Introduction

Pastoralism, Climate Uncertainty and Environmental Change: Setting the Context

Mobile pastoral livestock husbandry defies the static property boundaries and historical acts of enclosure that marginalised Maasai pastoralists to enable national growth but gradually fragmented their heterogeneous rangeland ecology, limited their traditional management of common resources, and exposed their livestock economy to the risks of climate uncertainty. The known consequences of British colonial land enclosures on pastoralism are replicated through new forms of enclosures. In alliance with private investors, the neoliberal state continues to disenfranchise pastoralist land rights and to enclose land to enable extractive capitalism.[1] This modern land grabbing has resulted in growing environmental pressure and concern over the practicality of mobile livestock husbandry in the rangelands in a time of climate crisis.

Kenyan newspaper *The Standard* published an article titled "It's Time Kenya Bid Pastoralism Goodbye", in which journalist Fred Gori (2017) calls for pastoralists in arid and semi-arid lands to rethink their mobile practice under a changing climate and environment. Gori argues that in the face of adversities such as prolonged droughts and the inability to access land for key resources, mobile livestock husbandry is no longer viable. He further contends that a diminishing resource base and increasing land pressure brought by settlement expansion and land-based investments places uncertainty on pastoralism's future, as regular drought-induced livestock losses will only entrench vulnerability and poverty.

However, two competing visions of the same rangelands of Kenya exist between pastoralists on the one hand and the neoliberal state and private capital on the other, the root cause of contestations during droughts. Pastoralists whose grazing practice covers large swaths of the ecologically variable rangelands are in competition with both the Kenyan government and private investors' vision to privatise land to extract monetary value through commercial agriculture, real estate, energy production, industry, mining, tourism, nature conservation and land speculation (see Galaty, 2013a: 149-153; Hall et al., 2015: 12, 15-18, 83-98, 110-113; Cormack and Kurewa, 2018: 89-103; Schilling et al., 2018: 571-590).

[1] The term "neoliberal" is used as a philosophical ideology to describe institutions (e.g., state or private) which favour policies that promote privatization of public goods, free-market capitalism, deregulation, and reduction in government spending. See Chapter two for further definition of Neoliberalism.

My exploration of the rise of Kajiado County as a vital environment for Kenya's economic growth and the ongoing struggle of the Maasai livestock economy against a changing environment and an uncertain climate began on 4 December 2016, when I went on a preliminary field visit in the middle of a drought. This visit was largely inspired by a news article titled "Women Milk Fortune from Dairy Group" by Billy Muiruri (2014) in October 2014. The article describes the formation of the Maasai Kajiado Women's Dairy Cooperative Society (MKWDCS), which gave Maasai pastoralists a new identity as commercial dairy farmers.

The newfound identity of Maasai pastoralists as commercial dairy farmers prompted me to learn more about their livelihood, practices and organisation, and I volunteered as a clerk at the Oleleshwa milk collection centre in Kajiado town. During my time there from 6 December 2016 to 7 January 2017, I became acquainted with Alfred Silanka, a member of the dairy cooperative, who became my host for the duration of my field research. Our frequent interactions when he delivered milk to the collection centre and herded livestock enabled us to become familiar with one another. We shared conversations about the impacts of recurrent droughts and land loss on Maasai livelihoods and the particular challenge of accessing enclosed forage and water in the prolonged drought of 2017.

On 27 December 2016, on my day off from voluntary work at the cooperative, Alfred invited me for lunch at his home in Ildamat-Oloyiankalani, approximately 20 km from Kajiado town. While having lunch prepared by his wife Felister, Alfred and I continued our discussion about the growing challenges that the Maasai herders of Kajiado County were facing as private property and occasional droughts made access to grazing and water sources increasingly difficult. Alfred also touched on the nationally trending topic of violent contestation between herders and large-scale landowners, ongoing during the drought period in Laikipia County, 260 km north of Nairobi (see Figure 1). To access enclosed grazing and water during the severe drought of 2017, herders, mostly from northern Kenya, invaded private wildlife conservancies in Laikipia County, which belonged mostly to European investors.

"Author Kuki Gallmann Shot by Raiders on her Ranch in Kenya" in the British daily newspaper *The Guardian* (Kean, 2017) describes how renowned conservationist Kuki Gallmann (Image 1), whose memoir *I Dreamed of Africa* became a Hollywood motion picture starring American actress Kim Basinger, was critically wounded after being shot by unknown people suspected to have been

herders, who invaded her 88,000-acre (36,000 hectare) Ol-Ari Nyiro nature conservancy and safari game ranch.


Image 1: Tristan Voorspuy (L) and Kuki Gallmann (R), owners of private safari game and conservancy ranches in Laikipia County, Kenya. (Sources: Matara and Njuguna, 2017; McConnell, 2017)

The narrative was not much different to that in a story published on 5 March, 2017, when *The Guardian* reported "British Ranch Owner Killed by Armed Raiders in Kenya". In that incident, South African-born retired British soldier Tristan Voorspuy (Image 1) met his death after a confrontation with suspected armed herders as he was inspecting property damages on his 44,000-acre (17,600 hectare) game ranch after the herders forced their way onto the ranch. Invasions targeting private wildlife conservancies occurred mostly in 2017 as an unprecedented drought gripped the Laikipia area, pushing migrating herders to desperation. The ranchers, however, argued that the invasions were a politically motivated tactic to take over the land as part of a long-running historical dispute between the Maasai and ranch owners.

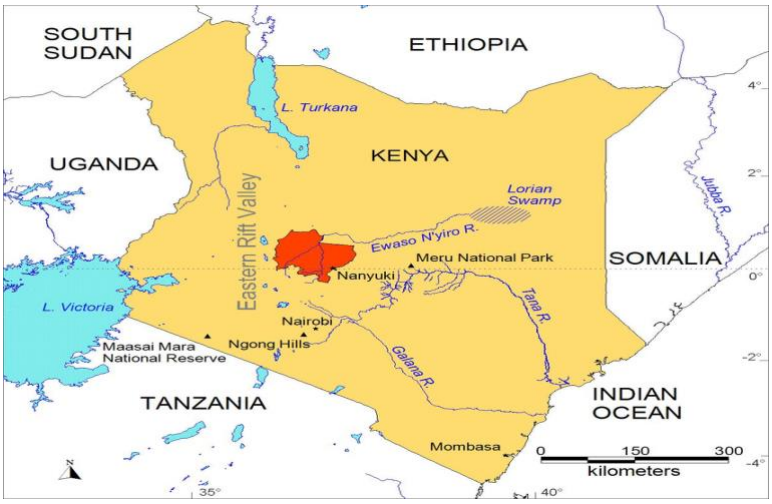

Figure 1: Location of Laikipia County (shaded in red) in Kenya. (Source: County Government of Laikipia)

In "Kenyan Cattle Herders Defend 'Necessary' Land Invasions", Tristan McConnell (2017) offers a different narrative, suggesting herders were defending themselves. One interviewee, a Samburu herdsman, said:

> The reason we go there is not to grab the land, we go for pasture, nothing else…We don't go in there for war or planning to stay, we just go in to graze until there are rains back at home. When there's drought, a fence means nothing to me. (In McConnell, 2017)

The herders blamed the ranch owners for the confrontations and claimed that they only wanted to graze their livestock, with no sinister motives or intentions to take over the land. Despite this, the ranch owners – mostly white, foreign investors – called on Kenyan security forces to attack them, describing the herders' actions as "illegal herding", a meaningless term to the herders who wanted to keep their drought-stricken livestock alive. The herders said their actions were provoked by the ranchers, who enclose resources for their wildlife business while overlooking the local needs of herders' livestock in the drought.

Image 2: A newspaper article highlighting dry season conflicts between herders and conservancy ranch owners in 2017. (Source: Njuguna and Oundoh, 2017)

Media reports on ranch invasions during the droughts raised the underlying historical issue of land contestation between Maasai herders and private landowners in the Laikipia area. In "Land Disputes, Drought Compel Herders to Invade Ranches", journalists Eric Matara and Steve Njuguna (2017) report that the dry-season conflicts between the mobile herders and landowners were intensified by the ongoing disputes over land. The ranch owners claimed that their tourism businesses provided crucial revenue for the appreciative and supportive state, while herders sought to reclaim land that had historically belonged to them.

Contesting visions of Kenyan rangelands can be traced to the historical annexation of large portions of traditional Maasai grazing lands by the British colonial authority between the years 1904 and 1911 (Nunow, 2015: 101-102; Letai, 2015: 85-86). Seasonal communal grazing areas valuable for colonial agriculture and biota conservation in Greater Maasailand (see Figure 7), like present-day Laikipia County, were taken away from the Maasai. Land seizure was enforced through colonial policies and practices that concentrated pastoral production in marginal lands characterised by arid and semi-arid climatic conditions (Hogg, 1987: 49; Carrier and Kochore 2014: 136; Mosley and Watson, 2016: 461; Cormack and Kurewa, 2018: 91-92). Most Maasai people driven from the prime grazing lands were confined to a colonial-created Maasai reserve (see Figure 8) in present-day Kajiado County in the southern part of Greater Maasailand. When independence approached in 1963, Kenya was plagued by a crisis of looming landlessness among

its displaced native African population, who were largely restricted to overpopulated colonial native reserves (discussed further in Chapter four).

However, the post-independence government of Kenya did not undertake a transparent land reform process to reinstate ancestral lands to their native communities (Nunow, 2015: 101-103; Letai, 2015: 85-89; Chapter four). Instead, the state pushed for a land resettlement program that encouraged private ownership and the commodification of land based on a "willing buyer, willing seller" principle, making poorer and less politically influential communities more vulnerable to elite and state-sponsored land grabs (Nunow, 2015: 102, 103, 112; Letai, 2015: 83-92; Koissaba, 2016: 42).[2] In the build-up to Kenya's independence, the Maasai formed a political faction, the Maasai United Front (MUF), to strengthen their petition for the return of colonially appropriated ancestral territories. While the Maasai retained the semi-arid Kajiado County, they lost their bid to regain control of the fertile Laikipia County when the petition they brought before the United Nations did not gain support. The Lancaster House Conference of 1962 further endorsed President Jomo Kenyatta's idea of free movement and his concern that the Maasai petition to reclaim ancestral lands would encourage tribalism and hinder Kenya's prosperity. The failed Maasai petition allowed landless Kikuyus and a few powerful political elites allied to the government of President Kenyatta to acquire land in Laikipia cheaply from the vacating European settler community through the settlements transfer scheme (Rutten, 1992: 202-204; Rutten, 1995: 8-9; Letai, 2015: 83-92; Chapter four).

The Maasai's failure to regain control over their former ancestral territories and their ongoing fears of encroachment by large and small-scale farmers and the expansion of wildlife conservancies pushed Kajiado's Maasai to advocate for a change in property relations. The government of President Daniel arap Moi advocated for private tenure as a reasonable solution to securing landholding, but this only intensified land grabs by chiefs, councillors, businessmen and administrative officials in Kajiado, while depriving poorer Maasai. As mobile livestock husbandry was the dominant form of land use in Kajiado County, it gradually lost its grazing platform to growing rangeland fragmentation, facing a risky future (Rutten, 1992: 299-301; Galaty, 2013a: 149-153; Galaty, 2013b: 20-35). The marginalisation of pastoralism by the neoliberal state and

[2] The term "elite" is used to describe persons belonging to the ruling class (see: Magyar and Madlovics: 2020:91-112).

private capital for economic growth compounds what Fairhead et al. (2012: 237) describe as "well-known histories of colonial and neo-colonial resource alienation in the name of the environment, whether for parks, forest reserves or to halt assumed destructive local practices." This is reflected in the state and private capital alliance's use of colonial isolationist policies and practices to extract value from land while restricting indigenous forms of production such as pastoralism.

Land-based investments are part of the neoliberal state and private capital's agenda of commoditising the nature commons that supports rural agrarian livelihoods (Kelly, 2011: 685-687, Fairhead et al., 2012: 243-248; Hall et al., 2015: 1-29). Through state–capital alliances, the state favours neoliberal economic interests over its citizens' needs, through privatisation or by leasing communally occupied land concessions. Disenfranchising existing occupants of their land rights to grow wealth results in a fragmentation and reduction of resource bases and access that exposes their agrarian livelihoods to ecological vulnerabilities. David Harvey terms this "accumulation by dispossession" (2003: 145-147). According to Fairhead et al. (2012: 238, 241, 246, 253-254), consumers of neoliberal economics have used the financial-scientific-policy nexus to add value to nature and grow finance by exploiting global environmental crises like climate change to justify the appropriation and commodification of resource commons for current, future and speculative use under the auspices of "sustainability", "conservation" or other "green" values.

Global capital's demand for exclusive access to resource commons increases pressure on governments to alter policies that structure authority over resource access and to supress rural agrarian production (Kelly, 2011: 685-688, 692-697; Green and Adams, 2015: 100-101, 107-113). Nature–society relations are then restructured by resource enclosures which perpetuate local struggles over land authority, social inequity and poverty. Rural people are consistently left vulnerable to new forms of appropriation and commoditisation, because state policy and tenure reforms do little to resolve historical legacies of dispossession, offering a critical set of conditions for new forms of nature commoditisation to occur (Fairhead et al., 2015: 249). To further facilitate this commoditisation, such contemporary forms of appropriation require the reconstruction of legal and market processes, the invention of justificatory narratives and the labelling of local people as a hindrance to the protection of nature or the growth of national economies. This raises a critical question: How can local communities protect and reclaim nature commons and resources from the machinations of global capital appropriation and commoditisation?

The private acquisition of African agrarian land for investment is facilitated by the state terming land unoccupied, unused or underutilised (Scoones et al. 2014: 2-7; Li 2014: 592-593; Hall et al., 2015: 6, 68; Mosley and Watson, 2016: 453-455; Cormack and Kurewa, 2018: 97). This is exacerbated by the construction and perpetuation of global crises driven by food production, biota conservation, green energy values and finance, which continue to generate demand for land (Fairhead et al., 2012: 238, 245-246; Catley, 2013: 15-17; Hall et al., 2015: 1-29). Cotula et al. (2009: 91-92) write that African states' vague designations of what comprises productive land use and the state's subsequent general administrative discretion is likely to undermine and violate local land rights – particularly for pastoralist communities whose land use is regularly considered unproductive because of widespread misconceptions around pastoral mobility. Viewing neoliberal investments as sources of much-needed food security, employment opportunities, economic opportunities, foreign income, technology transfer, rural-economy transformation and infrastructure justifies African states to establish investments on land occupied by rural agrarian communities (Daniel and Mittal, 2009: 2; Hall et al., 2015: 6-7, 26-27, 82; Cotula et al., 2014: 903).

Scholars of political ecology and economy argue that rural agrarian communities have hardly benefitted from neoliberal land investments. Anseeuw (2013: 165-167) argues that the benefits of investors' projects to African rural agrarian communities are often momentary or non-existent, and in many cases do not reach local communities. Integrating with and investing in local economies has remained a low priority for investors, and local economies instead remain providers of natural resources and human labour. Borras and Franco (2010: 8) suggest that most employment opportunities offered by investors to local host communities are short term, insecure, competitive and/or poorly paid and cannot sustain rural households to the extent that their traditional livestock and crop husbandry would.

Hall et al. (2015: 49, 54, 57-60, 74-78, 92-95, 99-112) note that environmental issues such as biodiversity clearing, water and soil pollution by pesticides and fertilisers, and pressurising of natural water sources for irrigation, in most cases for large-scale commercial cultivation, exposes local communities to poverty and food insecurity by hindering their livelihood production capacity. Cotula (2009: 69-73) writes that a lack of transparency around land acquisitions enables corrupt state officials to facilitate land transactions against the good of the public. Private

investors' illegal acquisition of communal land further benefits from state support through legal pluralism and weak institutions governing land rights. As detailed in Chapter one, when communities resist dispossession and unjust compensation for resource loss, the state and its judicial institutions usually support investor interests, and state-sanctioned violence may be used to intimidate or suppress further opposition.

Despite the government of Kenya being aware of the effects of environmental enclosure on the Maasai livestock economy, Kajiado County remains of vital importance to Kenya's economy through large-scale land investments in commercial horticulture and agriculture and soda ash mining, among others. The production of wind energy in Kajiado has also emerged as a potential investment for growing Kenya's economy. Through the Kenya Vision 2030 development blueprint, the Kenyan government is encouraging public-private partnerships to facilitate the exploitation of various renewable energy sources, such as wind power, deemed essential to mitigate climate change and aid its quest to achieve middle-income economic status through industrialision by the year 2030 (see Chapter one). However, Koissaba, (2016: 8, 179-181) argues that Kajiado's wind-energy potential and centrality to Kenya's sustainable economic growth is likely to exacerbate the existing land-grab crisis by fuelling demand for land by energy-prospecting investors.

At lunch at his home on 27 December 2016, Alfred mentioned a proposed wind power project in the neighbouring village of Esilanke-Kipeto. Alfred said to me with worry, *Serikali inataka ku anzisha mradi ya stima ya upepo kwa majirani wangu huko Esilanke-Kipeto* ("The government wants to start a wind electricity project in the neighbouring Esilanke-Kipeto village". Alfred was referring to the proposed 100-MW Kipeto Wind Power project, which would be the second-largest wind energy project in Kenya, after the 310-MW Lake Turkana Wind Power project in Marsabit County (more in Chapters one and seven). Wind farms have been criticised for their economic approach to land occupied by rural smallholder and indigenous communities, and Alfred was concerned about the implications of the proposed wind energy project for the active grazing lands and ownership rights of the Esilanke-Kipeto villagers. Scholars studying renewable energy transition in developing countries such as Mexico, Brazil and Kenya (e.g., Pasqualetti, 2011; Brannstrom et al., 2017; Avila, 2018; Schilling et al., 2018; Cormack and Kurewa, 2018;

Calzadilla, and Mauger, 2018; Howe, 2019) write that wind energy projects face local resistance for infringing on land rights and illegally acquiring communal lands without prior consultation.

In the rangelands of Africa, large-scale acquisitions and the enclosure of grazing lands for investment have undermined the flexibility of mobile livestock husbandry. This resilient form of land use has remained effective under the varying climatic and environmental conditions of Africa's arid and semi-arid rangelands.[3] According to rangeland scholars (e.g., Galaty, 2013a: 143-153; Catley et al., 2013: 16-17, 177-185, 186-194), facilitating land grabs in the rangelands for value extraction gradually isolates key common grazing areas and concentrates pastoralists into smaller pockets of marginal land, exposing them to climate shocks and a downward spiral (discussed in Chapter one). The enforcement of boundaries (as illustrated in Figure 6) is fragmenting Kajiado's ecologically heterogeneous landscape and gradually compartmentalising widely distributed water sources and forage into spatially isolated fragments (Galvin, 2009: 185-186; BurnSilver et al., 2008: 226-227; Goldman and Riosmena, 2013: 589-590). Land fragmentation lowers the Maasai's adaptive capacity by restricting the customary collaborative grazing strategies that enable seasonal herd movement between varying ecologies to access widely distributed water and forage sources (Coughenour, 2008: 45-91; Sundstrom et al., 2012: 482-485; Mwangi, 2016: 2-5).

Pastoral livestock economies have become increasingly vulnerable to the combined effects of climate shock and the enclosure of seasonal grazing lands (Hartmann et al., 2009: 37-39; Niang et al., 2014: 1219-1220, 1235). A lack of sustainable livelihood options and coping mechanisms is driving more pastoralists, particularly poorer ones, into maladaptive activities harmful to their environment (e.g. charcoal burning) (Paavola, 2008: 643-652). Some pastoralist communities faced with a loss of livelihood have mounted active resistance against the enclosure of their customary grazing land(s) by investors (see Borras and Franco, 2010: 7-9; Nunow, 2015: 99 -113; Shete and Rutten, 2015: 65-82; Letai, 2015: 83-98; Cormack and Kurewa, 2018: 91-107; Chapter one).

[3] Policies effecting changes in property relations in Africa since the 1980s, often characterised by low flexibility, show that the ongoing privatisation of communal grazing lands has marginalised pastoral systems. Resilient land use strategies by pastoralists critical during droughts, such as seasonal herd mobility and common resource-sharing practices, have been increasingly restricted (see Galaty 1992: 26; Niamir-Fuller 1999: 111-114; BurnSilver and Mwangi, 2007: 1-2; Sundstrom, 2009: 25, 83; Sundstrom et al., 2012: 482-485; Galaty, 2013a: 143; Galaty, 2013b: 22; Catley et al., 2013: 37-40; Mwangi, 2016: 2-5).

There has been a noticeable decline in precipitation and a rise in temperatures and drought frequencies in Kenya and most parts of East Africa in recent years. These changing climate patterns stress the livestock economy by negatively impacting the availability of forage and water sources (Niang et al., 2014: 1219-1220, 1237; Uhe et al., 2018: 554). Droughts attributable to climate change have become a common occurrence in Kenya since the 1970s (see Orindi et al., 2007: 1; Amwata, 2013: 2; Niang et al., 2014: 1209,1219-1220). Kenya experienced successive drought conditions in the three years prior to the commencement of this study (2014, 2015 and 2016), which heavily impacted livestock-dependent communities, mostly resident in arid and semi-arid parts of the country (see Migiro, 2016; FAO, 2017a). When research for this study was conducted in 2017, Kajiado County and most parts of Kenya were experiencing another year of harsh drought. The inconsistencies of the 2016 short rainy season and the failure of the 2017 long rainy season, coupled with high temperatures, worsened drought conditions.[4] During this period, migration options for herders in search of water and forage were limited, and livestock continued to die of starvation and dehydration. This left close to three million pastoralists in need of humanitarian assistance. Such a severe drought was last experienced in 2011, and the Kenyan government declared the 2017 drought a national emergency (see Uhe et al., 2018 554).

Climatologists already project a bleak future for the planet's climate as current anthropogenic greenhouse emissions continue unchecked. The Intergovernmental Panel on Climate Change's (IPCC's) *Special Report on Global Warming of 1.5°C* notes that the ongoing state of emissions may push the planet's average temperatures to 1.5°C above pre-industrial levels between 2030 and 2052, reaching the 2°C threshold before the end of the century. It is thus a matter of critical urgency to drastically reduce global emissions to remain below the 1.5°C threshold, where the risks and impacts of climate change (such as severe climate and weather events and water shortages) are likely to be two times lower than the 2°C threshold (see Zhongming, et al., 2018: 98-100; Xu et al., 2018: 1).

The meteorological disasters that are a consequence of the warming planet have primarily affected livelihoods dependent on nature, such as African farmers and pastoralists, and these effects are expected to worsen over the 21st century as temperatures continue to rise (see Hulme et al., 2001:

[4] Most regions of East Africa, including Kenya, experience bimodal seasonal rainfall. Short rainy seasons occur from October to December (OND), while long rainy seasons, which account for the majority of annual rainfall, occur from March to May (MAM) (Amwata, 2013: 21; Rowell et al., 2015: 9768; Ericksen et al., 2013: 72).

146; Thornton, 2010: 9; Cook and Vizy, 2013: 5937; Niang et al., 2014: 1205-1206;). Kenya's average temperature projection suggests a significant increase of up to 3°C by the middle of the 21st century, double that of the planet's average. The expected outcome of this change is an increase in heat waves and evaporation rates, which will affect Kenya's bimodal rainy seasons and cause frequent droughts (Thornton, 2010: 4; Gosling et al., 2011: 49; Anyah and Qiu, 2012: 347; Niang et al., 2014: 1209).

East Africa's climate pattern is characterised as highly uncertain due to its paradoxical nature. Despite a projected increase by climatologists in East Africa's precipitation over the course of the 21st century (Hulme et al., 2001: 150; Shongwe et al., 2011: 3718; Otieno and Anyah, 2013: 2099; Niang et al., 2014: 1206; Kent et al., 2015: 4390; Serdeczny et al., 2017: 1585), there has been a trend of frequent droughts, a notable decline in annual rainfall, heightened interannual variability during short rainy seasons and occasional intense rainfalls since the 1980s (e.g. 1998 and 2006 El Niño rains), which have continued well into the 2000s (see Figure 2) (Funk et al., 2008: 11081; Williams and Funk, 2011: 2417; Lyon and DeWitt, 2012: 1; Rowell et al., 2015: 9768; Hoell et al., 2017: 1939).

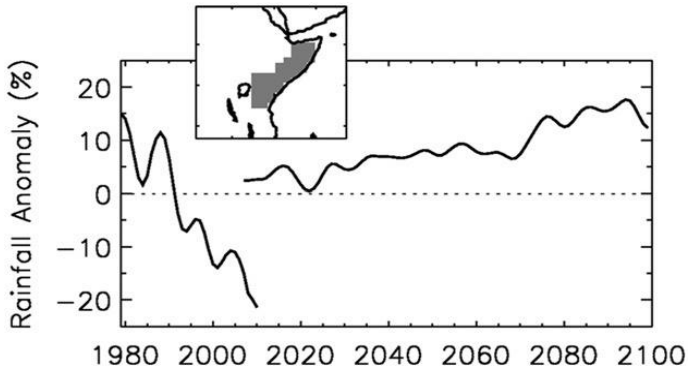

Figure 2: The contradicting trends that define the climate paradox in East Africa. (Source: Rowell et al., 2015: 9769)

Observed precipitation patterns in Kajiado County between 1970 and 2014 show that annual rainfall has declined over time and that short rainy seasons display high interannual variability (Bobadoye et al., 2014: 184; Kaoga et al., 2018: 223). Uhe et al. (2018: 566-567) attribute the upward trend in Kajiado's average temperatures as a contributory factor that exacerbates the impacts and severity of frequent droughts (e.g., 2000, 2003, 2004, 2007, 2008, 2009 and 2011) in Kajiado that have been linked to recorded shifts in precipitation patterns (Amwata, 2013: 78; Bobadoye et al., 2016: 120; Kaoga et al., 2018: 227). However, Kaoga et al. (2018: 227) suggest

that Kajiado County may experience these varying patterns when depressed rainy periods alternate with occasional intense rainfalls.

While the effects of climate change are expected to vary in magnitude and frequency over the course of the 21st century, Bobadoye et al. (2016: 120) argue that land enclosures may reveal the inefficiency of the traditional Maasai coping mechanism of herd mobility to prevent drought-related livestock loss. According to Homewood et al. (2009: 2), climate change and seasonal resource competition may significantly aggravate the effects of land enclosures on pastoralists by increasing catastrophic episodes in the biophysical environment. Climate change may also spur more neoliberal political and economic responses that further affect pastoralists' access to dwindling environmental resources.

Green Grabbing: A New Appropriation of Nature (Fairhead et al., 2012: 1) poses a critical question to the neoliberal state's capital appropriation and enclosure of rural agrarian land for value extraction: "What are the implications for ecologies, landscapes and livelihood?" In the context of Kajiado County, the question becomes: What are the implications for the active grazing lands and the resilience of the Maasai livelihood in the face of a changing climate? This dissertation presents a detailed ethnographic exploration of the implications of the intersection of land ownership changes and climate change for Kajiado's Maasai pastoralists.

The Purpose and Rationale of the Research

Emerging scholarship by scholars of political ecology and economy about rural agrarian transformation have revealed insights into how global food, fuel and financial crises have rapidly driven the ongoing neoliberal enclosure of resource commons in agrarian parts of Africa for value extraction (e.g. Borras and Franco, 2010; Fairhead et al., 2012; Catley et al., 2013; Cotula, 2013; Hall et al., 2015). These scholars show how state economic growth policies and programs coupled with legal pluralism and weak legal institutions aid the enclosure and acquisition of common resources for investments at the expense of rural agrarian communities' access rights, marginalising their livelihoods. However, there remains a gap in understanding whether and how rural agrarian communities, particularly pastoralists, are coping with the rapid transformation of their environment in this time of climate crisis.

The purpose of this research is to examine pastoralists' capacity to adapt to the intersecting impacts of climate and environmental change. The thesis examines the implications of common-resource enclosures on the Maasai livestock economy and the coping strategies undertaken by the Maasai to build adaptive capacity for their herds under increasing climate uncertainty and variability. A multitude of rangeland scholars (e.g. Galaty, 1992; Rutten, 1992 and 1995; Hughes, 2006; Galvin et al., 2008; Homewood et al., 2009; Mwangi, 2016; Galaty, 2013b) have shown that the historical injustices perpetuated by colonial and post-colonial land policies that disenfranchised Maasai land rights have remained intact and are proliferating the decline of livestock grazing areas. This study thus calls for the state to rethink its economic growth policies to rangelands threatened by resource pressure and climate emergencies.

The research will contribute to scholarship by broadening the evidence about rural agrarian transformation and by providing a new perspective through the lens of adaptation. The current geological epoch is the Anthropocene, in which human activities are the dominant driving force behind changes in the planet's environment and climate. The Anthropocene exposes humans and non-humans to vulnerabilities of climate violence and mass extinctions, making it critical to find new ways to mend human–nature relationships. Policy debates on human–nature relationships are emerging at the global level, and examining the implications of the financialised enclosure of common resources will contribute to an expanded framework in which to situate these policy debates and the effects of the Anthropocene in Africa.

Research Questions of the Study

The main research question of this study is: What challenges do changes in environmental conditions present to Maasai pastoralists' practice and livestock economy in this time of climate crisis?

The sub-questions of this study are:

- What changes are occurring in the rangeland's climate pattern and environmental resources?
- How are changes in the rangeland's climate pattern and environmental resources shaping pastoralists' seasonal access to water and grazing resources?

- What strategies are pastoralists undertaking to cope with the intersecting impacts of climate and environmental change?
- What alternative thinking can be drawn from pastoralists' experiences with the intersecting impacts of climate and environmental change? How can it inform resource-access policy in the rangelands?

Study Area Location and Description

This study was carried out in Ildamat-Oloyiankalani village in the Ildamat sub-county in the Kajiado central constituency, Kajiado County, Kenya. Kajiado County occupies an area of 21,901 km^2 and lies on the southern edge of the Great Rift Valley region, about 80 km from Kenya's capital, Nairobi. The county borders Narok County to the west, Nairobi, Nakuru and Kiambu Counties to the north, Machakos and Makueni Counties to the east and Taita Taveta County and Tanzania to the south. The County has five constituencies: Kajiado North, Kajiado South, Kajiado Central, Kajiado West and Kajiado East (see Figure 3). Kajiado Town is the administrative capital of Kajiado County and is located within the Kajiado central constituency. According to the Kenya National Bureau of Statistics (KNBS), Kajiado County has a population of 687,312 people, while Ildamat-Oloyiankalani has a population of 3,084 people per the 2009 census (Bobadoye et al., 2016: 120-121; Koissaba 2016: 6-7; Omollo et al., 2018: 2-3).

Sub-division of land and the emergence of private tenure in Kajiado County has coincided with a rapid population growth because of direct demand for land and resources due to population outpour from the neighbouring capital city of Nairobi (Amwata, 2013:47; Moiko et al., 2019:6-7). According to Amwata, (2013:47) the population of Kajiado County significantly grew from 258,659 in 1989 to 406,054 in 1999, a period which coincided with increasing acquisition of Maasai grazing land (see figure 3).

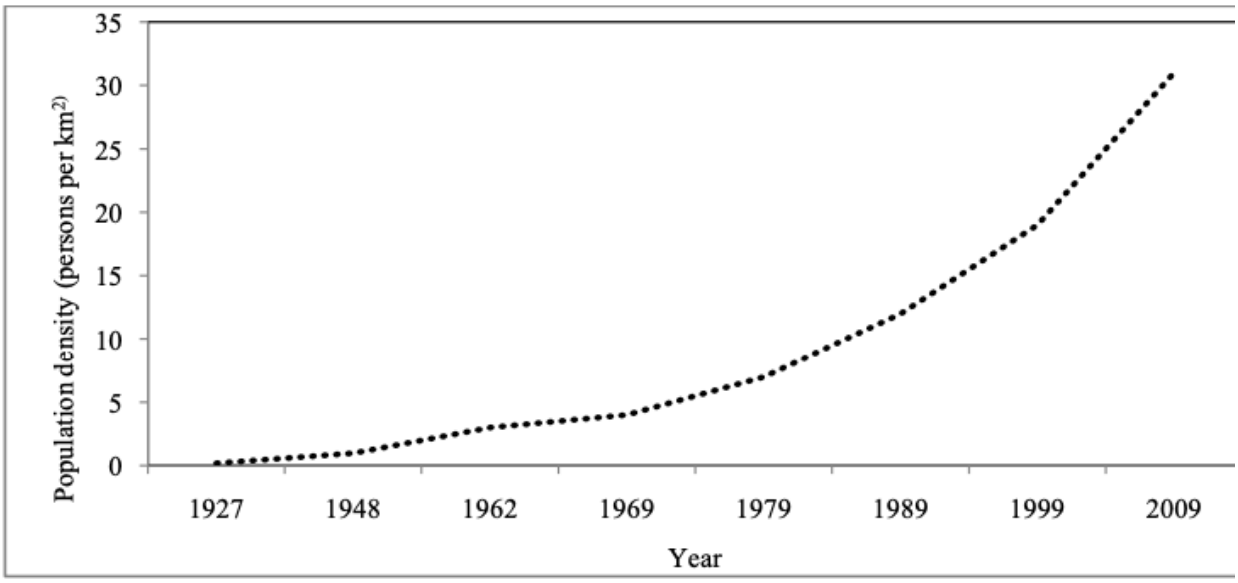

Figure 3: Changes in Kajiado County's Population density between 1927 and 2009 (source: Amwata, 2013:47)

The Kenya Population and Housing Census of 2009 estimated that Kajiado County's population figure of 687,312 was projected to reach one million by the year 2017 (GoK, 2011). Kajiado County's average population growth rate of 5.3 percent per year, has far surpassed the national average population growth of 2.6 percent per year. These figures have indicated a rapid population growth attributed to in-migration into Kajiado County. By the year 2030, The County's population is projected to reach 2.03 million people based on its average annual population growth rate of 5.3 percent per year (see Moiko et al., 2019:6-7). The population of Kajiado Central constituency where this study was carried stood at 102,978 people and was projected to increase to 166,731 by 2018 and 206551 people by the year 2022 respectively (see County Government of Kajiado, 2018:22)

Kajiado County's climatic condition can be characterised as mostly arid and semi-arid. The County's savannah grassland ecosystem has two distinct rainy seasons, with a precipitation distribution that varies across the County. The long rainy season is the main rainy season and occurs from March to May, while the short rainy season occurs from October to December. In general, the County receives average annual rainfall of between 300 mm and 800 mm and experiences average annual temperatures between 22° and 40° Celsius (Bobadoye et al., 2014: 180-187). Proximity to the bordering Nairobi National Park and local national game reserves such as Amboseli National Park and other conservancies within Kajiado County contribute to the wide distribution of wildlife. Due to seasonally dispersed movements between widely distributed

heterogeneous grazing ecologies, herbivorous wildlife such as zebra, wildebeest and various antelope are common (BurnSilver et al., 2008: 228-229; Homewood et al., 2009: 1-3; Nkedianye et al., 2009: 119; Omollo et al., 2018: 2-3).

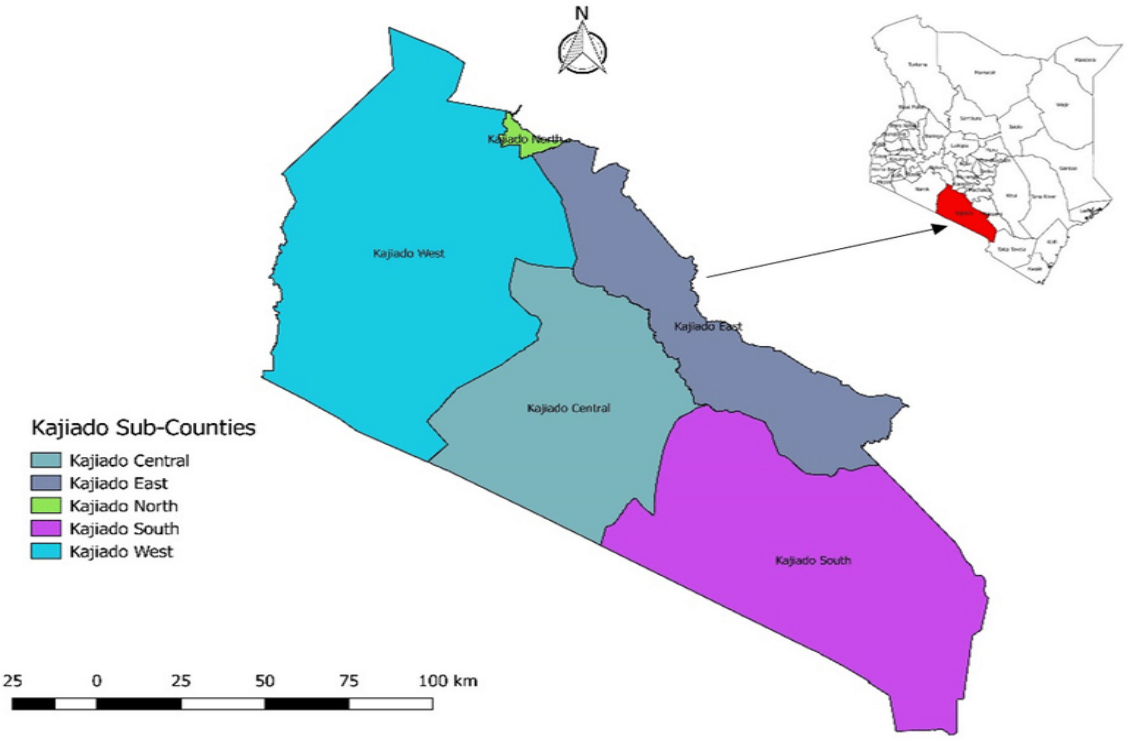

Figure 4: Map of Kajiado County, Kenya. (Source: Onono et al., 2019)

Livestock husbandry is the main economic activity in Maasai-dominated parts of Kajiado County like Ildamat-Oloyiankalani. Most Maasai households own their land under individual private tenure and have adopted a less nomadic and more sedentary lifestyle (see BurnSilver and Mwangi, 2007: 2; BurnSilver, 2009: 166; Homewood et al., 2009: 1-2, 5, 30, 129; Koissaba, 2016: 7-8). Increasing land privatisation can be attributed to a general difficulty in maintaining large herds and practicing nomadic movements because of increasing land enclosures. In the 1980s, the recorded average number of livestock units (sheep, cattle, goats) per household was 127 livestock units (Grandin, 1988: 4-5), but Maasai livestock holdings have decreased over time to an average of 41.7 total livestock units per household (Nkedianye et al., 2009: 129-132). Livestock population numbers in Kajiado County have been recorded as changing over time. According to Amwata (2013:108-109) and Said et al., (2019:6-17-18) Two factors that have been attributed to this change

are increasing enclosures of seasonal grazing land through land tenure change and climate uncertainty.

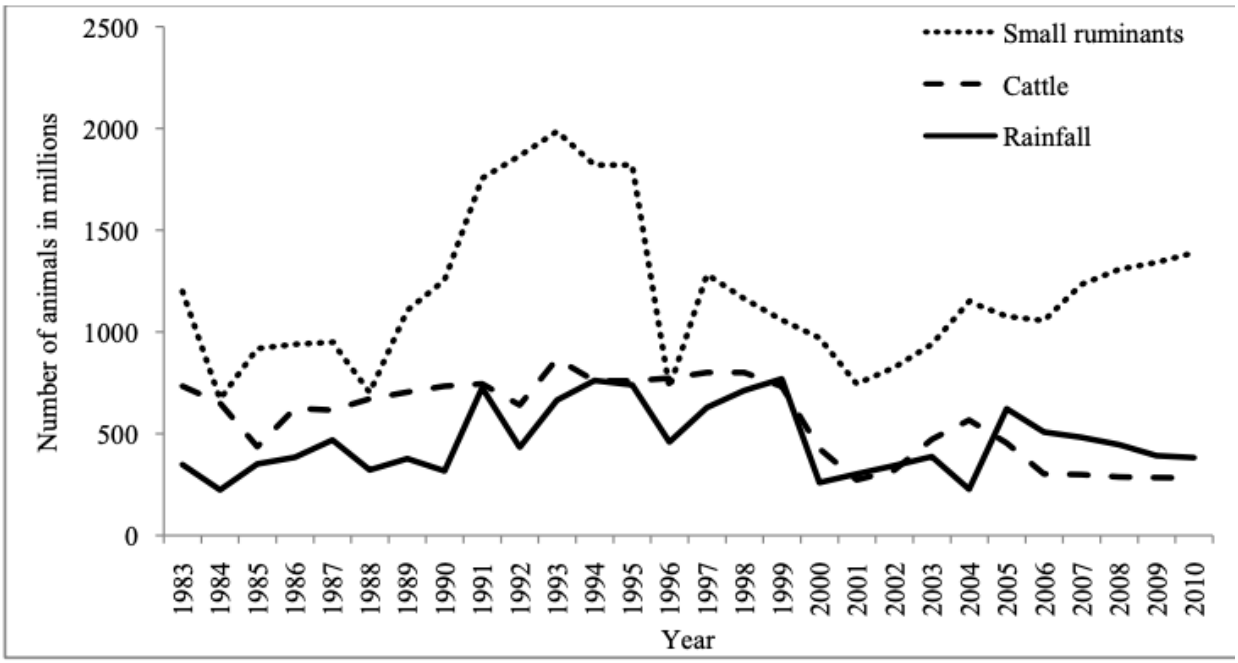

Figure 5: Changes in Kajiado County livestock population between 1983 and 2010 (KIPPRA, 2010)

The decline in cattle population corresponds to periods of increased droughts and land sales overtime such as in the years 1983-84, 1992-94 and 2000. Cattle require ample seasonal grazing and during periods of climate stress households grazing access was limited. Herders retained small stock such as sheep and goats which had less strenuous feeding requirements and could withstand hard drought conditions as they were mixed feeders to reduce risk. As illustrated in figure 5, in the years 1990, 1995, 2001 and 2004 households had difficulty sustaining cattle numbers as compared to goat and sheep population which were on the rise (see Amwata, 2013:108-109; Said et al, 2019:17-18).

With increasing risks toward livestock economy, more Maasai are also embracing diversified pastoralism, coupling a livestock economy with entrepreneurship and crop cultivation. Moreover, rapid urbanisation has developed other economic opportunities that offer wage employment, such as sand harvesting, mining, commercial agriculture, manufacturing and general enterprises (BurnSilver and Mwangi, 2007: 2; BurnSilver, 2009: 166; 30; Nkedianye et al., 2009: 129; Koissaba, 2016: 7-8). The next section details the history of the Maasai community that was part of this study.

History of the Damat Maasai of Ildamat-Oloyiankalani

The community that I was working with in the field of research at Ildamat-Oloyiankalani belong to the Damat Maasai section. According to Tobiko (1989:25) the Damat Maasai along with 11 other distinct Maasai sections (Kaputiei, Matapato, Purko, Kisongo, Dalalekutuk, Keekonyokie, Loodokilani, Loita, Siria, Uasinkishu and Moitanik) descended from the greater Maasai pastoral group that occupied the Laikipia plateau in central Kenya highlands and territory that comprised of half of the Rift Valley region of modern Kenya. After their displacement from their territories during British colonial occupation majority of the Damat Maasai were forcefully moved to the Maasai southern reserve and settled around Central Kajiado (Rutten, 1992:133) which is located in the modern day Kajiado Central Constituency.

Prior to the arrival of the British, the Purko, Loita, Damat and Kisongo Maasai sections were embroiled in a power struggle against the Laikipiak Maasai to control the vast grazing lands in the Laikipia plateau. This civil struggle would result in the Iloikop civil war, which lasted from 1870 to 1875. The Damat elders were looking for a greater ally in the civil struggle. Therefore, they united with the Purko, Loita and Kisongo Maasai sections under the leadership of Chief Mbatiany which saw them through a critical victory against the against the Laikipiak Maasai (Berntsen, 1979: 134,138; Fratkin, 1979: 53, 61-64). Around 1892 as noted by Waller (1976:534) Maasai society was experiencing social and economic collapse stemming from recuring sectional wars over grazing and water along with famine and Rinderpest outbreak that impacted both livestock and human population. During this period the survival of the Damat Maasai was dependent on their regrouping and raiding livestock from neighbouring Maasai sections or seeking refuge among neighbouring farming communities such as the Kikuyu. The establishment of the British Colonial Authority between 1890 and 1920 had already met a weakened and divided Maasai making it easier to begin forcefully annexing Maasai land (more details to follow in chapter 4).

The British-Maasai treaty of 1904 which was forged between the government of Sir Donald Stewart and sectional Maasai leaders under Chief Lenana (the successor of Mbatiany) saw the Damat along with the Purko, Loita, Keekonyokie, and Loitoktok Maasai relinquish Naivasha area for settlers and the colonial railway and relocate to the northern Maasai reserve within Laikipia plateau (see Rutten 1992:177). However, the need for more territory for a growing settler

population would push for the British authorities to annex more Maasai land. The British-Maasai treaty of 1911 would see Governor Sir Percy Girourard coerce Chief Lenana to permanently relocate the Damat and majority of Maasai sections under his leadership to the colonial created Southern Reserve (present day Kajiado County) (Rutten, 1992: 178-179: Hughes, 2006: 6; Letai 2015: 85). This relocation would immediately result in the forceful mass exodus of Maasai and their livestock from the Laikipia plateau.

The mass relocation of the Damat and Maasai sections under Chief Lenana along with their 200,000 head of cattle and 550,000 head of sheep and goats by colonial administrators occurred between 1912 and 1913 (Rutten 1992: 178-181; Hughes, 2006: 6,17; Letai 2015: 85). The Damat settlement would mostly be situated around Central Kajiado, Kajiado District. By 1930, the livestock population of the settled Damat along with their neighbouring Maasai sections bulged to 720,000 cattle and 820,000 sheep and goats. The bulging livestock population within the constraint of confinement within the semi-arid reserve placed them at risk of climate stress, livestock diseases and direct competition with wildlife for limited water and grazing. (see Sandford 1919: 36; Rutten, 1992: 181, 187; Rutten, 1995: 3). While confinement within the semi-arid environment presented various ecological challenges, another form of challenge that the Damat would have to contend with was territorial encroachment.

Between 1930 and 1945 the Damat settlement struggled with territorial encroachments from neighbouring Kamba and Kikuyu farmers who were moving out of their overconcentrated reserves (Gordon 1979: 102;). Moreover, territorial encroachment would further be aggravated by wildlife conservation boundary disputes between the Damat Maasai and with the colonial state. In early 1960s the growing concern over territorial encroachment would push the Damat Maasai to unite with neighbouring Maasai sections to form committees to lobby the colonial state for the legal consolidation of Maasai land (see Hedlund 1979: 30). In response to the Maasai call for territorial consolidation the colonial government saw the formation of sectional ranches as the better alternative to legally confine Maasai into well-defined sectional boundaries.

The Damat who had previously been incorporated into the colonial created African Land Development Programme (ALDEV) grazing scheme of the 1950s were among 24 pioneer Maasai

sections that would be organised into titled sectional group ranches in Kajiado District (Rutten, 1992: 212; Rutten 1995: 6-10; Mwangi, 2016: 2-5). The Damat among other Maasai sections in Kajiado district welcomed the idea of formal, single-titled group ranches. Despite the change of rule from colonial to an independent African ruled government in 1963, plans to continue the formation of group ranches would remain. Between 1963 and 1967, formation of the group ranch project would be supported by the government of President Jomo Kenyatta and the World Bank through the Rangeland Management Project (Gutto, 1981: 47; Tobiko, 1989: 59-61; Holland 1986: 38). The state and international donor agency's policies were key drivers in adjudicating and sustaining the group ranches.

Under the Land Adjudication Act of 1968 and the Land (Group Representatives) Act of 1968 the World Bank and the state oversaw the final demarcation and adjudication which resulted in a total of 52 group ranches which were registered under a single title deed. The Damat would remain assured that their legal status as a registered group ranch would protect their legal integrity (see Wanjala, 1990: 34; Rutten, 1992: 273-275; Thompson et al., 2009: 80). However, the adjudication process was not without boundary disputes between various Maasai sections. According to Galaty (1978:15-16) boundary and ownership disputes emerged between the various group ranches in Kajiado district.

In 1975, there was a bloody armed clash between the Damat and their neighbouring Loodokilani Maasai section over boundary dispute. The boundary dispute that ensued between the two Maasai sections occurred when the Damat chief at the time was accused of influencing a state officer in charge of overseeing the adjudication process to adjudicate a substantial portion of the Loodokilani territory to the Damat (see Galaty 1978:15-16). Such cross-sectional boundary disputes along with internal struggles within the group ranches would push the Damat and majority of Maasai sections to push for dissolution group ranches in favour of individual ownership (more details in chapter 4).

By 1980, most Maasai sections had opted to subdivide their group ranches in favour of individual ownership as a solution to the never-ending internal conflicts (Mwangi, 2007: 871; Galaty, 2013b: 20-22; Mwangi 2016: 13-17). While majority of the Damat ranch members agreed to dissolve their

group ranch in favour of individualisation, a small minority of elderly members resisted by claiming it would destroy social harmony and cohesion. However, in 1989 younger Damat members brought their case before court to appeal for subdivision of their ranch and won. The victory along with possible fears of bloodshed saw the ranch members collectively agree to proceed with subdivision by 1990 (Rutten 1992:307-309, 344-345).

Group ranch sub-division in Ildamat-Oloyiankalani and the wider Kajiado district would pave way for individuals to remain at liberty to sell their parcels to incoming non-Maasai buyers (Galaty, 1992: 26-27, 35; Homewood et al., 2009: 5-6; Nkedianye et al., 2009: 115-116). According to Rutten (1992: 344-345), the process of sub-division altered the residents cultural arrangements and resulted in social consequences. Maasai households were divided into many single units and remained distant from one another. Living as individuals would present a challenge to Maasai when it came to cooperating and sharing varying seasonal resources therefore increasing risks. Moreover, conflicts between neighbours would become common due to over fencing. Overtime, the sale of land in Ildamat-Oloyiankalani would contribute to resident Maasai being outnumbered by non-Maasai. This would also impact Maasai socio-cultural habits and rites which would begin eroding away.

Thesis Chapter Outline

This section presents a summary of the thesis chapters.

Introduction: Introduces and sets the context for the problem of the thesis by summarising current theoretical understandings and background information about climate and environmental change in the rangelands of Kenya. It presents previous literature, the research questions and the identified research gap that this thesis aims to provide alternative thinking for. The introduction also presents the study area location and description.

Chapter One: Presents literature about modern land grabbing practices in Kajiado County and about the transformation of grazing grounds into centres of extractive capitalism. It highlights how policies effected by the Kenyan government to facilitate economic growth have fuelled financial enclosures and the ecological marginalisation of the Maasai pastoral economy. The chapter highlights the implications of environmental enclosures on pastoral economies in a time of climate crisis.

Chapter Two: Presents a literature review that elaborates on the theoretical grounding of this thesis. This chapter draws on theoretical debates about common property, neoliberalism and adaptation, showing their relevance to the effects of climate and environmental change on pastoralist resource-based livelihoods.

Chapter Three: Presents the research approach, design and methodological approaches used in the research to address the research questions and respond to the identified research gap. It also describes the qualitative research methods of ethnography used to collect data and the methods used to analyse the collected data. The chapter also discusses research ethics and the limitations of the study.

Chapter Four: Draws on historic literature of Kenya's land politics to trace the historical processes that facilitate the current environmental challenges faced by the Maasai people of Kajiado County. It traces the evolution of state land policy, distinguishing major periods between the colonial and post-colonial era that transformed property relations and perpetuated the enclosure of Maasai commons. The chapter also shows how communal land ownership and resource management institutions that enabled Maasai to cope with seasonal climate variability were dismantled.

Chapter Five: An empirical chapter that presents ethnographic material about the strategies that the Maasai of Kajiado County apply to cope with the stresses of climate change and the fragmentation of their complex rangeland ecology.

Chapter Six: An empirical chapter that presents ethnographic material about how ongoing common-resource privatisation and financialisation in Kajiado County restricts Maasai access rights in the face of climate adversity.

Chapter Seven: Consolidates ethnographic material about the financialised enclosure of the commons in a time of climate crisis. The chapter presents the observed responses that enclosures elicited from Maasai herders experiencing climate and environmental adversity.

Conclusion: Presents and discusses the major findings of the research and concludes the thesis. The identified findings are synthesised in relation to the theoretical framework that guided the study by broadening and discussing them in relation to the research problem. The conclusions and recommendations are grounded in the context of the broader scholarly, policy and practice debates about the adaptive capacity of pastoralism in the face of climate and environmental change.

Chapter One

Land Grabbing in Kajiado County: Setting up the Problem Empirically

Introduction

This chapter reviews literature that explores various forms of land grabbing in Kajiado County and the vulnerability of mobile livestock husbandry in an environment dominated by environmental enclosures and adverse climate risks. It looks at how Kenya's neoliberal economic growth policies and programs are slowly transforming rangelands into state and private capital investment hubs while disenfranchising pastoral land rights and disrupting access rights to resources.

Neoliberal Land Grabs in the Pastoral Rangelands of Kajiado County

Neoliberal land grabs in East African pastoral rangelands are justified by arguments led by self-interest (Galaty, 2013a: 143-154) that suggest that value extraction by private capital through the commercialisation and conservation of land not being utilised by resident herding communities is economically beneficial for the supportive nation state. The state serves as an agent for private investors, aiding appropriation and undermining pastoralists' right to hold land (Galaty, 2013b: 20-21) and advancing the agenda of private capital to inexpensively acquire land belonging to pastoralists (McCabe, 2003: 100-111; Galaty 2013b: 20-21). The Kenyan government, serving as agents for foreign and local investors, state corporations, conservation groups and private elites, plays a direct role in undermining pastoral land holding (Galaty, 2013b: 20-21). Private capital reciprocates by supplying an easy flow of money through the neoliberal national economy to motivate bureaucrats to overlook the legal protection of pastoralists' land. The status of the land thus changes from being a primary base of productivity for grazing and rearing livestock to a commodity valued for its readily acquired profitability.

In the context of the East African rangelands, Homewood et al. (2009: v, 64, 291-294, 335-359) and Koissaba, (2016: 176-177) suggest that the development narrative is used by the neoliberal state to advance policies and programmes that undermine pastoral land holding in order to politically disenfranchise pastoralists from their land. Pastoralists' resistance against capitalist investment agendas on their land has often been labelled as being against the greater economic interests of the nation. This flawed ecological thinking as noted by Mildenberger (2019) better reflects Eurocentric anxieties, which ignore ecological processes.

In the 1980s, changing property relations saw land communally occupied by pastoral communities in the rangelands of Kenya and other parts of East Africa, such as Ethiopia and Sudan, shift toward private ownership. The changes were commonly justified by promises of tenure security and other neoclassical economic terms, such as easing access to agricultural development credit, with land serving as collateral; and modernising animal production through the sedentary farming of higher-quality livestock breeds (Mwangi, 2007: 871; Galaty, 2013b: 20-22; Mwangi 2016: 13-17).

The privatisation of land in East African rangelands such as Kajiado does not benefit pastoralists, despite assurances that formal ownership would secure their land through individual titling (Berry, 1993: 46-47, 84, 51, 93; Galaty, 2013b: 20). In practice, it has enabled the security of their land ownership to be undermined by the state and private capital alliance, which coerced land-owning communities to sell parts of their arid and semi-arid landscape for capital investment interests such as mining, power generation, conservation, tourism and commercial agriculture. In the case of Kajiado, Koissaba (2016: iii) found that the appropriation and privatisation of Maasai land negatively impacted the pastoralism's sustainable use of resources and livelihood production and increased the disparities between rich and poor Maasai.

Individual landholding Maasai in Kajiado County have a wide-ranging understanding of land, from being the base for a livestock economy to an easily disposable, income-generating commodity (Galaty, 2013b: 20-26). This changing view was driven by various challenges, such as poor livestock economy and mortality due to recurring droughts; a need for cash to meet contemporary household needs such as hospital bills, education fees, food and water; repayment of acquired loans from financial institutions to improve livestock economy; and payment of legal fees, survey fees and bribes to state land officials during land transaction processes and the formalising of individual land ownership (see Okoth-Ogendo, 1976: 179; Rutten, 1992: 397-424; Berry, 1993: 127; Galaty, 2013b: 20-27; and Chapter four). Poorer Maasai families dependent on modest income from a livestock economy are more likely to experience these financial burdens. Families that cannot sustain their expenses are compelled to sell their land (Rutten, 1992: 397-424; Galaty, 2013b: 20-27; Chapter four). The liberalisation of the Kenyan economy, which had been suffering a decline in economic growth, also drove the sale of land in Kajiado County.

The Kenyan economy suffered a dramatic decline in economic growth during the 1970's (see Rono, 2002: 81-84; Rutten, 1992: 65-66; Boone et al., 2008 358-359, 362; Koissaba, 2016: 177),

and in the 1980s and 1990s the Kenyan government was forced to adopt the International Monetary Fund's (IMF's) structural adjustment programs (SAPs), which liberalised Kenya's economy, forcing the state to privatise many public assets and common properties and to cut down on public spending to facilitate loan repayments to international financial institutions. The burdens of structural adjustment and market liberalisation forced the government to skew its expenditure toward high-growth sectors (e.g. tourism) and high-potential agro-ecological areas (e.g. commercial coffee, tea, horticulture farms) and marginalise the arid pastoral regions of the country (Boone et al., 2008 358-359, 362).

The privatisation of Kenyan state-owned enterprises led to the growth of private sector conservation organisations in Kajiado County (Koissaba, 2016: 176-177). These organisations are globally recognised as being important for the governance of protected areas and attract donors like the Global Environment Facility. Maasai lands considered valuable for conservation and tourism were approached by these organisations, which drove many from their land and livestock economy (Koissaba, 2016: 176-177). Kenya's private business sector benefitted at the expense of the Maasai and other pastoralist communities, whose economic opportunities were reduced (Rutten 1992: 65-68; Rono, 2002: 85; Galaty, 2013b: 26-27).

Pastoralists living in the arid and semi-arid regions of Kenya were greatly affected by the withdrawal of public goods and services because they were already vulnerable and were a very low priority in the state's development initiatives (Boone et al., 2008: 358-359, 362). Arid and semi-arid counties like Kajiado remained impoverished, lacking infrastructure and basic services. The lack of public services forced many Maasai families in Kajiado County to seek basic services such as hospitals, schools, livestock development loans, extension services and veterinary services from private institutions at higher rates than offered by the state. The limited economic opportunities for the livestock economy further aggravated their financial stress and led to more land sales (Boone et al., 2008: 358-359, 362; Galaty, 2013b: 26-27).

Private capital and political elites stood to benefit from the significant sale of land by desperate Maasai, who sought quick funds to meet their day-to-day needs (see Rutten, 1992: 397-424; Galaty, 2013b: 20-27). Urbanisation led to a rise in local business hubs in Kajiado County that were dominated by migrant non-Maasai, who established robust, profitable businesses in, for example, farming and commodity trading. Occasionally these migrants benefitted from the

purchase of land from financially needy Maasai, who were predominantly herders (Koissaba, 2016: 180-181). Demand for land intensified as investors acquired large tracts of land for commercial agriculture, real estate, mining and other industries. Growing congestion in Nairobi drove demand for land for manufacturing industries and homes, further driving Kajiado County's rapid urbanisation. Speculation saw the value of land grow exponentially, making its disposability much more appealing to its holders and intensifying opportunistic land grabbing (Galaty, 1992: 26-27; Homewood et al., 2009: 5-6; Nkedianye et al., 2009: 115-116; Koissaba, 2016: 7-8).

The growing demand for Maasai land in Kajiado County fed into the need of local capital but also paved the way for appropriation by state-backed multinational corporations. According to Koissaba (2016: 179), the global extractive industry played a major role in appropriating Maasai land in Kajiado, such as the mining of soda ash in Lake Magadi, in the southwestern part of Kajiado. The Magadi Soda Company, acquired by the Indian multinational conglomerate Tata Group from the British-based chemical company the Brunner Mond Group, is the foremost and cheapest producer of soda ash in Africa. The Magadi concession covers approximately 533 km^2, which was occupied by the Maasai until the 1911 British-Maasai treaty. Maasai civil society conducted several protests contesting ownership of the land: in 1950 against the colonial government, in 1962 at the Lancaster Independence Conference and in 2003 when railways transporting soda ash were disrupted. These protests were unsuccessful, however, and the community remained barred from critical pasture, watering points and salt licks for their livestock in the Magadi concession (Koissaba, 2016: 179).

The expansion of the global extractive industry into energy exploration for oil, gas, geothermal deposits and wind energy in the Rift Valley region (Narok, Kajiado and Nakuru, Baringo, Samburu and Turkana Counties) has raised concerns about the illegal state distribution of land concessions belonging to pastoral communities (e.g. Maasai, Turkana, Rendile, Endorois) to various multinational corporations.[5] By granting natural resource exploration rights to multinational corporations, the government of Kenya benefits from international aid under the auspices of natural resource development funding (Sena, 2015: 7-21; Koissaba, 2016: 8, 179-181; Koissaba, 2017: 3-8). Wind energy is identified in the government's development blueprint, Kenya Vision

[5] Kajiado County is located in the southern part of the Rift Valley region (formerly Rift Valley Province) (see Koissaba, 2016: 179-180).

2030, as a key resource for driving Kenya's economy toward middle-income status (Ongoma, 2018: 525-536), and Kajiado County has emerged as a major producer of wind energy in Kenya (as have Marsabit, Meru, Isiolo, Nyandarua and Mombasa Counties). However, it is projected that this newfound status as an energy hub may increase demand for land by energy-prospecting investors and exacerbate the existing land-grabbing crisis in Kajiado County (Koissaba, 2016: 8, 179-181; Koissaba, 2017: 3-8).

The first wind farm in Kajiado County was the Ngong Hills Wind Power Station, located in the northern foothills of the wind-rich Ngong Hills in Kajiado North. The wind farm was established in 1993 in collaboration with the Belgium government. The wind farm, owned by the Kenya Electricity Generating Company (KenGen), is on a concession covering 80 hectares of land owned by the Kenya Forest Service. The 25.5 MW-capacity wind farm makes up part of the energy generation sources that KenGen contributes to the country's electricity production (Ongoma, 2018: 526-536; Takouleu, 2019). The success of the Ngong Hills Wind Power Station led to the expansion of wind energy production in Kajiado County. To build the Kipeto Wind Power Station, Kipeto Energy Limited (KEL), a private investment company, and the American-owned Overseas Private Investment Corporation leased 60 parcels of land from local landowners in Esilanke-Kipeto, along the foothills of Ngong Hills, 18 km north-west of Kajiado town.[6] The total area of the 63-turbine-capacity wind farm covers approximately 70 km^2 and started operations in 2021, generating approximately 100 MW of electricity.

The Kipeto Wind Power Station is the second largest wind farm in Kenya, after the Lake Turkana Wind Power Project in Marsabit County (Hansen, 2016: 5; Ongoma, 2018: 530). In the wake of Kajiado County's status as a key wind energy hub, Koissaba (2016: 8) anticipates that the county may experience an increased demand for land by energy-prospecting investors, which may exacerbate the land-grab crisis. While wind energy development has emerged as a key national economic activity in Kajiado County, the next section details how the state exploitation of wind energy in other Kenyan rangelands is implicated in land grabbing.

[6] The Ngong Hills Wind Farm is a partnership between KenGen and Vestas Wind Systems (a Danish wind company), and the Kipeto Wind Power Station is a partnership between the International Finance Corporation (World Bank), General Electric, KPLC, KEL and African Infrastructure Investment Managers (see Ongoma, 2018: 530-531).

Towards Becoming a Middle-Income Country: Grabbing Kajiado's Rangelands for Wind Energy Production

The economic and scientific rationale of mitigating environmental changes drives the policy discourse of green energy expansion against global climate change (see Fairhead et al., 2012: 241; Avila, 2018: 601). The Kenya Vision 2030 economic development blueprint and the Kenya National Climate Change Response Strategy (NCCRS) are key government policies that identify the importance of renewable energy to sustainably drive Kenya's industrialisation toward a middle-income economy (G.o.K, 2010: 3; Owino et al., 2016: 20, 29; Ongoma, 2018: 525-536). Kenya Vision 2030 is a long-term national development strategy launched in July 2008 by the Kenyan government to drive Kenya towards a new identity as an industrialised middle-income country with a globally competitive and prosperous economy by 2030 (Sena 2015: 5-6; Owino et al., 2016: 20-29; Ongoma, 2018: 527). The United Nations embraced a set of sustainable development goals (SDG) in 2015 to end poverty, protect the planet and ensure prosperity for all. Goal 7 of the SDGs advocates access to affordable, reliable, suitable and modern energy for all, and Kenya has strongly embraced SDG 7 in Kenya Vision 2030, seeking investments in renewable energy projects such as wind power (Sena 2015: 5).

Kenya Vision 2030 highlights that Kenya's current energy costs are high in the face of growing energy demands for industrialisation, and it emphasises that policy reforms in the energy sector that strongly incentivise private power generation and the adoption of new energy technologies will enable the growth of affordable renewable energy production and improve consumption efficiency (Koissaba, 2017: 4; Ongoma, 2018: 527). The NCCRS was formulated in 2010 to strengthen and direct Kenya's climate change adaptation and a reduction of greenhouse gas emissions to reduce Kenya's carbon footprint. Accordingly, it endorses a zero-tax rating on renewable energy technologies, easing the high upfront costs required to import wind power technologies and encouraging independent power producers. Adopting wind energy as a renewable energy source would allow Kenya to adapt to and mitigate the effects of climate change while increasing energy production (G.o.K, 2010: 3, 9-61, 84; Sena, 2015: 7; Owino et al., 2016: 7, 20-21, 29; Ongoma 2018: 526-527).

The United Nations Framework Convention on Climate Change (UNFCCC) is a leading global campaigner for the reduction of greenhouse gas (GHG) emissions to mitigate climate change. The

UNFCCC has advocated for the widespread adoption of and investment in renewable energy technologies such as wind energy to achieve this goal (Sena, 2015: 8; Ongoma, 2018: 528). Kenya presents itself as a primary actor on the international podium, showcasing its leadership in the global effort against climate change, fully committing itself to addressing and responding to climate change and energy matters. To show its determination to reduce GHG emissions by 30% by the year 2030, Kenya submitted an Intended Nationally Determined Contribution (INDC) to the UNFCCC secretariat before the Paris Conference of Parties (COP21), restating that adaptation to climate change remained its key priority and committing to develop renewable energy such as wind energy as a climate mitigation action (Sena, 2015: 8; Owino et al., 2016: 7; G.o.K., 2016: iii). Kenya's interest in pursuing renewable energy to achieve its goals has aligned its interests with those of resource-rich western donors (e.g. Belgium, the United States and Denmark) looking to fund investments in renewable energy (Owino et al., 2016: 7; G.o.K, 2016: iii; Ongoma, 2018: 526-533). The global effort to mitigate climate change has played an influential role in the development of wind energy in Kenya.

Connectivity to grid-based electricity in Kenya has remained low and unreliable in rural areas, even as the state has made various efforts to improve production output. Growing energy consumption reflects Kenya's developing economy, particularly in the industrial sector (Ngui et al. 2011: 7085-7093), and the current energy demand of 1,193.8 MW is expected to rise to 7,795.3 MW by 2030. To sustain its energy needs, Kenya has remained dependent on a mix of energy sources – mainly from geothermal, hydropower, fossil fuel and wind-generating sources. Kenya plans to close this gap through abundant, affordable and reliable energy sources (Ngui et al. 2011: 7085-7093; Sena 2015: 7). Renewable energy sources including hydroelectric, solar, geothermal and wind power account for more than 50% of the country's energy sources (Sena 2015: 7; Kiplagat et al., 2011: 2961-2972). In the long term, investing in renewable energy sources is expected to improve energy affordability and availability while remaining on track to minimise or eliminate carbon emissions associated with heavy reliance on non-renewable sources (Ullah et al., 2010: 859-861; Kaunda et al., 2012: 2,9-11; Pueyo et al., 2016: 9, 42-43). Apart from reducing its carbon emission footprint and increasing its energy output, Kenya's exploitation of renewable energy sources has in part been dictated by climate variability and uncertainty, which have adversely affected its dam water levels – its major energy source for hydroelectric power (Sena, 2015: 6; Oludhe, 2008: 40; Kaunda et al., 2012: 11).

Wind energy is a rapidly growing energy source among developing countries such as India, Pakistan, Kenya and Ghana and presents an opportunity to reduce the energy costs associated with fossil fuel (Shikha and Kothari 2004: 67-80; Ullah et al., 2010: 859-861; Pueyo et al., 2016: 42-54; Ongoma, 2018: 526). In Africa, Kenya, Somalia, Sudan, Libya, Egypt, Madagascar and Chad have a high potential for wind energy production (Buys et al. 2009: 9-11, 30-33; Ongoma, 2018: 529). Studies have concluded that the pastoral counties of Marsabit, Laikipia, Samburu, Turkana and Kajiado and the coastal counties of Lamu and Mombasa show the highest potential for wind energy in Kenya (Oludhe (2008: 46-50; Kiplagat et al., 2011: 2968-2969; Pueyo et al., 2016: 15-22). Kenya's wind energy potential is high but has been minimally exploited and currently only accounts for 0.3% of Kenya's total generated energy (Sena, 2015: 8; Ongoma, 2018: 529). The 25.5 MW Ngong Wind Farm in Kajiado County, established in 1993, was Kenya's first large-scale wind farm and remained so for a long time, but its success increased Kenya's incentive to exploit wind energy production (Kiplagat et al.,2011: 2968-2969; Ongoma, 2018: 529).[7]

Kenya's arid and semi-arid regions (e.g., Kajiado and Marsabit Counties) have emerged in recent years as major centres for unlocking Kenya's wind energy potential. These pastoral-dominated regions have long been neglected – by both the colonial and post-colonial administrations, both of whose policies view these regions as having low economic potential and not worthy of intervention. Kenyan policies formalised the inequitable allocation of land and economic resources to commercial livestock and agriculture production in the fertile highlands at the expense of pastoralism and characterised these mostly dry regions as lacking in economic opportunities, infrastructure (e.g. roads and water services) and basic services such as healthcare and formal education facilities (see Hogg 1987: 49: Catley et al., 2013: 3; Elmi and Birch 2013: 3; Nyanjom, 2014: 45-60; Carrier and Kochore 2014: 136; Schilling et al., 2018: 574-575; Cormack and Kurewa 2018: 91). Wind energy potential has finally gained the pastoral arid and semi-arid rangelands the attention of a government that has constantly neglected them as the description of these dryland regions shifts from lacking economic potential to becoming the driving force of Kenya's future economic growth (Carrier and Kochore, 2014: 136; Nyanjom, 2014: 45-65; Mosley

[7] The Ngong Wind Project paved the way for wind projects in Kenya that are being developed or are in the proposal stage. Capacities vary: 90 MW Baharini Electra Wind Farm in Mombasa County in 2013; 150 MW Isiolo Wind Project in Isiolo County in 2014; 400 MW wind farm in Meru County in 2015; 60 MW Kinangop Wind Park in Nyandarua County in 2015 (see Ongoma, 2018: 530-531)

and Watson 2016, 452; Cormack and Kurewa, 2018: 92; Koissaba, 2016: 8, 179-181; Koissaba, 2017: 3-8; Ongoma, 2018: 525-536).

The current administration of President Uhuru Kenyatta has taken note of the energy-production gap and wind energy potential in Kenya and has scaled up its efforts to secure multinational investor capital through public-private partnerships to invest in wind energy. Its flagship wind energy project under the Kenya Vision 2030 banner is the Lake Turkana Wind Power (LTWP) project on the eastern part of Lake Turkana in Marsabit County, 550 km north of Nairobi. This mega infrastructure covers 40,000 acres (162 km^2) of land and has turned the ancestral territories of the Turkana, Rendile and Borana pastoral communities in the north Rift Valley region into a dominant wind energy producer, the largest wind farm in Kenya and Africa (see Nyanjom, 2014: 44; Sena, 2015: 6-11; Owino et al., 2016: 11; Hansen 2016: 5; Schilling et al., 2018: 571-572; Cormack and Kurewa, 2018: 90, 92; Ongoma, 2018: 529-530). The LTWP project boasts 365 wind turbines with a total production capacity of 310 MW (Schilling et al., 2018;571-572; Ongoma 2018: 530; Calzadilla & Mauger 2018: 245). Such efforts to contribute to global climate change-mitigation efforts through renewable energy has persuaded mostly European investors to finance local wind farms (Schilling et al., 2018: 589-590). According to Ongoma (2018: 530), the estimated USD 690 million wind farm received direct foreign investment from an association of investors and banks under the patronage of the European Union, with the African Development Bank as the lead arranger and lender.[8]

Green credentials such as biocarbon sequestration, emission reduction, the protection of ecosystem services, ecotourism or aspects related to these have justified a rush for land or a "green grab" in the name of mitigating climate change and conserving the environment. Yet conservation and climate mitigation are merely another form of commercialisation when ecosystem services such as carbon, water and biodiversity are commodified to be traded in markets for financial gains, incentivising increased dispossession and land appropriation (Fairhead et al., 2012: 237). Development of wind energy in most developing countries (Avila, 2018: 609) has been criticised

[8] The investors in the LTWP wind projects are Vestas Wind Systems (a Danish wind company); Lake Turkana Wind Power Consortium, comprising KP&P Africa B.V., Aldwych International, Industrial Fund for Developing Countries and Norwegian Fund for Developing Countries (Norfund); DEWI, Government of Kenya; KETRACO; government of Spain; Spanish contractor Isolux Corsan S.A; Aldwych Turkana International Limited; KLP Norfund Investment AS; Danish Investment Fund for Developing Countries (IFU); Finnish Fund for Industrial Cooperation Ltd (Finnfund); Sandpiper Limited; African Development Bank; government of the Netherlands (see Ongoma, 2018: 530).

for imposing land pressure on rural host communities' cultural livelihood, as is true in Mexico, Brazil and Kenya, where wind energy production is growing rapidly. According to Fairhead et al. (2012: 239), "appropriation" is the allocation of land and its resource rights from the hands of the poor or any person that utilises the land to the hands of the powerful capitalist elite. This reveals a shift in power in which resource holders are subordinate to the capital elite, who continue their dominance over the landscape and the livelihood of the people by consolidating power through ownership.

Wind energy companies benefit from the weak legislative framework that governs customary land rights or where governments in developing countries fail to uphold or formalise the rights of rural indigenous communities. Traditional rights are often entrenched in forms of legal pluralism, where landowners' rights are known but recognition of their claims is undermined (Pasqualetti, 2011: 908-913; Brannstrom et al., 2017: 63-70; Calzadilla and Mauger, 2018: 243-247; Avila 2018: 609; Cormack and Kurewa, 2018: 90-103). Pastoral communities are particularly vulnerable because of their mobile nature, which is easily manipulated by developers and the state through fraudulent methods and in contravention of pastoralists' right to keep, utilise or receive compensation for the land by way of local agreement with clear collective acknowledgement (Schilling et al., 2018: 571-590; Cormack and Kurewa, 2018: 90-103; Mosley and Watson, 2016: 452-469). According to Hanna and Vanclay (2013: 146, l49), the establishment of wind farm projects often leads to states or companies unjustly appropriating rural people's land and marginalising their livelihoods and cultural beliefs. The resistance of rural people against wind energy development has also been labelled by the Kenyan government as counter to national development.

Kenya's Lake Turkana Wind Power (LTWP) project is embroiled in accusations of land grabbing and infringing the traditional land rights of resident communities in Marsabit County. Local activists such as the Sarima Indigenous People's Land Forum have raised concerns over the legality of the LTWP's acquisition of ancestral lands without prior consent from community members. The pastoral settlements of Sarima were relocated involuntarily and without consultation, isolated from their land to pave the way for the wind project (Sena, 2015: 14-17; Cormack and Kurewa, 2018: 90-96; Schilling et al., 2018: 575-590). As noted by Schilling et al. (2018: 575) and Mosley and Watson (2018: 465- 467), the wind project fuelled territorial conflicts in the form of violent cattle raids and dry-season resource competition between pastoral

communities from Marsabit and Turkana Counties, who jostled for a piece of the wind economy. Goldsmith (2013: 132) warns that such conflicts only worsen as economic opportunities are not met and climate change continues to affect livestock in the region. In the wake of LTWP's illegal land grab, a united coalition was formed between activists from the pastoral tribes, the Sarima Indigenous People's Land Forum and local politicians.

Mosley and Watson (2016: 466-469) write that civil society use social media to play an active role in Nairobi and Marsabit to bring attention to threats to the land rights of Marsabit's pastoral communities and their livelihoods. The coalition brought a case against LTWP in 2015 at the Environment and Land Court in Meru County (Sena, 2015: 14-17; Cormack and Kurewa, 2018: 94-95; Schilling et al., 2018: 590; Calzadilla & Mauger, 2018: 246-247) contesting the legality of a lease granted by Marsabit County Council to LTWP for a 110,000 acres land concession in 2009, as opposed to the 40,000 acres that had previously been agreed on. The coalition cited irregularities relating to community participation and access to information in the appropriation of their traditional grazing lands. The leased land was designated as communal land, which implied that communities and individuals could not hold land titles, and LTWP argued that the residents of the village had no legal right to land compensation (Schilling et al., 2018: 582; Cormack and Kurewa, 2018: 96).

The Marsabit County Council held the contested land in trust on behalf of the resident pastoral communities, but its approval of the lease changed the designation into private land, depriving local people of compensation for land and resource loss. Community activists argued that the local government acted unlawfully and did not abide by the Constitution, which recognises and strengthens customary communal land tenure under the Community Land Act of 2016 to better protect communities against loss of land without proper compensation. LTWP maintained that they had lawfully acquired the land concession and had consulted community stakeholders, including local communities, but provided no evidence of having done so. They argued that the pastoral communities used the land but had no rights to its ownership, thereby deeming them ineligible for financial compensation (Sena, 2015: 14-17; Cormack and Kurewa 2018: 94-96; Schilling et al., 2018: 581-590; Calzadilla & Mauger 2018: 246-247). The Environment and Land Court in Meru County ruled in November 2016 that in the national interest the project should continue within the confined area of 87,500 acres before a full verdict regarding legal ownership

of the entire land concession could be made; a judgement is yet to be delivered (Schilling et al., 2018: 590; Calzadilla & Mauger 2018: 246-247).

Similarly, Brazil and Mexico are emerging markets for wind energy production as a result of rapid economic growth, greenhouse gas mitigation, increasing energy security and its low costs (Huesca-Pérez et al., 2016: 953). However, wind energy development in Latin American countries has faced growing protests from civil society for disenfranchising land rights and disrupting the ecologies and livelihoods of host communities. In the Isthmus of Tehuantepec in Mexico's Oaxaca state, grassroot movements comprised of teachers, farmers and students – such as Isthmus of Tehuantepec and Grupo Solidario de la Venta – mounted public resistance through live demonstrations and media to protest the disruption of indigenous land rights and the unjust appropriation of pre-existing communal agricultural fields (*ejidos*) and indigenous cultural heritage sites for large-scale wind farms (see Pasqualetti, 2011: 911-914; Huesca -Pérez et al., 2016: 958-963; Calzadilla, and Mauger, 2018: 243-247; Guimaraes, 2020: 309). According to Guimaraes (2020: 315-316), the Mexican government heeded most of the protestors' demands and ensured that compensation for leased lands and environmental damages was guided by the Ministry of Energy's Action Protocol on Shared Social Benefits of Energy Projects and the General Direction of Social Impacts and Land Occupation to oversee and address negotiations in indigenous territories.

In the north-eastern coastal state of Ceará in Brazil, public activism by Xavier and Aracaú community members and an environmental activism group known as "blocking coalition" exposed the ecological and social implications of wind farm activities. They protested the appropriation and enclosure of common fishing areas and the destruction of fragile marine ecosystems to accommodate wind farm infrastructure. With the aid of a Catholic Church organisation, the Brazilian public prosecutor arrested and prosecuted the owner of an environmental consulting firm that had carried out environmental impact assessments for half of the wind energy projects in Ceará state in 2014. The federal police also arrested government environmental officers for giving permits to projects without environmental impact reports. While the state demarcated private and public land along the coast to pre-empt more land grabs, it did not grant communal title deeds to the fishing communities living along the dunes, mangroves and beaches, leaving them vulnerable

(see Meireles, et al 2013: 82-84; Brannstrom et al., 2017: 62-70; Gorayeb et al., 2016: 383-385; Gorayeb et al., 2018: 82-83).

The cases of wind energy development in rural parts of Kenya, Brazil and Mexico show a similar trend of unethical land grabbing and the disruption of livelihoods by wind energy companies. Likewise, they have elicited resistance from civil societies concerned about the implications for host communities' land and livelihood rights. In Kajiado County, which is vulnerable to neoliberal land grabs, the replication of dispossession practiced by wind energy projects exacerbates the stresses that Maasai and their livestock economy are already experiencing. The disenfranchisement of rural communities' land rights to benefit neoliberal investment shows that economic growth remains a major priority for governments of the Global South – but over the rights and livelihood needs of their rural citizens.

Land has become a lucrative commodity for feeding private capital growth in other parts of Africa as well. The next section considers how the growth of state-sponsored enclosures affect pastoralists' livelihood practices and grazing environments.

Implications of Financialised Land Grabs for Pastoralists' Livelihoods and Ecology

In *Reflections on the Future of Pastoralism in the Horn of Africa*, Little (2013: 243-248) raises concerns about the future of pastoralism in East Africa's rangelands under the growing conditions of land grabbing and climate uncertainty. Large-scale financialised land grabs favouring investment are slowly edging pastoralism out of African grazing lands. Borras and Franco (2012: 34-40) write that a "land grab" is the taking over of large amounts of land and land-based resources (e.g. water) for the purpose of accumulating capital in reaction to crises of food insecurity, uncertainty over climate change impacts and financial pressure. The term "grabbing" references appropriation, which is generally the privatisation and selling of land and land-based resources held in trust by the state on behalf of rural agrarian communities to benefit private investors through capital extraction, resulting in the ecological marginalisation of agrarian livelihoods (Fairhead et al., 2012: 243).

Recently, the African continent has been a hub of global land grabbing since 2007, when the United Nations Conference on Trade and Development reported that Africa's foreign direct investments (FDI) were worth over USD30 billion – compared to the USD22 billion of FDI in 2006 and USD

17 billion of FDI in 2005 (Cotula, 2009: 25). Deininger and Byerlee (2011: xiv-2) estimate that approximately 70% of all major international land transactions were undertaken in Africa. Of the total global land transactions reported since 2013, Africa accounted for approximately 161.7 million hectares (948 land acquisitions), Asia for 42.7 million hectares, Latin America for 17.6 million hectares, and other regions, primarily Eastern Europe and Oceania, for 5.4 million hectares (Anseeuw, 2013: 161; Cotula et al., 2014: 906-914). The current growth of land-based investments in Africa has not been seen since the colonial period (Hall et al., 2015: 1-5), when settlers and colonial administrations grabbed the best land from indigenous populations for capital production (Batterbury and Ndi, 2018: 575) – for palm oil cultivation in Nigeria to drive the industrial revolution in Britain, for tea plantations, ranches and farms by British settlers in Kenya or for the settlement of French farmers and the displacement of native farmers in Algeria, among many other examples.

The supposed availability of land in Africa has attracted governments seeking to improve their national food and fuel security and attracts private investors anxious to tap into the global demand for food and fuel (Cotula, 2009: 26). Multinational corporations and governments from wealthy, developed areas such as North America, Europe, China, India and the Middle East have secured tenancy over millions of hectares of arable land to address their national food security and biofuel needs. Kenya, Sudan, Ethiopia, Zambia, Mozambique, Tanzania, Ghana and the Democratic Republic of Congo have been preferred by foreign investors, in terms of both the amassed size and number of developments (Cotula, 2009: 25; Anseeuw, 2013: 162; Borras et al., 2011: 209-214; Zoomers, 2013: 55-65; Batterbury and Ndi, 2018: 573,575). Investors who concentrate their efforts on the irrigated production of food, fuel and horticulture search for land that guarantees full rights to water sources crucial for their projects (Smaller and Mann 2009: 4; Borras et al., 2010: 575-577; Brittaine and Lutaladio 2010: 4; Zoomers 2010: 434–435; Fairhead et al., 2012: 237, 243; Hall et al., 2015: 1, 5-6; Catley et al. 2013: 16).

According to Cotula (2009: 58-59), African countries are interested in transforming agriculture to address low employment, economic growth, foreign revenue earnings and the more long-standing crisis of food insecurity. For some nations, agriculture is viewed as an opportunity to diversify their dependence on single commodities (e.g. oil in Sudan and copper in Zambia). States justify foreign investment through transnational land deals as filling this gap by importing new farming

technologies, generating employment, facilitating the transformation of rural economies and infrastructure and improving local food security (Cotula, 2009: 58-59; Batterbury and Ndi, 2018: 575-576). Institutional weakness, legal pluralism and institutional incompetence are common in African countries and contribute to the confusion around state institutions' responsibilities and their failure to regulate land deals (Hall et al., 2015: 10-12).

Cotula (2009: 92) notes that uncertainty over land tenure regulations is a key issue for investors, so security assurances by the state are important when completing land transactions. Resistance by local communities, community access to legal protection and their perceived socio-political legitimacy all pose a threat to investors' ambitions and compel investors to withdraw from deals to the detriment of the desperate state. The combination of poor land tenure regulations and a desperation to effect economic growth often leads to the contravention of existing traditional and communal land rights, as land and water rights are promised to investors (Batterbury and Ndi, 2018: 573). Consequently, communities in regions where commercial land activities are minimal or where land is fertile and water is abundant are particularly vulnerable to land grabs (Allan et al, 2012: 4-7).

Governments in Africa describe land occupied by agrarian communities as "unoccupied", "unused" or "underutilised" to attract investors and introduce new forms of land use (Borras et al., 2011: 209-213; Li, 2014: 592-593; Cormack and Kurewa, 2018: 97). States use demographic growth, population density and satellite imagery to drive perceptions of land abundance that underestimate land use by agrarian communities (see Cotula et al., 2009: 59). For example, the Ethiopian government used satellite images as proof that farm and grazing lands were "available and unused" to justify their transfer to Indian and Saudi Arabian agri-business companies (Shete and Rutten, 2015: 68). Investors similarly argue that they acquire marginal and "unused" land (Borras et al., 2011: 209-213) to downplay their engagement in unethical practices.

Describing land concessions as vacant or unproductive suggests that only investment can bring value to the rural environment, justifying the rush for land as sites of potential capital (Li, 2014: 592-593). Mosley and Watson (2016: 453-455) note that this narrative devalues current forms of land use practiced by agrarian communities. Cotula et al., (2009: 91-92) and Zoomers, (2013: 55-65) note that rural producers often let land lie fallow to recover soil fertility, conserve seasonal

pastures, migrate herds and for customary rituals and foraging forest products or as part of an important water catchment area.

Hall et al. (2015: 5) write that ongoing land grabs in Africa must be understood from the perspective of the past, particularly the reformation of economies through neoliberal structural adjustment policies, the rise of capital and political elites and long-term patterns of regional marginalisation and underdevelopment. In the wake of 1980s market liberalisation, developing countries (e.g. Ivory Coast, Ghana, Kenya, Tanzania, Ethiopia, Kazakhstan and Mongolia) introduced liberalised trade and investment policies and undertook wide-scale land reforms that either nationalised or privatised customary communal grazing and farming land. Policymakers assumed that formalising land ownership and promoting land markets would incentivise food production to address the looming crises of poverty, food insecurity and stagnating economic growth. However, this assumption undermined the importance of indigenous food production systems such as mobile livestock husbandry, downplaying its adaptability to the ecologically heterogeneous rangelands.[9] Formalising land ownership in Africa became a long-term problem, because governments were largely unwilling to formalise the customs and norms that entrenched agrarian communities' land obligations, livelihoods and informal rights (Unruh, 2008: 701-705). Nonetheless, land reforms help pave the way for modern-day state-aided and private investor-driven land grabs in Africa (Batterbury and Ndi, 2018: 575).

The current market-driven political and economic appraisal of natural resources encourages land grabs, unlike earlier colonial investment endeavours (Peluso and Lund, 2011: 667). The global rise of food prices in 2007-2008 and 2011 prompted dominant food-producing nations to prohibit food exports to meet their domestic demands first. The high price of food commodities incentivised resource-poor wealthy nations to use land to increase their food security (Lisk, 2013: 563). Food, fuel, biota conservation and financial crises in 2007 and 2008 and the increasing financialisation of capital and its need for speculative acquisitions and futures contributed to investors' rush to acquire land in Africa (Smaller and Mann 2009: 4; Borras et al., 2010: 575-577; Brittaine and

[9] See: Little et al., 2001: 411-423; Boone et al., 2008: 341-362; Ojima and Chuluun, 2008: 183; Alimaev and Behnke,2008: 151-174; Unruh, 2008: 701; Bassett, 2009: 756-766; Galaty, 2013b: 21; Devereux and Tibbo, 2013: 217; Archambault et al. 2014: 58-84; Shete and Rutten, 2015: 65-71; and Hall et al., 2015: 6-7.

Lutaladio 2010: 4; Zoomers 2010: 434–435; Fairhead et al., 2012: 237, 243; Shete and Rutten, 2015: 67-81; Hall et al., 2015: 1,5-6; Catley et al. 2013: 16).

Speculation over future global crises has generated high anxiety over food insecurity, driving wealthy economies to secure land and water rights in Africa. This is particularly true of wealthy economies short on arable land, where domestic food production is declining, domestic water reserves are dwindling and/or a high proportion of vulnerable populations exist, which may lead to unaffordable food costs in the future. This is especially true for China, India and Gulf countries in the Middle East (Cotula, 2009: 53-54; Allan et al., 2012: 1-2; Li, 2014: 592; Batterbury and Ndi, 2018: 575). While Gulf countries are primarily interested in their future food security, China's interest in land is mainly driven by speculative futures and resource hegemony.

According to Cotula (2009: 55-58), China's Ministry of Agriculture is concerned about its ability to maintain food security for its growing population and has called for more active efforts to acquire land in Africa. China is suspected of engaging in an off-the-record long-term hedging strategy in countries such as Mozambique and Sudan, encouraging Chinese companies to invest overseas and secure ownership of in-demand resources. Through a range of incentives such as tax breaks, credit, diplomatic support and low-interest loans, Chinese companies are encouraged to develop strong transnational companies capable of competing with prominent established multinational companies from the west in major sectors. This strategy may favour China as more African governments develop policies to attract and accommodate direct foreign investments.

Direct foreign investments such as transnational land deals are part of African governments' emerging "national strategies" to encourage development through land investments (Cotula et al., 2014: 903-910; Anseeuw, 2013: 159-170). Strategic investment policies and economic growth blueprints such as Kenya Vision 2030, Tanzania Development Vision 2025, Ghana Food and Agriculture Sector Development Policy and Ethiopia Agriculture Development-Led Industrialization were implemented to privilege direct foreign investment, particularly targeting rural agrarian land occupied by small-scale farmers and pastoralists (Hall et al., 2015: 7). The unethical annexation of communal grazing lands by African governments for neoliberal land investments after the 2008 global food and fuel crisis has negatively affected pastoralists' seasonal herd mobility, grazing ecology and livelihood security.

In 2009, Ghana's Brong Ahafo region, 69% of communal land in Pru district was marked by traditional councils and the government for sugarcane and jatropha cultivation by a "foreign biofuel company". The company, comprised of 20 Norwegian, Brazilian, Dutch, Swedish, German and British companies cultivating biofuel plantations in Ghana, intended to transform communal grazing lands into a biofuel monoculture. Indigenous vegetation and forests were cleared to accommodate biofuel cultivation and water sources were diverted, displacing pastoralists such as the Fulani to harsh, rocky environments. The degradation of their grazing ecology and their ecological marginalisation exposed herders to climate risks, and they were unable to recover from dry-season livestock loss. This and the limited employment opportunities in biofuel plantations exposed them to a crisis of food insecurity and poverty (see Schoneveld et al., 2011: 2-14; Amigun et al., 2011: 1361-1367). Such ecological destruction and disruption of pastoralists' seasonal grazing by neoliberal land investments has also occurred in rural Ethiopia and Kenya.

The Indian horticulture company Karuturi Agro Products plc secured more than 300,000 hectares of land from the Ethiopian state in 2008 to cultivate palm oil, sugarcane and maize on grazing lands along the water-rich environments of the Oromia and Gambela regional states (Shete and Rutten, 2015: 67-81). Karuturi cleared indigenous vegetation and diverted rivers for irrigation, which deprived pastoralists of livestock watering points and extended movement for seasonal grazing. The shortage of resources increased livestock vulnerability to droughts and diseases, resulting in the decline of average livestock units per household, from 13 prior to 2008 to 10 by 2013. Consequently, 30% of pastoralist households who lost income from livestock products became food insecure and impoverished. Between 2010 and 2012, such adverse livelihood conditions were aggravated by unmet promises of employment by Karuturi.

State-sponsored and private investor-driven land investments in Africa have exposed pastoralists' mobile livestock husbandry to environmental marginalisation and made their livelihood practice vulnerable to climate risks. The next section explores how the ecological marginalisation of pastoralists results in resource pressure that negatively affects pastoral grazing systems.

Impacts of Rangeland Degradation on Grazing Systems

The ecological changes experienced by pastoral societies in their home environments, particularly of fragmentation, have played a major role in altering the composition of local vegetation. Rotating livestock between seasonal grazing grounds allows for the maximal and equitable utilisation of

unevenly distributed sources of water and pasture, which lowers ecological impact and creates a safety net in anticipation of climate stress (Solomon et al., 2007: 485-486,489; BurnSilver et al., 2008: 227; Mwangi, 2016: 3).

According to Coughenour, (2008: 68) herd mobility is important to ecological regeneration, because extensive livestock grazing complemented with consistent seasonal migration diffuses the impacts of grazing and allows for the regeneration of forage and water sources and the overall timely recovery of seasonal grazing grounds. Herd mobility develops and sustains the complexity, heterogeneity and diversity that characterises the composition of rangeland ecology, demonstrating that the resilience of pastoral grazing systems is predicated upon ecosystem resilience (Solomon et al., 2007: 485-486, 489; BurnSilver et al., 2008: 227; Coughenour, 2008: 68). The disruption of herd mobility or enclosure of resources decreases grazing efficiency and increases ecosystem degradation, homogeneity and vulnerability, exposing herders to the risk of losses (Coughenour, 2008: 68; Behnke, 2008: 331; Bassett, 2009: 756,765-766). Pastoralism remains vulnerable to exposure to the intersecting impacts of climate uncertainty and environmental change.

However, as herders are settled in smaller pockets of land, concentrated livestock grazing may alter the composition of the vegetation, leading to a decline in the quality of forage such as herbaceous plants (grasses and leafy herbs), an increase in undesired woody plants (shrubs and trees) and a general increase in less palatable forage. In *Stability of African Pastoral Ecosystems: Alternate Paradigms and Implications for Development*, Ellis and Swift (1988: 450) write that herders' access to diverse vegetation maintains livestock population stability, productivity and body condition. Other rangeland ecologists (Western and Manzolillo-Nightingale, 2003: 23-30; Solomon et al., 2007: 489; Bassett, 2009: 757) support this relationship between resource access, herd health and productivity.

Intensification of concentrated grazing and the ecological degradation that is a result of rangeland fragmentation contributes to low livestock productivity and increased vulnerability to climate uncertainty (Solomon et al., 2007: 491-492; Bassett, 2009: 756, 764-766). On a global scale, the African continent accounts for 36% of the planet's total degraded land mass due to overgrazing, even as more than 50% of the continent's grazing lands are thought to be experiencing some form of long-term desertification (see Galvin et al., 2008: 298-299).

Botanists studying rangeland vegetation composition in the grasslands of the United States, Western Australia, Somalia, Tanzania, Ethiopia, South Africa and Kenya have found that over time, intensified grazing limits the ability of palatable grasses to regenerate during rainy seasons (Ellison, 1960: 8-28; Thurow and Hussein, 1989: 16-19; Curry and Hacker, 1990: 295-315; Noy-Meir et al., 1989: 290-308; Mwalyosi, 1992: 581-587; O'Connor and Roux, 1995: 612-625; Mwendera et al., 1997: 43-50; Kamau, 2003: 8-15; Mwangi, 2006: 22). Likewise, intensive grazing can alter general plant group composition and diversity, allowing low-quality forage to thrive. In the long term, nutritious long-living perennial grasses and an increase in vegetation dominated by unpalatable dwarf shrubs and woods (e.g. acacia), short-lived annual herbaceous forbs (e.g. dandelions, milk weeds), shrubs (e.g. acacia) and short-lived annual grasses (e.g. small and prostate annuals, rosette crucifers and thistles) reduces livestock productivity.

In rangelands that are less populated, less fragmented and where climate remains highly variable, livestock seldom pressurise vegetation because of their seasonal movements or livestock mortality brought on by droughts, allowing grazing lands to regenerate (Kamau, 2003: 8-12; Kioko et al., 2012: 30). However, intensified grazing alters vegetation composition in areas where herders are less mobile, because declining vegetation cover caused by severe grazing increases soil erosion, negatively impacting rangeland productivity by depleting soil properties (moisture, organic matter, pH, nitrogen and organic carbon) and reducing soil fertility, which may lead to desertification. Palatable herbaceous plant species (e.g. perennial grasses and leafy herbs) remain depressed, while unpalatable annual grasses and woody plants (e.g. annual grasses, herbs, shrubs and trees) remain abundant. Climate change impacts such as long-term droughts or variable rainfall are therefore likely to exacerbate the abundance of undesired forage.

The decline of Maasai mobile livestock husbandry in the semi-arid rangelands has had undesirable effects on forage productivity and has increased the risk of degradation in this semi-arid rangeland (Kioko et al., 2012: 30). The isolation of Laikipia Maasai to small pockets of land adjacent to large private farms and ranches has led to a decline in perennial grasses, a high proportion of bare ground and the emergence of unpalatable species such as the poisonous *Opuntia* cactus, symbolic of overgrazing and long-term desertification (Letai, 2015: 93;97; Ameso et al., 2018: 7-15). Similarly, the concentration of Maasai on private land parcels in Kajiado County led to the loss of perennial vegetation and negative long-term effects of annual forage and a high proportion of bare

ground. The dominance of the less palatable *Pennisetum* and *Cynodon dactylon* grass species over the more palatable perennial *Cenchrus ciliaris* in Maasai settlements is proof of the area's exposure to long-term stress from overgrazing.

In Kajiado, land fragmentation has played a major role in changing vegetation composition. There was a notable decline in nutritious grass species and an increase in non-nutritious forage species as changing property relations occurred around 1978, attributable to a rise in concentrated grazing on individual private land parcels (Mwangi, 2016: 6). Galvin et al. (2008: 214) estimate that only 10% of Maasai households had ample forage on their individually owned parcels of land to sustain their herds. The switch from seasonal to intensified grazing around permanent Maasai settlements lowered grassland productivity as mushrooming non-Maasai settlements expanded cultivation and increased woodland depletion (e.g. through charcoal burning, timber and land clearing). These ecological alterations drove the widespread growth of unpalatable herbs and shrubs that impacted both livestock and wildlife from neighbouring protected areas (Ogutu et al., 2014: 25-26).

The deterioration and contraction of rangeland habitats and wildlife migration corridors in Kajiado increases competition for scarce resources between Maasai herds and wild herbivores from neighbouring protected areas. Herbivores from e.g. Amboseli and Nairobi National parks encroach on Maasai settlements during droughts, exacerbating the effects of overgrazing and prematurely depleting wet season forage and forcing some Maasai to drive their herds into protected areas. The inevitable contact between livestock and wildlife during grazing exposes vector-borne livestock diseases, primarily during droughts (see Rutten, 1992: 318-324, 362, 368; Campbell et al., 2000: 337; Ogutu et al., 2014: 23-25). A rinderpest outbreak in Nairobi National Park in 1996 affected Maasai herds grazing illegally in a protected area, resulting in high mortality rates (Ogutu et al.,2014: 23-25). Difficulties managing the challenges of ecological degradation, resource competition and exposure to diseases threatens Kajiado Maasai's ability to cope with harsh recurring droughts (see Rutten, 1992: 318-324, 362, 368; Campbell et al., 2000: 337; Ogutu et al., 2014: 23-25), and crop cultivation has had an equal impact on Kajiado's grazing ecology.

In Loitokitok, Maasai have argued that the expansion of horticultural cultivation on the slopes of Mt. Kilimanjaro has reduced the capacity and productivity of the local wetlands used to graze and water their herds during droughts. Similarly, Maasai residents of Ngong blame the expansion of cultivation for the decline of nearby watering outlets. Cultivation at the foot of the Ngong Hills

and deforestation in the high zones of Ngong forest shrank dry-season grazing grounds and amplified overgrazing. Damming and extraction of farm irrigation from the Embakasi, Kiserian and Kantis tributaries of the Athi river in the Athi-Kapiti/Kaputei ecosystem exhausted these streams, impacting the Maasai of Ngong and the vast neighbouring Kaputei plains (see Rutten, 1992: 188, 317-324, 362-364, 368; Campbell et al., 2000: 337; Coughenour, 2008: 59; Amwata, 2013: 70-71, 110-111, 74). Maasai livelihoods face the combined risks of the ecological impacts of cultivation and conservation expansion in Kajiado.

In other arid and semi-arid rangelands across the globe, land reforms that have favoured the privatisation of common land have led to environmental degradation and natural resource depletion (Behnke and Scoones, 1992: 1–30; Scoones, 1995: 353–360). Studies in Mongolia, Inner Mongolia, China and parts of Russia (Ojima and Chuluun, 2008: 184-185) reveal that privatisation of land and the livestock economy in the 1990s failed to account for the large livestock population of the rangelands. As herders in Mongolia, China and Russia were not given subsidies, the privatisation of the livestock economy incentivised herders to increase their herd numbers as insurance against climate vulnerability and reduced mobility. The growing livestock population in the more fragmented private setting saw numbers grow from 25.8 million cattle in 1990 to 33.6 million in 1999 and 30.4 million in 2005, far outweighing the grazing land's capacity. Grazing, lack of mobility and seasonal grazing outlets are culpable in the slow desertification of grassland ecosystems that is exacerbated by climate change and other anthropogenic activities.

Bush encroachment has been the main contributing cause of degradation in Africa's rangelands since the turn of the 21st century. In East Pokot, Kenya, bush encroachment has been attributed to growing privatisation of area highlands. There have been notable signs of environmental degradation in the area which have been documented since the 1990s due to vegetation clearance to accommodate settlements and pressure on limited grazing. Cattle have mostly been impacted by bush encroachment through reduction of palatable perennial pastures while goats and camels have been favoured by growth of shrubs which they browse on. The disappearance of grass cover from the plains of East Pokot has been replaced by the growth of sacral Acacia species (e.g *Acacia etbaica, A. mellifera, A. reficiens and A. senegal*) (see Vehrs, 2016:103-104). Changes in rangeland vegetation overtime as a result of continuous encroachment has illustrated a similar pattern of decline in indigenous species and growth of invasive species.

According to (Archer et al., 2017:25-80; Wilcox et al.,2017:85-103) changing climatic, ecological and socioeconomic conditions are likely to exacerbate ongoing impacts on rangeland vegetation. The main challenge is to determine whether changes in vegetation complexity and composition will create other problems or degrade rangeland resources. Invasive species have continued to change composition and function of rangeland ecosystem services such as decline in perennial grasses and invasion of shrubs and bushes which are increasingly irreversible. There is a need to cease grazing encroachment in the rangelands to enable a degree of grass recovery and reduction of shrub growth. Otherwise, the continuous degradation of rangeland ecosystems can be detrimental to their ability to regulate production of water sources because disturbances such as overgrazing reduce the density and size of vegetation that trap running water and nutrients.

While local Fulani farmers struggle against the contraction of grazing lands and their conversion into farmland, immigrant Fulani herders and crop farmers' small herds increase competition for minimal resources. Between early 1990 and 2004, the combined pressures of farming expansion and grazing competition resulted in poor quality forage and a loss of palatable vegetation. Ensuing confrontations between competing farmers and immigrant herders forced the resident Fulani herders to undertake periodic nomadic journeys outside their home areas to lower herd vulnerability against droughts and resource pressure (Bassett, 2009: 759,764-765). As climate futures remain uncertain, the rapid contraction and degradation of grazing lands in Africa presents a risk to herders and their livestock.

Most pastoral societies in Africa live in drought-prone arid and semi-arid climate environments, and their livelihoods are at risk from recurrent droughts, whose severity is uncertain (see Niang et al., 2014: 1204, 1220). The combined threats of climatic shocks (e.g. droughts) and non-climatic stressors (e.g. resource pressure and inaccessibility) are the primary risk to the livelihood of pastoral communities such as those living in the arid and semi-arid rangelands of the Horn of Africa region (Kenya, Somalia, Djibouti and Ethiopia) (Solomon et al., 2007: 485 and Niang et al., 2014: 1202, 1219). The occurrence and magnitude of extreme climate events such as droughts cannot be accurately predicted (Gitz and Meybeck, 2012: 23-24). Despite improvements in climate modelling, the uncertainty of future climate outcomes has clouded the potential climate risks that pastoralists face (Ericksen et al., 2013: 80). The deleterious effects of recent droughts on livestock in the Horn of Africa region (such as the 2010/2011 drought) have revealed the increasing

vulnerability of pastoral practice and livelihood to climate change (see UN OCHA, 2011; Lyon, 2014: 7953). For the pastoral communities that hold 70% of Kenya's livestock capacity and reside in the drought-prone arid and semi-arid areas that quantify the majority (>80%) of Kenya's landscape, climate shocks threaten to cement livelihood vulnerability (Uhe et al., 2018: 554).[10]

Skuras and Psaltopoulosf (2012: 218) note that climate change will exacerbate the effects of land degradation and ecological changes in rural agrarian landscapes through changes in the length of days and/or seasons, the frequency of extreme climatic events (e.g. droughts and floods) and shifts in temperatures and rainfall patterns. These climate-induced occurrences are likely to impact the bio-physical environment by reducing vegetation cover and water availability. In *African Climate Change: 1900–2100*, Hulme et al. (2001) claim that a warming climate will aggravate existing water stress regardless of whether or not future precipitation patterns change significantly (Hulme et al., 2001: 165). In the case of rural environments, where ground water is in high demand and freshwater supplies are under stress, increasing temperatures and precipitation variability are projected to affect runoff, which will impact river, dam, aquifer and lake recharge (Thornton et al., 2009: 118; Amwata, 2013: 17,110; Serdeczny et al. 2017: 5). Rising temperatures affect evapotranspiration rates, while precipitation variability affects the recharge of natural water sources. This is particularly concerning for arid and semi-arid areas that already suffer precipitation deficit, because aridity is a key factor in determining the impacts of climate warming on water stress (Serdeczny et al. 2017: 5).

The Intergovernmental Panel on Climate Change (IPCC) report titled *Climate Change 2007: Impacts, Adaptation and Vulnerability* posits that global warming of 2° Celsius will negatively impact key resources and livestock productivity in drought prone arid and semi-arid regions of Africa. Considering the strong relationship between drought, animal mortality and resource availability, a projected rise in temperature and precipitation variability will lead to high livestock mortality rates during droughts (Thornton et al., 2009: 116). The IPCC's fifth assessment report, *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, reinforced this hypothesis, stating that it remains evident that increasing temperatures and precipitation variability will amplify

[10] Arid and semi-arid areas in Kenya are characterised by low average annual precipitation of less than 700 mm (see Uhe et al., 2016: 554).

existing pressure on water and forage resources and adversely affect livestock and pastoralist livelihoods (Niang et al 2014: 1202, 1237).

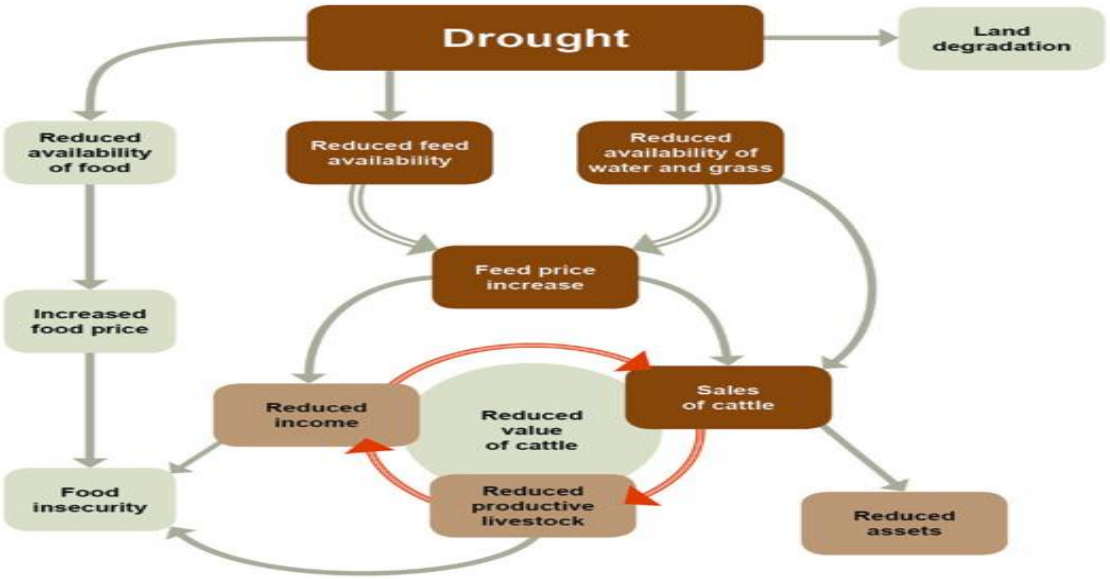

Figure 6: Impacts of drought on pastoralist grazing systems. (Source: Gitz and Meybeck, 2012: 25)

The projection therefore suggests that under conditions of amplified climate cycles, cattle births and deaths may correspondingly increase and decrease. A link was made in Kajiado between cattle population and precipitation variability, which coincided with a wide availability of forage and water sources. In *The Link between Climate Variability, Land-use and Livelihoods in the Southern Rangelands of Kenya,* Amwata (2013: 110-112) describes how Kajiado's livestock population, particularly cattle, progressively declined between 1983 and 2010 due to periods of poor rainfall, land fragmentation, a reduction in dry season-grazing safety nets and increasing environmental degradation from overgrazing. Severe droughts and high cattle deaths in 1983-84, 1992-94 and 2000 showed the link between rainfall, key resource availability and cattle numbers, and cattle sales by Maasai to avoid total loss may also have contributed to the declining numbers. Little (2003: 22) agrees that access to key resources was a factor in determining whether pastoralists would survive years of harsh climate without massive livestock casualties.

The precipitation curve of Kajiado central constituency has illustrated that there have been significant changes in rainfall over time. Figure 7 below shows that the highest precipitation levels were recorded during the years 1977, 1998 and 2001. The years 1972 to 1976, 1983 to 1985, 1990 to 1996, 2003 to 2005 and 2007 to 2009 recorded below average rainfall and the highest spell of

droughts. According to Bobadoye, (2014: 189-190) the changes in precipitation patterns in Kajiado central constituency illustrated that there was increasing climate uncertainty and variability in the area.

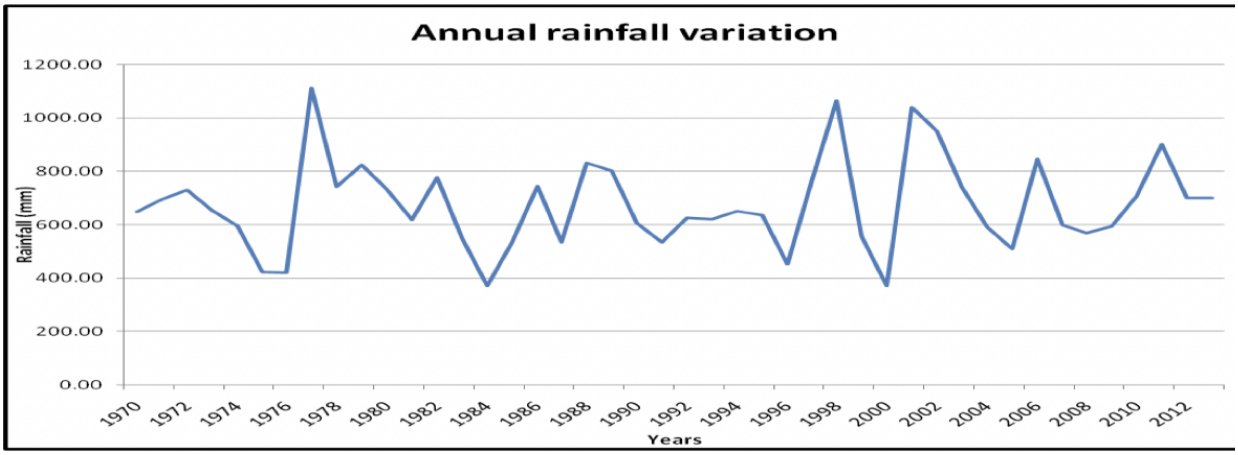

Figure 7: Inter-annual Rainfall variation from the Kajiado central meteorological station between 1970-2013. (Source Bobadoye, 2014:190)

The vulnerability of livestock-keeping practices can be amplified by a single shock or stress that leads to impacts that vary in type and time period. Gitz and Meybeck, (2012: 24-25) suggest that biophysical factors such as water and pasture availability play a major role in complex grazing systems. As illustrated in Figure four, drought leads to a direct and indirect reduction in available pasture and water in livestock grazing systems. If water sources decline as a result of drought, pasture availability will also be impacted, requiring farmers to look for alternatives, such as supplementary feed, to sustain their animals. However, forage scarcity during dry periods drives feed prices up and may force farmers to sell livestock at lower-than-average prices to buy feed to sustain the remaining animals. This reduces the number of livestock, which may be difficult to recover from in the long run.

In the long term, the persistence of ecological degradation under uncertain climate conditions and the inability of pastoralists to cope is detrimental to their livelihood. A single drought can impact pastoral grazing systems and cement vulnerability to recurring droughts, illustrating why herd mobility across the widely varying rangeland environments has remained an important Maasai strategy to cope with climate uncertainty (oral narratives follow in Chapters five and six). According to Galvin et al. (2008: 214), the privatisation of communal land in Kajiado is a setback for the long-term food security of the Maasai, because it has exposed their herds to the associated

risks of resource pressure, degraded ecologies, recurring droughts and disease, all of which contribute to the progressive decline of livestock productivity and population.

The vulnerability of pastoral grazing systems to the intersecting impacts of climate change and degrading rangeland ecology may affect pastoralists' future food security. The next section considers what a changing climate means for the food security of climate-vulnerable pastoralists.

Impacts of Climate Change on Kenyan Pastoralists' Food Security

More than two hundred million people in developing countries in Africa and Asia are pastoralists, deriving most of their livelihood and food from livestock husbandry in the rangelands they dwell in (Boone et al., 2009: 341). However, changing climate conditions, a growing human population, a declining resource base and a decline in livestock population have left many unable to consistently sustain themselves. This has resulted in a growing crisis of food insecurity among livestock-keeping communities where livelihood options are minimal, and where many people lack access to the formal education, skills and wealth needed to access other economic opportunities. This is particularly true for those who dwell in more arid environments (Niang et al., 2014: 1204-1221). The majority of rural Africans are dependent on food production systems such as pastoralism and subsistence agriculture, which are extensively nature dependent and increasingly at risk from high inter- and intra-seasonal precipitation variability, extreme temperatures and a declining natural resource base. The declining adaptive capacity of rural food producers against these risks has significantly contributed to their food insecurity (see Niang et al., 2014: 1204-1221).

The 2007-2008 global food crisis and enduring problems of chronic hunger described by Hickey et al. (2012: 333) in *Preface: Challenges and Opportunities for Enhancing Food Security in Kenya* unequivocally demonstrate that millions of people from various African nations, including relatively stable nations like Kenya, are dangerously at risk from the economic, political and climatic shocks that threaten food security.[11] According to Madramootoo and Fyles, (2012: 307)

[11] Since the 1970s, stagnating agricultural production relative to Africa's increasing population contributed to declining per capita food availability, exacerbated by market liberalisation between 1980 and 1990. In 1990, 175 million Africans (27% of the population) were undernourished, compared to 239 million people (23%) in 2010. Between 2000 and 2010 food production improved slightly, making domestic prices favourable, but the continent remains a net importer of food and is vulnerable to volatile food prices and social, ecological, political or economic instability (see Niang et al., 2014: 1212, 1213,1221, 1238).

the global food crisis that saw food prices surge in 2008 was caused by several factors, including a reduced food supply; food export bans that decreased agricultural investment; water scarcity; increased biofuel production; poor crop yields and failures; low grain reserves; rising oil and fertiliser costs; a financial crisis; and trade speculation. The 2008 surge in global food prices showed that the entangled matters of markets and food security remained important issues in Africa and other developing countries. In the years that followed, economic, political and climatic instability and higher food prices overall continued to undo Africa's progress in addressing its food insecurity (Brown et al., 2009: 8016; Hadley et al., 2011: 1534-1540; Mason et al., 2011: 350-363; Niang et al., 2014: 1221).

In Kenya, the 2008 food crisis overlapped three years of poor rains and poor domestic food harvests induced by drought in early 2008 and a violent post-election period in late 2007, which exacerbated Kenya's food insecurity (Meijerink et al 2009: 9-10; Hickey et al., 2012: 334). This crisis revealed that poor urban residents in Africa spent more than half their income on their food needs and exposed the underlying vulnerability of rural food producers in countries like Mozambique, Kenya and Ethiopia, where 50% are net food buyers. Climate change, increasing food prices and a lack of livelihood options have exacerbated food insecurity among smallholding farmers and pastoralists (see Jayne et al., 2006: 328-340; Cohen and Garrett, 2010: 468-480; Kumar and Quisumbing, 2011: 1-21; Mason et al., 2011: 350-366; Niang et al., 2014: 1221). According to Hadley et al. (2011: 1535), food insecurity occurs when people have limited or uncertain access to nutritionally sufficient and safe foods or their capacity to attain food by socially accepted means is limited or uncertain. People remain food insecure if they are anxious about their ability to access food in the future.

It is estimated that more than 36% of Kenya's fifty million citizens are classified as food insecure, with about 49% of rural residents and 7.6% of urban residents struggling to meet their daily food needs (Hickey et al., 2012: 334; Amwata, 2013: 128,168). Kenya is among many food insecure countries in Africa that are net importers of food because of persistently low financial support for domestic agriculture, poor domestic food yields and a high import bill (Meijerink et al 2009: 9-10; Madramootoo and Fyles, 2012: 307; Amwata, 2013: 31; Amwata et al., 2016: 1).[12] This is reflected

[12] Kenya's agricultural sector receives 10% of the government's agricultural expenditure and less than 1% of total national expenditure despite heavily benefiting the state's economy. Despite food production vulnerability to climate

in recurrent drought-induced famines and requests for food assistance, particularly in arid and semi-arid regions of the country, where the majority of livestock-dependent communities reside (see Nyoro, 2002: 2-25; Ali-Olubandwa et al., 2011: 95-101; Hickey et al., 2012: 333-338; Amwata , 2013: 128; Amwata et al., 2016: 1). Kenya's food imports account for more than half the country's food consumption, while domestic production struggles to make up the balance (Meijerink et al, 2009: 9-12; Mason et al., 2011: 352; Amwata, 2013: 138). Kenya and Ethiopia are the highest net importers of food in East Africa, whereas Tanzania and Uganda have strategic grain reserves and comparatively superior domestic yields.

In 2008, Kenya's domestic food production was 29% lower than in 2007 and 22% lower than in 2006. This consecutive decline in food production exposed almost 10 million people to food shortages and led the state to declare a national disaster in early 2009 (Meijerink et al 2009: 9-10; Amwata, 2013: 161). The Kenyan government imported food from the United States, South Africa, Tanzania and Uganda, cementing Kenya's reliance on food imports as a strategy against food insecurity (Meijerink et al 2009: 9-10). In 2009, Kenya imported about USD725 million in agricultural products, compared to USD525 million to alleviate its food shortage in 2007. The Kenyan government raised particular concern over drought-prone arid and semi-arid regions of the country such as Kajiado (see Figure 5), which it identified as sensitive to food insecurity because of climate variability (Amwata, 2013: 138). Figure 11 shows the phases of food insecurity across Kenya's 47 counties as drought conditions progress throughout a year as a result of precipitation variability and failure. Arid and semi-arid counties like Kajiado and those in the northern and coastal regions of the country remain at higher risk of food insecurity than counties in the central and western regions.

change, the state prioritises other sectors, such as tourism and energy, which deliver consistently high returns relative to the uncertainty of agricultural production (see Amwata et al., 2016: 1).

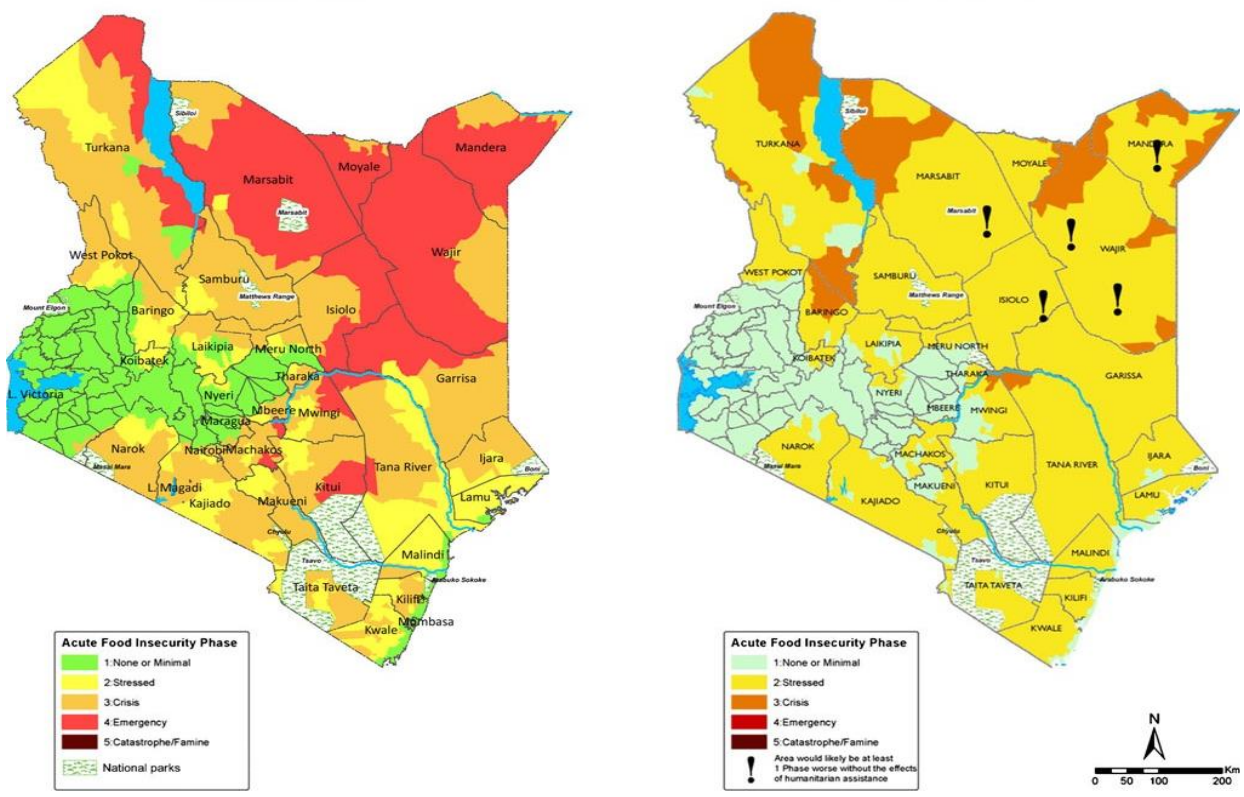

Figure 8: Kenya's food security phase classification during inter and intra-seasonal precipitation variability. (Source: Hickey, 2009: 335)

In 2008-2009, as Kenya and the developing world grappled with food shortages and surging prices, Kajiado was among many arid and semi-arid counties to be impacted by the drought that saw Kajiado residents lose an estimated 70 to 80% of their livestock (Ericksen et al., 2013: 74; Amwata, 2013: 48). The combined events of food catastrophe and livestock deaths in 2008 raised concerns among rangeland scholars about the future vulnerability of pastoralist food security and livelihoods to climate uncertainty in drought-prone Kenyan rangelands (see Devereux and Tibbo, 2013: 224; Amwata, 2013: 2; Letai and Lind, 2013: 169). Arid and semi-arid regions of Kenya remain the most susceptible to climate shocks and the related risks of food and livelihood insecurity, because the dominant livestock economy struggles to adapt to inter and intra-seasonal precipitation variability and recurrent droughts (Amwata, 2013: 2).

Climate-vulnerable pastoralists are dependent on food aid, the government's standard response to arid and semi-arid food insecurity (Devereux and Tibbo, 2013: 216-221),[13] and scientific evidence

[13] The livestock economy accounts for 26% of Kenya's agricultural production, and over 70% of the country's livestock are in arid and semi-arid areas. Over 80% of rural households in Kenya rely on agriculture, which is

shows that precipitation and temperature shifts as a result of climate change are likely to exacerbate current issues of food insecurity. The United Nations Food and Agricultural Organization (FAO) and the World Bank suggest that food production in African countries will have to double by 2050 to reduce stress on global food reserves that will be intensified by a growing human population across the globe and by uncertain environmental conditions (Zoomers, 2013: 55-70).

Food security and climate change experts have quantified the impacts of climate change on food security in Africa and other parts of the developing world and come to a general consensus that current levels of population growth, increasing CO_2 emissions and the growth of industrialised economies will lead to an exponential rise in undernourished people by 2080 (Fischer et al., 2002: 102, 117-125; Devereux and Edwards, 2004: 22-28; Schmidhuber and Tubiello, 2007: 19703-19708; Nelson et al., 2009: 1-8; Niang et al., 2014: 1221). With the average global temperature expected to increase between 1.8°C and 4.0°C between 2080 and 2100, changes in temperature and precipitation will lock in the already degraded status of land, water systems and biodiversity. The loss of productive land and the growth of arid areas will lead to declining yields and increase pressure on food prices against projected growing demand. Already-vulnerable rural food producers will be adversely affected by these projected changes. Other experts (e.g., Gregory et al., 2005: 2139–2148; Hertel et al., 2010: 577-583) project earlier impacts of climate change on food production systems, predicting a 50% surge in the prices of staple grains by 2030.

An average global temperature rise of more than 4°C (above pre-industrial levels) between 2080 and 2100 is likely to also adversely affect livestock and further tax Africa's food security (Niang et al., 2014: 1238-22). The projected rise of Kenya's yearly average temperature by a substantial 3°C to 5°C by 2100, increasing precipitation variability (extremely low rainfall) and the arid nature of the country's arid and semi-arid regions, is expected to exacerbate drought conditions, deplete water and pasture resources and increase livestock diseases (Savatia, 2009: 3-9; Amwata, 2013: 22, 31-32, 185-186; Niang et al., 2014: 1206-1223).

Niang et al. (2014: 1212-1222) and Orindi et al. (2007: 2) note that any negative deviation in climatic conditions in the arid and semi-arid rangelands of East Africa will result in high livestock

important for enhancing economic growth. The livestock economy accounts for 50% of the country's agricultural GDP and provides 90% of employment and more than 95% of household income in the arid and semi-arid areas (see Amwata et al., 2016: 1). Water, pasture and labour are critical to its success.

mortality by 2050 and irreversibly exacerbate the current food security crisis among the already vulnerable pastoralists of the region. The FAO's *Africa Sustainable Livestock (ASL) 2050 Country Brief* projects that Kenya's population is expected to double from 46 million to approximately 96 million by 2050, leading to new interactions between people and natural resources and increasing pressure on ecosystem resources to meet demand for food (FAO, 2017b: 2).

The impacts of climate change on the pastoral economy and food security are already felt by pastoralists. According to the *Eastern Africa Drought Humanitarian Report 4* (UN OCHA, 2011), the 2010-2011 drought was the worst in the Horn of Africa region for over 60 years. Its magnitude and severity led to a humanitarian crisis that impacted 10 million people, the majority of whom were pastoralists from arid and semi-arid areas of Kenya, Djibouti, Somalia and Ethiopia, who lost hundreds of thousands of livestock, collapsing the pastoral economy, increasing food shortages and prompting mass pastoral migrations and displacement (see UN OCHA, 2011: 1-4; Lyon, 2014: 7953). In *Squeezed from All Sides: Changing Resource Tenure and Pastoralist Innovation on the Laikipia Plateau, Kenya,* Letai and Lind (2013) note that the deadly droughts of 2010-2011 and 2008-2009, which the Maasai refer to as *Olamei Oodo* or "the Great Drought", and 1984, which saw many Maasai herders abandon livestock keeping, cemented a food security crisis that continues to plague herders in the Horn of Africa region. Herders' increasing vulnerability reignited debates about the "feasibility" of pastoralism in the region under climate change and growing resource pressure (Letai and Lind, 2013: 169, 176).

A study by Amwata et al. (2016) titled *Climate Factors as Determinants of Food Security in Semi-arid Kenya* shows that shifts in precipitation patterns and temperatures between 1980 and 2010 affected Kajiado County Maasai's livelihood production and food security. Limited coping strategies to cope with scarce water and forage resources, disease, declining precipitation patterns and high temperatures aggravated by aridity caused high livestock mortality. Livestock mortality during previous droughts (e.g. 1983-84, 1987, 1992-93 and 2008-2009) deprived Maasai of food and income from livestock products and exposed them to the surging food prices associated with drought shortages. Most Kajiado households (84.5%) are food insecure as a result of their limited livelihood options and the vulnerability of their nature-dependent main source of livelihood (Amwata et al., 2016: 1,6-10).

The food and livelihood security of Maasai and other Kenyan pastoralists (e.g. Turkana and Pokot) depend on livestock sales. If pastoralists cannot cope with drought conditions, and unplanned livestock offtake occurs through death or forced sales to avoid total loss, their ability to sustain their household's food security will be compromised (Nyariki, 2009: 263-280; Savatia, 2009: 3-12; Amwata, 2013: 168). The ability to cope with climate change impacts is important to ensuring that Kenyan pastoralists are food secure.

Conclusion

This chapter explored the environmental and climatic vulnerabilities experienced by pastoralist mobile livestock husbandry in the Kenyan rangelands as a result of the deprivation of grazing resources by ongoing land enclosures. These enclosures of resource areas marginalise pastoralists into smaller pockets of low-productivity lands, concentrating pastoralist grazing and degrading productivity. Low rates of environmental recovery attributed to concentrated grazing remain a threat to the quality and quantity of forage and expose pastoralism to climate vulnerability.

Livestock production remains an important livelihood source for pastoralists in the rangelands, but continuing climate change threatens the availability of the water and grazing resources that pastoralists depend on and, consequently, livestock productivity. This chapter has shown that the enclosure of critical grazing resources in the rangelands inhibits pastoralists' coping strategy of herd mobility and exposes their livestock livelihood to the intersecting impacts of climate and environmental stresses, making their livestock vulnerable to drought-related losses and the pastoralists highly susceptible to food insecurity. The next chapter presents a literature review of the theoretical debates about common property rights, neoliberalism and adaptation that frame this study.

Chapter Two

Neoliberal Economic Growth and Commons Enclosure in the Anthropocene: A Theoretical Approach to Neoliberalism, Common Property Rights and Adaptation

Introduction

This chapter presents the theoretical framing of this study, drawing on debates about common property rights, critiques of neoliberalism, and the concept of adaptation to demonstrate their relevance to climate and environmental changes on resource-based pastoral livelihoods. The chapter first develops an understanding of the meaning and emergence of neoliberalism, examining theoretical debates to reveal a pattern of growing wealth through accumulation by dispossession. The chapter then summarises theoretical debates about commons property to frame how the neoliberal enclosure and commoditisation of common properties restructures human–nature relations. Lastly, the chapter discusses the concept of adaptation, anchored in the mechanisms that resource-based communities are undertaking to rebuild the commons approach in response to common-resource enclosures in a time of climate crisis.

Neoliberalism

Recent critical literature generally regards neoliberalism as an assortment of economic policies sustained by an ideology that argues for limited government economic intervention and the promotion of *laissez-faire* capitalism for the benefit of human welfare and economic efficiency, because they are thought to lead to more freedom, real democracy (Kotz 2000: 64; Harvey 2003: 157-15; Thorsen and Lie 2006: 5) and individual liberty (Harvey 2005: 2-7: Litonjua, 2008: 259-260; Hall 2011: 706-708; Wikan, 2015: 2). Economic neoliberalism aims to increase individual liberty and freedom of choice (Cordato, 1980: 396; Von Hayek, 1965; Howlett et al., 1999: 27; Thorsen, 2009: 15), with the state accepting a minimal, regulatory role and abstaining from economic intervention, instead leaving as much as possible to individuals in free and self-regulating markets – even when market mechanisms lead to poor economic efficiency and as Lindbeck (1987: 3) safeguarding private property rights and contract administration.

In *The New Imperialism*, David Harvey (2003: 157-158) writes that neoliberalism is a political economic doctrine that took shape in the late 1930s and was regarded as a critical idea by economic philosophers in the 1940s. The concept of neoliberalism is generally traced back to the works of economic philosophers such as Fredrich von Hayek, Ludwig von Mises, Milton Friedman and

James Buchanan (see Henig 1989/90: 653, 656; Harvey 2003: 157-158), who were opposed to communism, socialism and any government intervention that interfered with private property, markets and entrepreneurial activity. Economic neoliberalism was particularly inspired by the economic philosophies of Milton Friedman, which called for economic policy that minimised government economic regulation and strongly endorsed economic policy stability (Thorsen and Lie 2006: 8). Neoliberalism constrains policies that limit or exclude trade barriers, wealth control and/or demand an end to or limitation of "redistributive taxation and deficit spending, controls on international exchange, economic regulation, public goods and service provisions, and active fiscal and monetary policies" (Centeno and Cohen 2012: 318).

In *A Brief History of Neoliberalism*, David Harvey (2005: 2) defines neoliberalism:

> In the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free markets and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices. The state must guarantee, for example, the quality and integrity of money. It must also set up those military, defence, police and legal structures and functions required to secure private property rights and to guarantee, by force, if need be, the proper functioning of markets. Furthermore, if markets do not exist (in areas such as land, water, education, health care, social security, or environmental pollution) then they must be created, by state action if necessary. But beyond these tasks the state should not venture. State interventions in markets (once created) must be kept to a bare minimum because, according to the theory, the state cannot possibly possess enough information to second-guess market signals (prices) and because powerful interest groups will inevitably distort and bias state interventions (particularly in democracies) for their own benefit.

Harvey's definition of neoliberalism insists that human welfare is progressed through individuality. Therefore, it is the mandate of the state to guarantee and protect individual right to own property, pursuit of entrepreneurial freedom and not interfering in created markets. Neoliberalism as defined by Harvey relates to my thesis because it highlights the model used by neoliberal states such as Kenya to suppress common property rights by promoting private property as critical to advancing individual welfare and building the state's economy.

Thorsen and Lie (2006: 11-12) suggest that global political economic actions and rhetoric have shifted forcefully towards neoliberalism since the 1970s, replacing the "embedded liberalism" of Keynesian economics and the like. Keynesian theory influenced economic policy between 1945 and 1970 with the aim of attaining full employment, mitigating abject poverty and promoting the

welfare state, and it called for more interventionist state policies to the economic crisis of the 1970s (see Thorsen and Lie 2006: 8; Wikan 2015: 3). However, it was replaced in the 1980s by the more "monetarist" approach of neoliberalism, and Saad-Filho and Johnston (2005: 5) propose that the contemporary period is one of neoliberalism.

Harvey (1995: 2) characterises this shift as a moment of radical change in global social and economic history. According to Venugopal (2015: 1), contemporary neoliberalism leads economic and political agendas and encourages and perpetuates class domination and exploitation by manifesting economic growth through widespread dispossession and excessive capital accumulation. The rapid popularisation of neoliberalism has made it the most successful political and economic ideology in global history (Anderson, 2000: 17).

According to Harvey (2003: 157-158), neoliberalism's primary objective is to steer government policies toward the enclosure of public goods and services and to facilitate entrepreneurship and private ownership. Properties held in common or by the state should be made available to the market for acquisition and commoditisation by "over-accumulating capital", which would invest in them, upgrade them and speculate in them to further grow capital. Neoliberalism symbolises a politically directed intensification of market rule and commodification. Certainly, undertakings of marketization and commodification have a long historical association with capitalism (Brenner et al,.2010:183-188). According to Sternberg, (2015:389) capitalism is "an economic system characterised by comprehensive private property, free-market pricing, and the absence of coercion."

As noted by Wikan, (2015: 3-4) privatisation is fundamental to sustaining neoliberalism and requires the transfer of public assets held by the state in trust for its citizens to private corporations, such as state-owned enterprises and other common resources like land, water, forest and air. The implementation of privatisation policies is widely regarded as a logical response to lowering public expenditure and countering the effects of the 1970s economic crises (Wikan, 2015: 3-4). Table one illustrates the main characteristics of neoliberalism and lists components which demonstrate it as a highly ambitious project that aims to re-arrange human affairs.

- **Privatisation** - i.e. Conveying well-defined, legally administrable private property rights to previously unowned, state owned or communally owned entities of the social and natural environments.
- **Marketisation** - i.e., rendering alienable and exchangeable things that might not previously have been subject to a market calculus lubricated by monetary transactions within and between nation states.
- **Deregulation** - i.e., the withdrawal or minimization of government intervention in certain areas of social and environmental life in order to enable firms and consumers to exercise 'freedom of choice'; and the creation of new quasi-state or state-sanctioned actors to take on functions that states themselves could otherwise perform in theory or practice.
- **Market Friendly Regulation** - i.e., a reconfiguration of state policies to extend the frontiers of privatisation and marketisation. Therefore, the state in its various forms becomes a 'market manager' and less of a 'provider' to the citizenry: it intervenes for the economy not, as it were, in it. This entails fiscal discipline, a focus on supply side investments, entrepreneur- and consumer-friendly tax policies, firm-friendly labour market policies, and measures to enable 'free' movements of money capital and other less 'fluid' commodities.
- **Use of market proxies in the residual governmental sector** - i.e., making remaining state services more market-like in their operation using measures like internal markets, cost-recovery, and budget-capping).
- **The strong encouragement of 'flanking mechanisms' in civil society -** i.e., state-led measures to promote the growth of voluntary, charitable, 'third sector' and community groups who are seen as being able to fill the vacuum created by the absence of direct state-support in the social and environmental domains. This is linked to formal state encouragement, where appropriate, of the so-called 'informal' and 'social' economies whose functioning relies only partly, or not at all, on monetary transactions).
- **The creation of 'self-sufficient' individuals and communities** - i.e., the cultivation of an ethic among communities that emphasises less, reliance on state-provided services for life's necessities. For neoliberals this ethic is almost a 'natural' good. It encapsulates the individual's right to maximum freedom and their responsibility for their own affairs).

Table 1: The Main Characteristics of Neoliberalism (Castree, 2010:1728)

Neoliberal theory dictates that taxation and redistributive policies violate individual freedom and that the welfare state intrudes on the right to private property and self-determination, and the spread of neoliberalism has dissembled the idea of a welfare state and restricted redistributive taxation (Litonjua 2008: 259; Kotz 2000: 65). Lindbeck (1987: 4) argues that while the welfare state provides other freedoms, such as accessibility to basic goods and services like public healthcare and education, the means to sustain the welfare state can be regarded as theft. Thus, the realisation of neoliberal theory requires the eradication of the welfare state (Wikan, 2015: 4).

During the 1960s and 1970s, a sequence of global economic crises slowed economic growth and resulted in a call to end interventionist government policies (Wikan, 2015: 3). Neoliberalism led a surge of market liberalisation, privatisation and the decline of the welfare state in Western countries in the early 1980s and then in developing nations, and it had been widely embraced by the early 1990s (see Venugopal, 2015: 1). The shift to reduce government economic intervention

and encourage privatisation and market liberalisation policies to stimulate economic growth was notably supported by the governments of British Prime Minister Margaret Thatcher and American President Ronald Reagan (Kotz 2000: 76; Harvey 2005: 3, 11-15, 23-24; Litonjua 2008: 160; Centeno and Cohen 2012: 318-21; Mueller 2011: 387, 391-7). In the 1980s, Western states such as Britain and the United States (Harvey, 2003: 157-158) formulated neoliberal policy frameworks in response to the economic crisis, actively shifting the state away from the welfare state and towards the "supply-side" conditions of capital accumulation.

To incentivise economic growth in the Anglo-American world (and consequently to spread neoliberalism across the globe), the U.K. and U.S. backed the economic growth policies known as "structural adjustment programs" (SAP) introduced by the International Monetary Fund (IMF) and World Bank. This policy shift encouraged global market liberalisation and privatisation through force or hegemonic discourse such as severe fiscal discipline (Kotz 2000: 76; Harvey 2003: 157-158; Harvey 2003: 157-158; Harvey 2005: 3, 11-15, 23-24; Litonjua 2008: 160; Mueller 2011: 387, 391-397; Centeno and Cohen 2012: 318-321).

Harvey (2003: 181-182) argues that the global rise in neoliberal politics and the privatisation of public properties is reflected in the increasingly prevalent strategy of accumulation by dispossession to grow capital under the auspices of solving economic crises. At the core of this modern imperialism is the predatory devaluation of public assets in other parts of the world through coercive economic policies that enrich a minority elite. Vulnerable and already indebted states from the developing world that accessed easy loans from international financial institutions for decades found themselves on the verge of bankruptcy and were forced to adopt SAP policies, which liberalised their markets and facilitated the widespread privatisation of public assets (Fairhead et al., 2012: 245; Hall et al., 2015: 5-6).

SAPs were intended to counter economic crises perpetuated by increasing debts, low levels of technology, population growth, rapid urbanisation and food shortages (Rutten, 1992: 65-66; Rono, 2002: 81-84; Cohen and Centeno, 2006: 32-33; Hall et al., 2015: 5-6). In affected states, this led to the widespread privatisation of state-owned institutions and enterprises; a reduction of trade barriers to allow increased imports and foreign investments; the implementation of policies for free and competitive markets, with price liberalisation on goods and services; an increase in cash crop exports; improved marketing systems through the decontrol of the domestic marketing of

agricultural commodities; and a reduction in government public expenditure to increase government revenue and repay loans from the IMF.

The implementation of such policies and the need to decrease public spending resulted in global governments committing to privatisation as a logical strategy for long-term economic growth (Henig, 1989/90: 663). By the late 1980s, privatisation drove programs in Latin America and then in Asia, Africa and, in the mid-1990s, liberalised European countries from the Soviet region (Megginson and Netter 2001: 323-7). Harvey (2003: 158-159) notes that societies that adopted market liberalisation policies replicate a trend of asset redistribution that favours upper class populations over poor, working-class populations. The neoliberal movement generates incredible pressure to privatise more public properties for economic growth. Roy (2001: 43) describes the grabbing and auctioning of assets and common resources held in trust by the state to private corporations in the name of economic growth as a barbaric process unparalleled by any in history.

The grabbing and auctioning of public properties to grow capital has evoked protest from civil society concerned with the access rights of dispossessed communities. In Mexico, the government of Carlos Salinas passed a reform law in 1991 that allowed and facilitated the privatisation of indigenous lands governed under the customary collective *ejido* system, which had long protected the land under the 1917 constitution that arose from the Mexican revolution. The negative social effects of disrupting the collective land management system resulted in the 1994 Zapatista rebellion, which demanded the protection of indigenous rights. The Zapatista movement was triggered by the growing privatisation of the commons and the implementation of free trade through the North American Free Trade Agreement (see Harvey, 2003: 160-161, 164-165; Bollier and Helfrich, 2012: 164-165).

Kenya's dramatic economic decline in the 1980s and 1990s forced the government to seek international development loans and aid to revive its economy. To finance these loans, however, Kenya had to change its economic policies to facilitate the privatisation of common properties and state assets. The liberalisation of Kenya's economy was critical to the sale of Maasai land in Kajiado County (see Boone et al., 2009: 358-359, 362). The withdrawal of state-funded goods and services forced many Maasai to make use of private hospitals, schools, livestock development loans, extension services and veterinary services at higher rates. Additionally, droughts and low economic opportunities for the livestock economy further aggravated Maasai financial stress and

led to more land sales (Boone et al., 2009: 358-359,362; Galaty, 2013b: 26-27). Land speculation grew land value exponentially, intensifying sales and illegal land grabs (see Galaty, 1992: 26-27; Galaty, 2013b: 23-27; Koissaba, 2016: 7-8) and further benefitting wealthy elites (see Rutten, 1992: 397-424; Galaty, 2013b: 20-27). Neoliberal economic reform and capitalism transformed the political economy of Maasai rangelands from one that harbours livestock production into one that facilitates the easy commodification of land and its resources.

The Constitution of Kenya, 2010 played a critical role in devolving land governance to County government units formed under its devolution framework (article 1 (3) and (4)). In Kajiado, the County government was able to undertake a County led land reform process and steer toward the creation of a Kajiado land policy.[14] The establishment of a County land reform process was to help mitigate the impacts of subdivision and neoliberal reforms which intensified land loss and enclosure. However, the land reform process has not been without difficulties of implementation, dispossession of vulnerable groups (women and youth) and rampant corruption which have continued to plague the Kajiado land market. Therefore, enclosures have continued to occur despite land governance reforms (Komba et al.,(2018:32-34).

Devolving land governance to County governments and the institution of the Community Land Act of 2016 through the Constitution of Kenya, 2010 has however played a critical role in protecting remaining group ranches in Kajiado County. The Community Land Act of 2016 has facilitated the transition of the few remaining unsubdivided group ranches in Kajiado County towards legal registration as communal lands. The change in status was intended to increase inclusivity and accountability in management and protect indigenous land rights and continuity of cooperation. However, ambiguity in membership definition and resource access rights which are reflective of historic wrangles over member registration within group ranches is leading to a renewed push for subdivision (Marty et al., 2022:8-9).

Neoliberalism is underpinned by dispossession, which directly undermines pastoralism's sufficient modes of utilising fluctuating common resources by enclosing the platform where its sustenance is anchored (Galaty, 2013b: 20-34). The acceleration of ongoing subdivision and privatisation by

[14] As part of governance reforms in the land sector, The Constitution of Kenya 2010 has recognised and strengthened customary communal land tenure under the Community Land Act of 2016 to better protect communities against loss of communal land without proper compensation.

neoliberal reforms would consequentially fragment the rangeland ecology and disrupt Maasai customary access to critical grazing resources which placed their placing their herds at risk of climate related stress (Galaty 1994: 185-204; Galaty, 2013b: 20-34). The claim that neoliberal market-oriented solutions would be suitable for solving purported social, ecological and economic struggles of rural communities has not been so.

Elinor Ostrom had demonstrated that sustainable rural resource management was possible under common pool management if clear conditions were met. As noted among pastoralists, their indigenous methods of sharing resources which was often seen as "open access" was not. But was rather governed by rules of reciprocity. Re-arranging of pastoral commons toward new institution of economics proved to be inefficient and increased risk by disrupting sustainable indigenous ways of managing resources. Therefore, it has necessitated new thinking on ways to restore the commons approach (Bollig and Carolyn Lesorogol,2016:671-680).

The next section summarises theoretical debates about common property rights and how the neoliberal character of growing capital through accumulation and dispossession is restructuring human–nature relations by enclosing and commoditising the commons.

Common Property

The colonial ideology that rangelands were "open access" was a misconception, that overlooked common property regimes because did not fit the western ownership model of private tenure. Common property regimes did not indicate "open access" but was indicative of customary modes of land and natural resource management for the benefit of all community members and for those who negotiated access (Bromley and Bromley and Cernea in Galaty, 1992: 38). Certainly, according to Margaret McKean (2000: 29-30), common property regime is: a property-rights arrangement in which a group of resource users share rights and duties toward a resource. Therefore, common property is not open to access for all, but access rights are limited to a specific group of users who hold their rights in common.

As early as the 16th century in Britain, the enclosure of common land and the erosion of common property rights were touted as a way to improve the efficiency of resources management in the public interest, but it left many commoners in poverty as tenants (see Harvey 2011: 101; Bollier and Helfrich, 2012: 434-439). The expansion of colonialism, the rise of capitalism (industrialisation) and the start of the neoliberal era all facilitated the accumulation of wealth by

elites by dispossessing smallholders and the working class, enclosing the commons and suppressing efficient traditional methods of resource management. The growing impoverished and marginalised landless class is forced to sell their labour to growing capital (see Harvey, 2003: 137-152; Bollier and Helfrich, 2012: 443-445).

According to McKean (2000: 27), the rapid enclosure of common property in the neoliberal era is a trend in capitalist-leaning countries, where traditionally communal lands, environmental resources (e.g. forests, water) and state-owned land are targeted for privatisation. State power can enforce enclosures against popular will, reverse regulatory frameworks that protect customary rights achieved through years of class struggle (e.g. Mexican revolution) and promote the capital-intense forms of activity (e.g. mining, agriculture) that accompany environmental enclosure and commodification that facilitate the rapid degradation of ecologies (Harvey, 2003: 148).

This thesis looks at the concept of common property from the perspective of commons enclosure and how it restructures human–nature relations. Defining enclosure, Peter Linebaugh (2010: 308-309) writes that it is:

> a term that is technically precise (hedge, fence, wall), and expressive of concepts of unfreedom (incarceration, imprisonment, immurement). And it has been an important interpretative idea for understanding accumulation by dispossession … enclosure's antonym, the commons, carries with it a promising but unspecified sense of an alternative. Enclosure seems to promise both individual ownership and social productivity, but in fact the concept is inseparable from terror and the destruction of independence and community.

The recent rise in enclosures of African common property is anchored in historical occurrences that can be traced to the colonial era. The liberalisation of economies through neoliberal structural adjustment policies gave rise to political and capital elites who have continued the long-term practice of marginalisation and underdevelopment to financially exploit the resource commons (Hall et al., 2015: 5,8; Fairhead et al., 2013: 239-249). Examples of authoritative dispossession and enclosures of the commons span history.

In 1607, the English enclosed rural Irish land and used English courts to deny the validity of traditional law and grant tenancy to Anglo-Irish elites, who then had control of Irish access to the land. In North America, Native Americans who attempted to reclaim land under "Aboriginal title" in 1772 had their request declined by the American supreme court, which declared that the British Crown was the legal owner of North America by virtue of conquest and "the right of discovery",

referring to arguments from 1772 and 1774 that English law superseded the local law of uncivilised people, thus conveniently marking the lands as uninhabited. In 1845, Otmoor villagers in Oxfordshire and other rural communities in England lost their battle to retain their common rights. Feudal law gave the monarchy power to grant land to the nobility, while communities only had user's rights. Laws such as the *Inclosure Act of 1845* facilitated rapid dispossession and enclosure for private investments and railways.

In the late nineteenth century, European powers began their process of African dispossession on a massive scale, declaring traditional communal land and resource management as open access and lacking ownership. Colonial authorities argued that European property laws superseded customary land laws and decreed that their right of discovery sanctioned their appropriation of land and waterways (e.g. the Niger River and Congo River) to establish free trade zones and settler agriculture. Where resistance was met, colonial powers exercised violence. When African countries began to liberate themselves from European powers between the 1960s and 1980s, many African states began to override traditional tenure regimes, instead privatising land to facilitate economic growth. This produced a landless class driven from the rural areas to the urban areas, while fewer native large-scale landowners produced food and commodities at scale (Bollier and Helfrich, 2012: 434-441, 440-445).

After Kenya gained independence from Britain in 1963, it moved rapidly away from common property and towards private ownership. This process accelerated in the 1980s, when many African states that adopted the neoliberal policies of the World Bank and IMF (Catley et al., 2013: 199) were pressured to privatise customary communal lands and allocate them to foreign investors (Megginson and Netter 2001: 323-327; Bollier and Helfrich, 2012: 442-445). Consequentially, the customary management of commons between different Maasai sections known as *il-olosho* which facilitated Cooperative relationships to reciprocate grazing rights based on non-exclusive tenure between wider ecologies containing extensively varying environmental characteristics that range from high-potential areas with dense vegetation to low-potential semi-arid bushlands progressively declined with the enclosure of land (Galaty, 1992: 26-27; Seno and Shaw 2002: 79-80; Mwangi,

2006: 159-162; BurnSilver and Mwangi, 2007: 1-2; Galvin 2009: 188; Sundstrom et al., 2012: 484, 491; Mwangi, 2016: 35-37,82-83). [15]

The enclosure of common properties has long been cited by biologists and economists concerned about the depletion of the planet's finite resources. Narratives of economic growth and communal land use causing environmental degradation are used to justify the removal from or restrict the access of communities to the commons (Fairhead et al., 2012: 248-249). Studies undertaken on the commons has predominantly been informed by western misconceptions which have had a profound negative impact on both theoretical discussions and applications. In the 1960s, the claim of pastoralists destroying the commons became popular with Kenyan policymakers who influenced government policy to transform Maasai grazing commons into group ranches of which was the first step towards privatization. However, social scientists asserted that western misconceptions about pastoralism ignored the clear differences between open access regimes and customary commons (Bollig and Lesorogol, 2016:669-670). The western misconception which argues that privatising common property is a highly efficient way to manage land and resources is a fallacy that no longer has space in academia (see Bollier and Helfrich, 2012: 316; Mildenberger, 2019: 1).

Critics such as Matto Mildenberger describe western misconceptions about customary resource management as a racist, intolerant and xenophobic. Western misconceptions about customary commons have disputed the validity of the Universal Declaration of Human Rights and promoted fear-mongering, labelling the world's poor as a rapid growth that posed a danger to the planet's finite resources; it practically called for a fascist state that would clear out unwanted gene pools. Bollier and Helfrich (2012: 315) write that such a theoretical misconception is "brutal with an inhumane conclusion" that "freedom to breed will bring ruin." Ostrom's ground-breaking work on customary common resource management illustrated that under certain conditions, commons could provide the basis for sustainable, long-term use of natural resources (Ostrom, 2002:1315-1339).

[15] The Maasai were and continue to be divided into sub-tribal sections or areas known as *il-olosho*. Each *il-olosho* occupies a specific territory along its sectional boundaries and has an autonomous political leadership system consisting of males or elders from the same age-set. *Il-olosho* is also the highest level of territorial unity. The male elders of *il-olosho* are responsible for securing rights to common grazing and water within and beyond *il-olosho* sectional boundaries. (see Galvin 2009: 188; Mwangi, 2006: 159-162; Mwangi, 2016: 35-37).

Scholars examine various global commons that are efficiently sustained through communal institutions (Cox, 1985; Bromley and Cernea, 1989; Ostrom, 1990). Bromley and Cernea (1989: 6-7) write that scholars of common property have shown that the tragedy of the commons cannot occur under common property resources (CPR), where community systems regulate individual interests. In "No Tragedy on the Commons", Susan Cox (1985) notes that common pastures were efficiently regulated by early herders' local institutions. Contrary to ideological western misconceptions, the pastures were not free-for-all grazing sites where herders grazed continuously at the expense of other herders in the commons (Cox, 1985: 51-61).

In *Governing the Commons*, Elinor Ostrom (1990) disrupts the assumptions that CPRs are inefficient, showing that individuals are likely to develop resourceful and exceptional ways to manage common property resources for individual and collective benefits. Ostrom's findings "shatter the convictions of many policy analysts that the only way to solve CPR problems is for external authorities to impose full private property rights or centralized regulation" (Ostrom, 1990:182). Ostrom (1990: 182) further argues that CPRs are "rich mixtures of public and private instrumentalities". Ostrom's work became very popular with anthropologists who observed that in rural settings of the global south, customary practices managed common pool resources sustainably and with an exact concern for the equitable distribution of benefits and costs. Commons that adhered to Ostrom's principles were far more successful than open access which failed to manage resource exploitation and refrained from scrutinising resource flows, therefore resulting in degradation (Bollig and Lesorogol, 2016:669-670).

In the commons-open access debate Mark Moritz argues that open access does not entail lack of rules and certainly does not lead to a tragedy. Rather, open access suggests to the right that every pastoralist has to common pool grazing resources. The terms "open property" regimes as argued by Moritz institutes a fourth group of ownership rights, in addition to public, private and commons. Therefore, "open access" is itself one of the rules managing use of grazing land in these methods. A combination of open access to common-pool grazing resources as argued by Moritz are highly variable in space and time and sovereign decision-making of highly mobile pastoralists results in a model free allocation in which the sharing of grazing pressure equals that of sharing grazing resources (Moritz 2016:688-708). In the rangelands of Africa, common property has traditionally proven to be an efficient way to accommodate pastoralist practice.

Esther Mwangi argues that common property has a distinct advantage over private property in Africa's rangelands, where climate variability is arguably more critical than conventional determinants of property rights (e.g. population density). In the rangeland setting, ecological productivity is marginal and variable, and the costs of privatisation may far outweigh the benefits. Collective management rights in African rangelands are thus a more equitable way of allocating resources and minimising risk and production and transactions costs. The emergence and evolution of property rights takes place within a complex interaction of ecological, economic, political and cultural conditions and is at best designed to match the types of resources being exploited and the people who do the exploiting (Mwangi, 2016: 16).

Matto Mildenberger (2019) calls for the public to reject ideologies of environmental scarcity that lack scientific evidence and moral virtue, especially as the global climate is changing. In the face of the climate crisis, it is critical to disrupt environmental imperialism and to protect the commons against enclosure and exploitation by predatory capitalism, and Mildenberger (2019) urges the public to generate new ideas and ways to protect the commons against exploitation. Different sciences and ways of thinking about reclaiming the global commons from enclosure have emerged. The enclosure of common properties for financial gain has provoked political and social struggles and the rise of autonomous resistance by social movements (Harvey, 2003: 162, 188-189), which are at the core of disrupting enclosures by neoliberal states and financiers and of reclaiming the commons by protecting environmental rights, community rights and a democratic civil society.

For example, the 1994 Zapatista rebellion in Mexico, which was triggered by the dispossession and privatisation of land previously governed under the customary collective *ejido* system, culminated in a demand for the protection of indigenous rights (see Harvey, 2003: 160-161, 164-165; Bollier and Helfrich, 2012: 164-165). Similarly, in Ngorongoro, Tanzania, a collective of eight Maasai villages mobilised in 2013 to protest the enclosure of their communal grazing lands when the government sought to facilitate private hunting blocks. The affected Maasai villages challenged their eviction in Tanzania's court of appeal, and an international campaign led to a reversal of the government's decision (see Abbink et al., 2014: 9). There have also emerged other sciences and communal strategies which have developed alternative environmental strategies to respond to rangeland enclosures and preserve the commons.

Since the introduction of neoliberal reforms in the 1980s, scholars, politicians and experts concerned with pastoralism in sub-Saharan Africa have fixated on the decline of pastoral commons particularly the enclosure and fragmentation of rangeland commons (see Galvin 2009:185-198). However, in recent years there has been a particular drift towards re-commoning fragmented commons in the rangelands of Southern and Eastern Africa. There has emerged a significant shift by most pastoral communities towards common pool management systems which have facilitated adaptation to a changing environment (Bollig and Lesorogol, 2016:665-666).

In Botswana's rangelands, high precipitation and ecological resource variability motivated the state to formalise traditional community management of livestock mobility to counter elite arguments that privatisation was effective against range degradation (Atkinson et al., 2006: 6-7). In South Africa, Minister for Water Affairs and Forestry Kader Asmal instituted policy reforms in the water sector to facilitate equitable access to all to reflect the nation's new democracy: The *National Water Act of 1998* democratised water as a common resource to limit minority control of water resources, ensure wider access to underserved communities and emphasise collective water-resource management at the local level (Singh, 1999: 27-37; Asmal et al., 2011: 226, 243-245).

Customary collective grazing arrangements continue among individual land-owning Maasai, reciprocating user rights to adapt to the combined stresses of environmental enclosure and climate uncertainty (discussed in the next section). Ostrom (1990: 183) argues that individual resource owners can invest in mutually beneficial collective strategies; even where an individual has full ownership rights, they may grant access rights to other individuals according to specific negotiations (see Schlager and Ostrom, 1992: 250-260; Meinzen-Dick et al, 1997: 1303-1312). The emergent strategy of collective grazing arrangements among individual landowning Maasai in a declining common can be seen as a strengthening of customary norms or the development of new norms in spite of expectations of their decline (BurnSilver and Mwangi 2007: 4; Mwangi, 2006: 169-176). Despite Maasai strategies of preserving the commons through collective grazing, Burnsilver and Mwangi (2007: 34-35) note a lack of policy by the government of Kenya in support of collective grazing arrangements.

Enclosure implies that access can no longer be negotiated, so it is critical the commons is reclaimed and protected against enclosure and exploitation (Bollier and Helfrich, 2012: 482-492; Raworth, 2017: 311-314). Capitalism's rapacious commodification of the global commons in the 21st

century has closed the commons more tightly than before, because predatory capitalism is designed to accumulate by dispossession and does not bind itself to planetary limits. Fairhead et al. (2012: 248-249) argue that in the neoliberal era, the political facilitation of commons enclosures reinforces the market regulations, violence and frameworks that legalise commons enclosure. The neoliberal logic of economic growth is used to justify changes to policies that govern common properties, and new strategies to control common properties and exclude local communities and their practices through environmental legislation are manifested through processes of enclosure, territorialisation and violence.

Economic supremacy, political influence and future markets can be influenced by controlling natural resource flows, which pushes states and investors to control more resource commons (Bollier and Helfrich, 2012: 487-491, 1261). Privatisation is at the core of neoliberalism and necessitates that state policies prioritise the enclosure of the commons (Harvey, 2003: 158-159), increasing pressure to enclose more commons for profit. As argued by Bollier and Helfrich (2012: 487-491, 1261), private capital's sophisticated economic and legal leverage and its relation to key state decision makers remain critical to its long-term vision of enclosing more commons. Combined with current trade and investments agreements, this strategy threatens to permanently enclose the commons and limit communities' ability to protect it and retain customary practices of collective responsive management. A permanent enclosure of the commons would weaken policy space for socio-political activist movements and the generation of independent livelihoods away from markets.

The loss of Maasai communal land rights and the extensive enclosure of communal grazing land in Kajiado has limited their customary resource management and exposed them to vulnerability (Galaty, 1992: 27-38). The adaptive advantages of open access management customarily practiced by pastoralists have been particularly highlighted for heterogeneous rangeland ecologies where climate and vegetation varies and rainfall events rather than by stocking numbers (Scoones 1995:353-360). Often, as noted by Bollig and Lesorogol (2016:666-668,682-683), new ways of recreating the commons approach as local adaptation strategies have occurred as a reaction to changing state land policies or laws (such as land adjudication in Kenya as explained in chapter four). Introducing various ways of restoring the commons approach in the rangelands as an adaptation strategy has been motivated by various reasons such as environmental concerns,

efficiency, preferences for participation and decentralization. However, the main idea behind new approaches to the commons is the sustainable management of minimal rangeland resources available for pastoralists.

The next section details how climate change remains a threat to herding communities enclosed from common grazing resources and explores the concept of adaptation, looking at mechanisms developed by pastoralist communities such as Maasai to adapt to climate change and environmental enclosure.

Adaptation

The concept of adaptation was employed for this study to provide a lens through which to understand pastoralists' response to the combined impacts of commons enclosure and climate change. Through the lens of adaptation, this study explores how Alfred Silanka and the Maasai of Ildamat-Oloyiankalani are building adaptive capacity to the combined impacts of climate uncertainty and environmental change and the neoliberal enclosure of the commons in the Anthropocene. Before delving into the concept of adaptation, it is critical to understand the term Anthropocene as it relates to climate and environmental change.

Atmospheric chemist Paul Crutzen coined the term "the Anthropocene age" in 2000, dating it to James Watts' invention of the steam engine in 1769 (Nixon, 2011: 12). Crutzen imagined an unparalleled epochal effect because of humanity's far-reaching impact on the planet from the industrial period, which "is geomorphic, equal in force and in long-term implications to a major geological event." Environmental historian Libby Robin (2008: 290) writes that:

> We have recently entered a new geological epoch, the Anthropocene. There is now considerable evidence that humanity has altered the biophysical systems of Earth, not just the carbon cycle . . . but also the nitrogen cycle and ultimately the atmosphere and climate of the whole globe.

Steffen, Crutzen and McNeill (2007:618) describe the Great Acceleration of the mid-twentieth as the second period of the Anthropocene, writing that "nearly three-quarters of the anthropogenically driven rise in CO_2 concentration has occurred since 1950 (from about 310 to 380 ppm), and about half of the total rise (48 ppm) has occurred in just the last 30 years."

The impacts of climate change are being experienced today, and finding new ways to live with these impacts is crucial for human development (Pelling, 2011: 2). The Intergovernmental Panel on Climate Change (IPCC) refers to climate change as "changes not only in temperature but also in other properties of the climate system such as precipitation, sea level, extremes and wind speeds" (Zhongming et al., 2018: 10). Climate change is the shift in average conditions of the climate or in its variability by illustrating inconsistencies over a prolonged period, whether decades or longer (Ziervogel and Zermoglio, 2009: 133-134). According to Hulme et al. (2001: 145-168), climate change is a result of global warming or the exponential acceleration of average global temperatures. The atmospheric concentration of anthropogenic greenhouse gasses emitted predominantly by industrialised countries over the 20th century has been the main driver of global warming, but its effects have been acutely felt in developing countries.

It is essential to understand how to assist populations that vulnerable to climate uncertainties, such as marginal communities that depend on climate-sensitive resources. Concern about their possible inability to adapt fast enough, making them vulnerable to current and future climate uncertainties, are necessary but overlook the traditional responses of vulnerable communities to stresses and shocks (Ziervogel et al., 2006: 294). Pastoral communities have been adapting to climate, social, political and environmental changes for centuries by migrating, cooperating with other ethnic groups or diversifying their practice (Stenning 1957: 57-73; Loiske 1990: 77-90).

Contemporary pastoralists continue to adapt to the ongoing enclosures of their grazing commons and climate. Galvin (2009: 193) notes that disturbances or crises may not directly affect a socio-ecological system like pastoralism, but the ability to adapt to changes will decide whether the system can withstand them. Folke et al. (2005: 455) write that "a social-ecological system with low levels of social memory and social capital is vulnerable to changes such as droughts, change in property rights, resource failures, new government legislations, etc. and may as a consequence deteriorate into undesired states." Pastoral systems are subject to various constraints and risks, which have continued to intensify, but pastoralists are adapting and attempting to remain flexible in the face of the magnitude and number of changes they face today.

Adaptation is an important anthropological concept that has been used as a unifying concept, especially in terms of global change (Galvin 2009: 185,187). Smit and Wandel (2006: 282) define adaptation:

> The context of human dimensions of global change usually refers to a process, action or outcome in a system (household, community, group, sector, region, country) in order for the system to better cope with, manage or adjust to some changing condition, stress, hazard, risk or opportunity.

People are always adapting, frequently incrementally but sometimes rapidly, to new changes and constraints on their livelihoods. Adaptive capacity according to Gunderson (2000:435) is described as "system robustness to changes in resilience." According to Gitz and Meybeck (2012: 20), adaptations are demonstrations of adaptive capacity:

> The capacity of a system to adapt in order to be less vulnerable is a dynamic notion. It is shaped by the interaction of environmental, social, cultural, political, and economic forces that determine vulnerability through exposures and sensitivities, and the way the system's components are internally reacting to shocks. In fact, it has two dimensions: adaptive capacity to shocks (coping ability) and adaptive capacity to change. The first dimension is related to the coping ability (absorption of the shock), the second dimension is related to time (adaptability, management capacity). (Gitz and Meybeck, 2012: 20)

According to Davies and Nori (2008: 128) pastoralists' adaptive capacity has enabled them to remain resilient throughout time and to sustainably manipulate their natural environment to ensure their survival in the face of ecological and climatic changes. The adaptive management abilities that pastoralists possess have allowed them to maintain the biodiversity of the numerous ecologies with which they have interacted to sustain their livelihood.

Changes from outside play a key role in determining the stability of and adaptive capacity of pastoral systems, and pastoralists have been losing their adaptive capacity over the past century due to such environmental changes, which have led to a vicious cycle of impoverishment, resource depletion and environmental degradation (Davies and Nori, 2008: 128). According to Galvin (2009: 187), when a system experiences changes brought from outside it is likely to be destabilised and lead to increased vulnerability, which will eventually cause it to collapse, because the changes brought upon the system's original state lead to structural changes that push it into a new system. Nelson et al. (2007: 408, 412) note that the management and control of environmental resources is at the core of pastoral adaptive capacity, which comprises formal and informal institutions. Adaptations can happen at multiple scales and time, and adaptive strategies that are undertaken today in response to an observed change may not be undertaken tomorrow.

When focusing on adaptive issues, it is crucial to consider socioeconomic, demographic and policy issues that limit the abilities of communities to adapt to change. Interventions should support a

heterogeneous response to a wide assortment of stressors and reflect the diverse environment that people live in (Ziervogel et al., 2006: 294-303). The natural state of pastoral systems is of change, and its state of adaptation can never be fully assessed. The best that can be done is to explain certain processes of change and consider the adaptive state. As change is mostly uncertain, pastoral systems should be managed for flexibility rather than maintaining stability for them to respond to changes in ways that sustain their functionality (Galvin 2009: 187; Young et al. 2006: 311-312; Nelson et al. 2007: 412).

Adaptation can be seen as offering wider benefits, not just for coping with the challenges of climate impact but also as an important asset in the rural agrarian development process. In linked societies and ecosystems, learning and adaptation enhance system resilience against a wide variety of shocks. Adaptation can play a major role in building resilience to avert the failure of a system or to rearrange the system such that it can recover after a shock-induced collapse. A resilient society and ecosystem is foundational to being able to adaptat to change and uncertainty. Adaptive management methods that uphold resilience learn from failure and support the ongoing structures and functions of overall systems (Adger et al., 2009: 341-342).

Ecological fragmentation caused by the ongoing privatisation of grazing commons has jeopardised the sustainability of pastoralist socio-ecological adaptive strategies (Berkes and Folke, 1998: 359; Galvin, 2008: 371, 383). Globally, visibly fragmented grazing lands in dryland ecosystems sustained both wildlife and hunter-gatherer societies over 10,000 years ago, but the expansion of human settlement and farming into grazing lands over the last millennia has driven the fragmentation of grazing lands. Rangeland ecologists estimate that 35-50% of wetter productive areas in the drylands have been transformed into croplands, 14.9% of grazing lands have been isolated as protected areas and 2-4% have been settled and urbanised (Galvin et al., 2008: 9). Colonial land expropriation policies and poor post-independence land reform policies that privilege land privatisation weakened herding societies' effective control over customary grazing lands by imposing less flexible spatial boundaries (Campbell et al., 2000: 337; Galvin et al., 2008: 384).

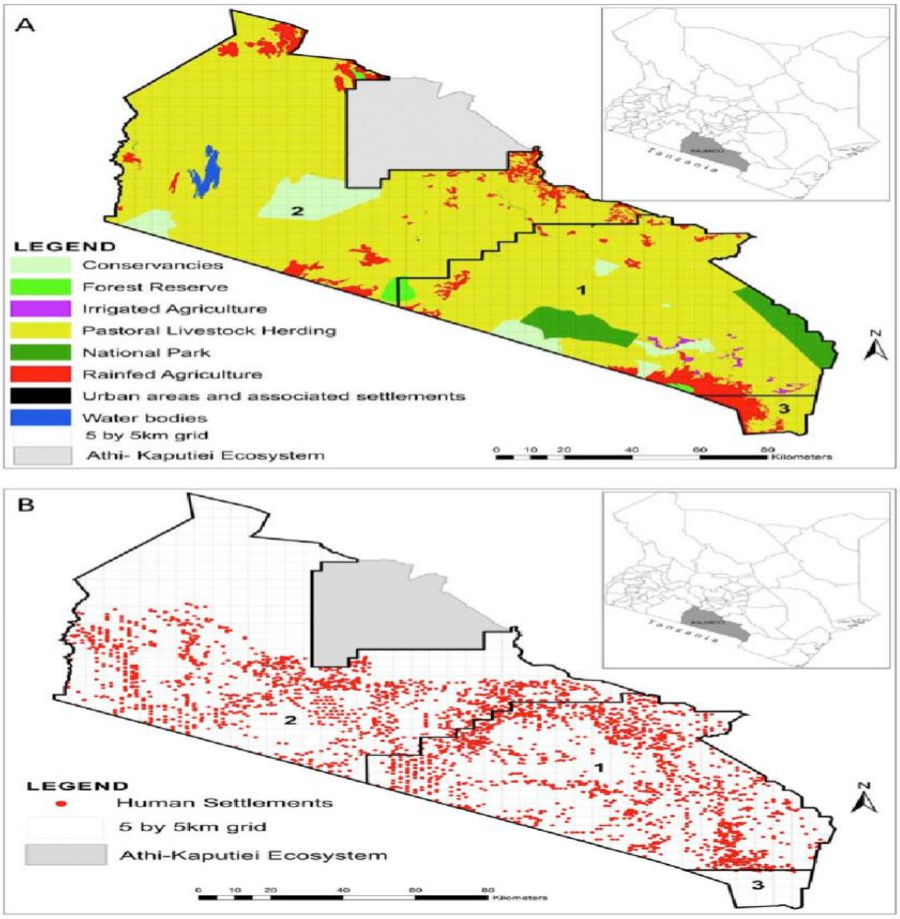

Figure 9: An aerial map illustrating various forms of land use and the state of land fragmentation in Kajiado County. (Source: Ogutu et al., 2014: 15).

pastoral rangelands in various parts of the world, including Kajiado County, have experienced rapid fragmentation since the 1980s as a result of changing property relations enacted by state policies (BurnSilver and Mwangi, 2007: 2; Solomon et al., 2007: 490-491; Chapter four). The privatisation of communally held land into individual holdings is ongoing in the rangelands of African countries, including Ivory Coast, Senegal, Cameroon, Botswana, Namibia, South Africa, Ethiopia, Sudan, Uganda, Tanzania and Kenya (see Solomon et al., 2007: 481-494; BurnSilver et al., 2008: 226-227; Behnke, 2008: 305-340; Basset, 2009: 756-766; Sundstrom et al, 2012: 485; Babiker, 2013: 177; Galaty, 2013a: 143-152; Hall et al., 2015: 1-29; Mwangi, 2016: 17, 173-174;).

The primary factors driving Kajiado County fragmentation are growing human settlements and neoliberal policies that seek to privatise and financialise customary grazing lands for economic gain through crop cultivation and biota conservation (see Figure 6). Pastoralists have lost access to prime dry-season grazing areas where precipitation levels are above average (Galaty 1994: 185-

204; Kimani and Pickard, 1998: 202, 211; Campbell et al., 2000: 337; Galvin, 2008: 369; Behnke, 2008: 331; Nkedianye et al., 2009: 118) and pastoral socio-ecological systems such as customary resource management have been disrupted (BurnSilver et al., 2008: 226, 230).

The implications of fragmentation are the restriction of herd mobility; a diminishment of geographic interactions down to scales that limit access to a full variety of key resources or ecological heterogeneity; and an overall loss of ecological heterogeneity itself (BurnSilver et al. 2008: 226,230). Pastoralists who depend on livestock as their primary livelihood strategy remain at risk because they are likely to be marginalised to pockets of less productive land (Galvin, 2008: 369).

Rangeland ecologists and Maasai herders describe Kajiado County's precipitation, climate and environment as being temporally and spatially highly variable, making its resource base heterogeneous or patchy (BurnSilver et al., 2008: 224, 226, 228, 230). Key resource availability has remained highly variable across space and time and is developed over time by major gradients in precipitation or through long-term changes in uneven pastures. This highlights the importance of the diverse vegetation communities in key ecosystems such as wetlands (e.g. swamps and riparian zones), highlands and plains that serve as grazing safety nets for pastoralists (Galvin et al., 2008: 7). The seasonal fluctuation of widely distributed key resources across space and time in the rangeland ecology has accommodated the opportunistic nature of routine herd mobility and its lengthy seasonal movements (Ellis and Swift 1988: 455-458; Ostrom et al. 1999: 278; Illius and O'Connor 2000: 283; BurnSilver et al., 2008: 226,230; Coughenour, 2008: 45-58; Solomon et al., 2007: 489).

High spatial-temporal precipitation variability is a determining factor of interannual pastures and water availability and variability at different scales in space and time and compels the practice of herd mobility (Ellis and Swift, 1988: 457; Westoby et al., 1989: 266-274; Kamara et al., 2004: 55-56; Mwangi, 2007a: 22-23; Solomon et al., 2007: 491; Coughenour, 2008: 68; Behnke, 2008: 331). Little (2003: 22) writes that access to widely distributed key resources affects whether pastoralists will be resilient in years of harsh climatic conditions and not experience massive livestock casualties. An intact and communally managed rangeland that allows flexibility is most suitable for herd mobility. Even before the privatisation of Kajiado's vast communally held land,

Halderman (1972: 199-216) warned that any act of enclosure would limit access to water and pasture resources that fluctuate over space and time.

Fences became the common marker of private property in Kajiado County, formalising boundary laws. Fences perpetuate and reinforce fragmentation by disconnecting and dissecting Kajiado's ecologically heterogeneous landscape, shrinking its natural resource base (see Figure 4). Widely distributed water sources and forage gradually became compartmentalised into spatially isolated fragments, restricting access (BurnSilver et al., 2008: 226-227; Goldman and Riosmena, 2013: 589-590).

The less flexible, formal boundary system intensified difficulties undertaking seasonal grazing arrangements and increased Maasai vulnerability to droughts (Rutten, 1992: 188, 318, 362-364; Galaty, 1992: 26-27; Kimani and Pickard, 1998: 202,211; Campbell et al., 2000: 337; Western and Manzolillo-Nightingale, 2004: 23-30; Nkedianye et al., 2009: 118). Losing access to vital grazing areas deprives herders of a buffer from extreme climatic events (Illius and O' Connor, 2000: 283-294; Reid et al., 2008: 10; Galvin, 2009: 187-188), and rangeland ecologists project that the interaction of environmental enclosures with climate shocks will amplify risk for pastoralists (Bassett 2009: 765-766; Ericksen et al., 2013: 78-80; Niang et al., 2014: 1219).

Amwata (2013) found that Kajiado's cattle population progressively declined from 1983 to 2010 primarily as a result of periods of poor rainfall and limited access to dry season grazing due to enclosures. Severe droughts in 1983-84, 1992-94 and 2000 caused high cattle mortalities and showed the link between climate uncertainty, forage accessibility and cattle production (Amwata, 2013: 110-112). Devereux and Tibbo (2013: 216-217) attribute the occurrence of successive multi-year droughts in Maasai land to climate change, which is projected to become more unpredictable, with the incidence and intensity of extreme weather events expected to increase over the 21st century (Simms and Murphy, 2005: 2, 10, 18, 19, 32; Ericksen et al 2013: 75-78; Devereux and Tibbo 2013: 216-217; Bobadoye et al., 2016: 120).

As climate changes, Maasai freedom to move their herds to widely distributed water sources and forage becomes more important for adaptability (Galvin et al., 2008: 274). In *Assessing Vulnerability of Maasai Pastoralist in Kenya to Climate Change and Variability*, Bobadoye et al., (2019: 97) concluded that despite grazing land enclosures, herd mobility remained a key adaptive strategy for Maasai pastoralists. The Kajiado Maasai responded to the rapid enclosure of their

ecology by pursuing alternative forms of herd mobility (see: Galaty, 2013b: 33-34; Galaty, 2013c: 473-510).

It was not expected that customary collective resource sharing would continue when communal land was sub-divided into individual private land units, but collective resource sharing did not stop when Maasai households were given individual title deeds under private land ownership (Galvin, 2009: 191; Mwangi, 2006a: 28-34; Sundstrom et al., 2012: 486-494; Galaty, 2013c: 501; Galaty, 2013b: 33-34; BurnSilver and Mwangi, 2007: 4-8, 19-25, 32). Kajiado Maasai have continued to reciprocate user rights under collective grazing arrangements between multiple individual land-owning households allied through social networks that consist of kinship or friendships. This strategy has enabled Maasai to expand their forage base by reconnecting fragments of neighbouring and distant land parcels that vary in size across diverse climate ecologies. Moreover, it has helped to improve flexibility and allow extensive mobile seasonal grazing.

Maasai living in Laikipia and Kajiado Counties and Longido District, Tanzania have also purchased exclusive rights to pasture on private land as another form of mobility to cope with increasing land fragmentation and climate uncertainty. Maasai herders build networks beyond their villages with non-Maasai private landowners, such as small and large-scale farmers and ranch owners, to negotiate terms of access to key resources on unused portions of land during droughts (Goldman and Riosmena, 2013: 593-595; Letai and Lind, 2013: 169-170; BurnSilver and Mwangi, 2007: 21; Ameso et al., 2018: 12-13). Maasai herders negotiate with landowners for exclusive grazing rights in exchange for a small fee, allowing them access to different micro-climatic zones (e.g. highlands and lowland farms) and widening their dry-season grazing safety net. Maasai of Laikipia and Kajiado Counties and Longido District in Tanzania also sometimes practice illegal grazing in enclosed neighbouring areas with ample resources, such as national parks, commercial farms and conservation ranches (Galaty, 2013c: 501; Goldman and Riosmena, 2013: 592, 595; Letai and Lind, 2013: 168-169).

Conclusion

This study aims to improve understanding of the implications for pastoralists' practice through the interplay between the enclosure of the commons and how pastoralists adapt to change to reclaim the commons in the Anthropocene and calls for a framework that incorporates neoliberalism,

common property and adaptation. Understanding the complex constraints of neoliberalism and its quest to privatise and commodify the commons to grow capital is critical to providing a nuanced understanding of its implications for traditional pastoralist common-resource management. Literature about common property considers alternative ways and sciences for pastoralists to reclaim the commons from over-accumulating capital in a time of climate crisis. A discussion of adaptation showed how pastoralists are rebuilding the commons approach to build adaptive capacity to neoliberal enclosures of the commons. Literature on adaptation describes the alternative practices Maasai embrace to mitigate risk against the intersection of climate change and environmental enclosure. Before delving into the history of Maasai land dispossession, the next chapter presents the research methods employed for this study.

Chapter Three

Methods of Research

Introduction

This chapter presents the methods of research used in this study to collect, analyse and interpret data to address the stated research problem and answer the research questions. The chapter comprises four sections that present the methods and procedures used to collect and analyse data. The first section presents the research design of ethnography, a qualitative research method. The data-collection methods of participant observation and interviews used to collect primary and secondary data for the research are presented in the second section. The third section presents the multiple analytical aspects used to analyse the research data collected, the analysis of the qualitative data obtained from the field and how the findings of the research will be presented. The concluding section presents the study's limitations and the research ethics. The concluding section presents reflections on the study methodology.

Ethnographic Research

Ethnography enabled me to consider and understand Maasai dairy farmers' experiences with the intersecting impacts of environmental change and climate uncertainty. As a methodological social science research tool, ethnography uses the principle of "participatory" observation to learn by engaging in the daily life and social relationships of communities to provide a clear understanding of realities of culture that formal research methods cannot capture (Roncoli, 2006: 81). This research method is used to reveal the decision-making processes that rural agrarian people such as pastoralists undertake in times of climate uncertainty to mitigate risks to their practice. It also describes and evaluates the difficulties that pastoralists face when making these decisions (Roncoli, 2006: 81). Given their experience managing high climate variability over the centuries, pastoral communities are at the forefront of responses to climate change. Insights from pastoral systems are critical for generating wider lessons for climate adaptation responses (Catley et al., 2013: 71).

The narrative of this thesis centres around my host, Mr. Alfred Silanka, a 32-year-old Maasai pastoralist and dairy farmer from Ildamat-Oloyiankalani, Kajiado County.[16] Alfred and I met when I was volunteering at the Maasai Kajiado Women's Dairy Cooperative's Oleleshwa dairy collection centre ("the collection centre") in Kajiado town. Our friendship was struck while I was attempting to build rapport with dairy farmers, as will be illustrated in my positionality. Alfred and his family lived on a 250-acre (102 hectares) farm in Ildamat-Oloyiankalani that was privately owned by his father. Their farm was approximately 25 km from Kajiado town, and it took 40 minutes to cover the journey on motorcycle. Their land was unfenced and had three tin shack houses: one for his father, stepmother and their four children; another for his brother Dan; and one for Alfred and his young family. A cattle kraal near his father's house contained 30 head of cattle, ten belonging to his father and 20 to Alfred. Alfred's father had a separate sheep kraal next to the family's cattle kraal, which contained 30 head of sheep, and there was another sheep kraal containing Alfred's 50 head of sheep next to Alfred's house.

Alfred Silanka was born to David and Ann Silanka in Ildamat, Kajiado District in 1985, the second child and the oldest son of five children. Alfred and his siblings were brought up in the normal Maasai way, with their lives revolving around livestock tending, school and domestic duties. Despite his normal upbringing, Alfred talked of a violent period in his life when his drunken father physically abused him and his mother and siblings. He described these moments as the turning point that forced him to grow up and become the man that he is now. He describes his mother, Ann, as resilient, having endured a life of turbulence, but she ensured that her children were cared for; it was her dream to see them proceed further in their education. He describes his upbringing as "unfortunate", because domestic abuse affected his school attendance and derailed his dream of attending college. Tending the family's livestock also negatively affected his education. In an interview in August 2017, he said about his struggle with formal education:

> I have stayed 10 years looking after cattle and following in my parents' footsteps. This work of livestock keeping has kept us Maasai people backwards. We have been staying with cattle, which has made us clueless about other issues like school. We have not taken school seriously in the community.

[16] Please refer to section four in the Introduction chapter where the description of the study area Ildamat-Oloyiankalani has been presented

Shortly after he completed secondary school, Alfred's mother passed away, and Alfred could not attend a tertiary education institution without her financial support. His father turned his violence and abuse on Alfred and his siblings, and eventually Alfred physically defended himself, forcing the community elders to intervene. Alfred sold some of the sheep his mother had left and enrolled in a local technical college, where he obtained a license to operate a motorcycle. He used the savings he made from manual labour and selling livestock and milk to purchase a motorcycle.

In 2014, Alfred began working as a *bodaboda*[17] taxi operator and a milk deliveryman to generate an income and improve his life. His mother had at one time served on the board of the Maasai Kajiado Women's Dairy Cooperative and been an active member who delivered milk. Alfred decided to take over his mother's account at the dairy cooperative and sell milk. As the first-born male, he was culturally obligated to stay home and take care of his family, including his father and the livestock. His two sisters were married, and his brother Dan moved away from home to start a new life in Kajiado Town. Alfred's younger brother Kush was still in school, and Alfred supported his education.

His father was polygamous and had a second wife with whom he had four children (three boys and a girl), but Alfred believed his stepmother was the cause of the problems in his family. Alfred and his wife Felister had two children, a six-year-old son named Sam and a three-year-old daughter named Naomi. Felister was a full-time housewife and was responsible for domestic duties such as cooking, cleaning and fetching water and firewood. Alfred's father was a retired civil servant and spent most of his days at home or socialising, while his stepmother worked as a charcoal trader in Kajiado Town. Alfred had the most reliable source of income and was the primary breadwinner of the family. To ensure the well-being of his family, he committed to farming livestock.

I immersed myself in Alfred's practice of livestock husbandry to document his and other Maasai farmers' experiences of building adaptive capacity to the intersecting impacts of a changing environment and an uncertain climate. The idea of focusing the narrative of this thesis around Alfred was derived from Christopher Mabeza's PhD "Metaphors for Climate Adaptation from Zimbabwe: Zephaniah Phiri Maseko and the Marriage of Water and Soil" (2013). Mabeza's ethnographic work on climate change adaptation strategies centres on Zephaniah Phiri Maseko, a

[17] *Bodaboda* is the local name for motorcycles that operate as taxis in Kenya. They are a very popular mode of transport in rural areas.

farmer in arid rural Zvishavane, Zimbabwe, and documented how Phiri Maseko (as he is known), used metaphors such as “marrying water and soil” to successfully adapt his agricultural practice to an environment prone to drought. This approach also allowed Mabeza to engage with farmers who had undertaken similar approaches to build adaptive capacity as Phiri Maseko.

Ethnographic data collection in the field also embraces the importance of multiple narratives about a person or particular topic. While conducting my ethnographic research, I was wary of what novelist Chimamanda Ngozi Adichie (2009) terms “the danger of a single story”, as there is never just one story about a subject or person. The lives and cultures of societies based in rural environments are a reflection of multiple intersecting narratives of persistent adaptation to change; to get multiple perspectives on coping with climate and environmental change, I engaged with the experiences of various Maasai dairy farmers I met through Alfred. To explore and embody these narratives, I carried out interviews, made observations, participated in their practice and took photographs.

The eight months I spent in Ildamat-Oloyiankalani coincided with the bimodal rainfall season of Kajiado County and allowed me to observe and experience changes in climate and the physical environment. From December 2016 to January 2017, I was a volunteer at the milk collection centre. From July 2017 to November 2017 and July 2018, I lived with Alfred and his family and took part in their daily activities, which included tending to livestock, sourcing fodder and socialising. I documented my participation, observations, experiences and reflective notes in a daily journal that I kept with me at all times. Fetterman (1998: 114) suggests that field notes are essential because they determine the success of ethnographic research, and because dependence on memory alone may cause unrecorded information to be overshadowed by subsequent events.

I also recorded the interviews I carried out with Alfred and other farmers who participated in the research. Taking photos provided a visual document of fieldwork activities and was essential in documenting changes that occurred in the physical environment and livestock physiology in the transition between dry and wet periods. It was also a key way of generating knowledge and offering a visual understanding of the study and its location.

The next section presents the methodology used to collect and analyse data from the research area.

Data Collection

Fieldwork methods can significantly influence the results that emerge, in as much as interpreting results cannot be entirely objective. It is important to acknowledge the impracticality of objectivity while conducting research, because such a recognition allows for a more accurate understanding of research participants' relationships with the researcher, which is unavoidably one of unequal power (see Bologna, 2008: 30). The types of data used to examine the research questions were individual experiences and practices on the ground, and they relied on several data sources, such as participant observation, interviews and photography. Methodological triangulation in qualitative research (Miles and Huberman, 1994: 266-267) was employed to explore the data sources and overcome the limitations of singular methodological shortcomings. The use of multiple sources of data such as literature and news media also addressed credibility and validity issues (Lowndes et al., 2017: 186, 270, 295). The following sections describe the specific data collection methods and how they were used to collect information for this study.

Participant Observation

Living among communities whose predominant practice is livestock keeping, such as the Maasai, requires one to simultaneously observe and participate in their daily activities, which are mostly practical. According to Roncoli (2006: 82), "participant observation" is:

> a basic principle of ethnographic research and refers to the process of experiential learning that occurs during fieldwork, as a function of "being there". It is based on the recognition that engaging in daily life and social relationships provides a contextual understanding of cultural realities that cannot be captured by formal research methods.

As I had hitherto mostly resided in an urban setting with minimal interaction with rural agrarian areas and activities, I did not possess the skills to tend to livestock. Participant observation gave me the opportunity to learn and understand the daily routines of Alfred and his family members in relation to their livestock, and these became a major part of my daily activity during my fieldwork.

Rangeland scholars such as Homewood et al. (2009: 62-63) emphasise the importance of participation through observation and physical work when studying the livelihood and practices of the Maasai. It was important for me to learn by observation for data collection purposes and to gain an understanding of the challenges of tending livestock in a changing environment under uncertain climate conditions. Kawulich (2005: 2-3) notes that observations allow the researcher to

define present circumstances by providing a transcribed picture of the situation under study. Additionally, the researcher is engaged with or exposed to the daily lives of research participants and learns about their activities. This method also allows one to describe activities, events and behaviours that occur in the social setting of the area of study (Kawulich, 2005: 2-3). As a data collection method, participant observation allowed me to observe interactions between Alfred and fellow Maasai farmers, non-Maasai people, the environment and livestock.

Photography complemented my field observation and participation by helping me tell the story of what I saw and encountered in my interaction with humans and non-humans in the field. Because of the possibility of capturing images vital to my research and the writing of my thesis, I frequently carried my camera with me. Mabeza (2016: 24-25) describes photographs as crucial data sources, because they can tell many stories and additionally provide documentary proof. Blommaert and Dong (2010: 33) note that photographs help remind researchers about "what places, moments and people were like": observing an image triggers a memory of the moment it was captured, which may trigger the memory of a story that is just what is required to support the analytical arguments.

Interviews

Interviews are a way of collecting data from research participants through mutual conversation and the sharing of views as a means of generating knowledge. The importance of unstructured interviews is that there are no restrictions on questions. This mode of interviewing is flexible, and the researcher can examine underlying issues (Kajornboon, 2005: 2, 7). The interviews I carried out for this research were open-ended and unstructured. Most were formal, but in some instances informal dialogues helped generate additional information key to this research. The open and unstructured interviews supported storytelling and encouraged research participants to feel at ease sharing their views and experiences. Devine (2002: 197-215) writes that storytelling is a key interview method, because it allows research participants to share their experiences at length and to generate narrative themes that can be referenced in discussions. Hughes (2006: 9-11) uses unstructured storytelling as a tool to cultivate knowledge directly from Maasai voices, through testimonies that are rich and touch on many interrelated subjects scarce in wider literature. Citing

direct quotes from oral testimony shapes experiences beyond simple consideration of material factswhen trying to understand Maasai perceptual experiences with a changing environment.[18]

Unstructured storytelling played an important role in this research, because it had the power to engage the researcher with the perspectives of the research respondents (Riessman, 2008: 7-9). Narration allowed the research respondents to recollect past events with respect to their present existence, offering detailed understanding of the concerns they raised. The theoretical concepts of the research were manifested in the themes that arose from the narratives of the participants. The open-ended and unstructured method allowed for findings from previous interviews and discussions to be explored further. Themes brought up by previous research respondents were followed up in interviews with other respondents. This research approach was therefore important for attaining and validating narratives and assessing the themes that were raised.

The languages of Swahili, Maa and English were used in the interviews with research respondents, who were invited to communicate in the language they felt most comfortable with. The *Wazee* (singular *Mzee*) or elderly people preferred to speak their home language, Maa, but were equally fluent in Swahili. Alfred interpreted my interviews with *Wazee* from Maa to Swahili. Some of the *Wazee* indulged in Swahili if they felt the need to correct Alfred's interpretation. Interviews with Alfred, community members, fodder vendors and commercial farm workers were in Swahili. The only interviews conducted in English were with the representative of the Kipeto wind energy project, the administrative chief, the National Drought Management Authority's drought officer and the Kajiado County water officer, because it was easier for them to explain technical terms in relation to their work.

The research respondents in this study were Alfred and people with whom he interacted daily, as well as government officers and the representative of the Kipeto wind energy project, who I approached separately with queries pertaining to the study. Shadowing Alfred exposed me to various Maasai farmers and other non-Maasai people with whom he interacted. As there were multiple participants in this research, a multi-actor approach was employed (Little, 2007: 85). People were interviewed according to their will, and the study did not aim to interview a specific

[18] Material "facts" – such as who moved, how much livestock died, what diseases were prevalent at a particular time, who said what to whom – dominate literature about the Maasai, rendering many texts curiously one-dimensional in their pursuit of history as a reconstruction of events (Hughes, 2006: 10).

number of people. Individual interviews continued until saturation was reached or until no new information emerged (Guest et al., 2006: 59). There were a total of 33 respondents who were interviewed on multiple occasions during the duration of the research. The respondents interviewed for this research were as follows:

- **The MKWDCS team** – the officials who worked at the Oleleshwa milk collection centre. I worked closely with them when I was a volunteer, which facilitated my interviews with them about the Maasai dairy economy, the history of the dairy cooperative and its achievements and goals.
- **Alfred Silanka and Felister Silanka** – my hosts during the field research. I lived with Alfred and his wife Felister and their two children in their home in Ildamat-Oloyiankalani, where I worked under their guidance. We frequently engaged in conversation about changes in climate and the environment.
- **Community members of Ildamat-Oloyiankalani** – the community members spread across various households in Ildamat-Oloyiankalani and Esilanke-Kipeto villages. They were mostly Maasai and associates of Alfred and Felister whom I met at social gatherings, the town market, in grazing fields or at the community watering point. Most practiced dairy farming, which made their narratives and experiences with the changing climate and environment as important to this research as Alfred's.
- **Fodder vendors** – fodder vendors were mostly non-Maasai people and were either vegetable vendors who operated from the fresh produce market, or straw vendors who operated from their trucks. Alfred interacted with them frequently during the drought, because they provided his livestock fodder. I interviewed them about their dry season interactions with the Maasai and how they operated their businesses.
- **Government officers** – the administrative chief of Ildamat-Oloyiankalani and government officers from the National Drought Management Authority and the water department of the Kajiado County government were approached independently to better understand their attitudes toward climate change and resource scarcity.
- **Representative of Kipeto wind energy project** – the resident representative of the Kipeto wind energy project was approached to understand the wind energy project's relationship to the Maasai and their land.

The next section describes how data obtained from Alfred and other respondents were analysed.

Analysis of Qualitative Research Data and Data Presentation

The qualitative data obtained from the respondents of this study were analysed using thematic and structural analysis. The focus of thematic analysis is what was stated rather than how it was narrated (Riessman, 2008: 53-54). After generating contact summaries, thematic analysis was the second step in the process of analysing data and used a continuing comparative analysis procedure that involved repeated coding (Brummans et al., 2008: 31-33). Thematic analysis requires the uploading of all interview transcripts into the qualitative data analysis software QSR NVivo, which handles and organises large collections of text data. QSR NVivo was used in an iterative process to code sets of text data and to classify them into themes. Two methods were used to develop themes: they were first framed based on insights from literature or emerging from the data; thematic analysis was complemented by structural analysis, because alone it could not provide an in-depth analysis of the data but showed a generalised trend of what the data represented. Structural analysis was therefore employed to further analyse the data in an in-depth manner.

Structural analysis focused on how narratives were told and arranged. This method of analysis was especially important for comparing narratives by various people about similar events, particularly because respondents structured their narratives differently (Riessman, 2008: 77-78). Structural analysis examined the sequencing of narratives and the tone of voice and facial expressions of the respondents and interrogated how metaphors were used to explain experiences, beliefs, emotions and meanings about environmental changes such as land holding and climate change (Herman and Vervaeck, 2005: 47; Riessman, 2008: 77-78). As part of analysing the data, I was attentive to how the issues raised in the literature review regarding the broader and local changes in property relations, resource fragmentation and climate uncertainty's impact on livelihood resilience shaped the respondents' stories. Structural analysis thus offered an expanded comprehension of the themes that emerged from thematic analysis.

In determining the prominent themes, the significance and value of an issue (also referred to as a node in the QSR NVivo analysis software) was decided using hierarchy charts generated by the analysis software (Jackson and Bazeley, 2013: 117-118). Sources that were significantly coded at particular nodes were determined by the hierarchy charts, and the charts allowed me to compare

the number of codings per source. In this manner, the pattern of themes could be evaluated according to sources. Comparing the amount of coding and specific nodes and visualising major nodes for all coded text were enabled by the hierarchy charts for nodes. Two types of hierarchy charts are possible in the NVivo analysis software: tree map charts and sunburst charts. The tree map chart was selected over the sunburst chart to facilitate an easier comparison of the magnitude of varying aspects of data using rectangles rather than arched fragments. The tree map chart rectangles were arranged by coding frequency: the larger the rectangle, the more significant the frequency of nodes coded under the theme, thereby shaping the prominent themes.

The findings of the thesis are presented in chapters five, six and seven. The presentation of the data used a narrative approach supported by respondents' quotes, notes from observation and photographs taken in the field. Most of the interview extracts were translated from Maa and Swahili to English. In a few instances, Swahili phrases were used to retain the rawness or intensity of the respondents' words and an English translation is presented alongside. The identities of the respondents whose stories are quoted are semi-anonymous, and only their first names or preferred pseudonyms are used. For example, the officer working for the National Drought Management Authority is referred to simply as "drought officer" to keep their identity anonymous, as requested. The previous sections gave a hint of my positionality in the research process, and the next section elaborates on this.

Researcher Positionality

I came across the Maasai Kajiado Women's Dairy Cooperative through a newspaper article, and I visited their headquarters at Kajiado town's Anglican Church of Kenya on 4 December 2016. On my visit, I met with Victor, who was the manager of the cooperative, and Madam Agnes and Madam Miriam, who were members of the Board of Directors at the cooperative. I introduced myself to them as a Doctor of Philosophy student from the University of Cape Town who wanted to learn more about the Maasai's newfound role as commercial dairy farmers. I further explained that I was interested in learning about the impacts of climate change on the Maasai livestock economy, and I expressed my desire to volunteer at their organisation to learn more. To my surprise, Madam Agnes agreed to my request, because she felt my work would be valuable for the Maasai dairy farmers of Kajiado County.

With the approval of her co-director Madam Miriam, Madam Agnes delegated me to work closely with Victor at the dairy cooperative's milk collection centre, where I assisted the clerks and familiarised myself with the Maasai dairy economy. Victor's role as the dairy cooperative's manager saw him spearhead the daily operations of all the collection centres in Kajiado County. He introduced me to the staff at the collection centre, who I worked closely with during my period as a volunteer. My daily duty of receiving milk deliveries from the farmers enabled me to build a repertoire with them and move past being the new face in the busy collection centre and the focus of gossip among the curious farmers. The familiarity built on our daily interactions gave me the courage to initiate conversations with them – particularly with Alfred, who admired my commitment to work without pay. I helped him unload the milk containers from his motorcycle when he arrived every day, and he warmed up to me. Sometimes he would stick around and talk with me about various issues.

My conversations with Alfred became a friendship as he learned more about my research interests. He became curious and asked if I wanted to learn more about the Maasai way of life – if so, I should buy a mattress and he would host me at his home. As an urban dweller who had resided in a middle-class urban area for the entirety of his life, I was clueless about what Maasai life was all about. I had grown up seeing Maasai herders navigate their cattle in our urban neighbourhoods, the sight of which disgruntled most residents. Motorists would hoot and insult the Maasai when their cattle obstructed traffic. The Maasai were also stereotypically viewed as a symbol of Kenya's tourism sector, because they lived near major national game reserves, such as Maasai Mara National Reserve in Narok County, Nairobi National Park in Nairobi and Amboseli National Park in Kajiado County, all of which I had visited.

I was a strange new face in the tight-knit Ildamat-Oloyiankalani community, and it was not unusual for neighbours to visit Alfred's home to learn more about me. The community often questioned Alfred about the purpose of my stay in their area. Therefore, Alfred had to inform his father and the elders of Ildamat-Oloyiankalani that I would be staying with him throughout the field research period. According to Taraiya (2004:187-220), elderly Maasai males who are mostly the heads of households and are landowners have continued remaining at the helm of customary decision making. They make decisions on land use, livestock, political leadership, households needs and customary rituals. Therefore, before any decisions are undertaken within the household or

community the elders have to be consulted. This is their way of ensuring that the community remains tight knit and their customary values do not erode. Culturally, married women and their children are in charge of daily household activities and tending to family livestock. Any decisions that women wish to undertake requires permission from the elders. Young adult males whether married or not are also required to consult the elders before undertaking any decisions.

Many people found it odd and amusing that an unmarried, college-educated man from Nairobi would relegate himself to their harsh environment to tend livestock, but most welcomed my presence in the area and extended an invitation to their homes for tea or a meal. Living in Alfred's home and working alongside him through his daily activities, such as tending to livestock and visiting his neighbours, allowed me to build familiarity with them and engage them in conversation and carry out my research. However, the research topic was sensitive – particularly when it touched on land politics, which was beyond the comfort of what most people were willing to discuss.

My positionality had obvious advantages and limitations. As a non-Maasai and an outsider, and in light of the nature of the Maasai, I expected accessing information about land politics for my study to be challenging. The main challenge during the data collection period at site level was obtaining community members' trust. Some were hesitant to speak to me about cases of land and resource grabbing in the area, as they were unsure about my final intentions. Alfred assured them that the information they gave me would be confidential and that their real identities would not be revealed, which was helpful to the study.

The next section discusses limitations that I faced during the study that were independent of my positionality.

Limitations of the Study

A few circumstances and situations restricted the research methods of this study. The limitations described below were beyond my control, but I was able to address them for the study conclusions to remain valid. The first limitation was the language of communication: speaking only English and Swahili was a disadvantage, because most of the elderly people in Kajiado preferred to speak Maa, which required Alfred or anyone else conversant in Swahili and Maa to translate. Because of this, I may have missed the authenticity of a narrative and the richer meaning of its context. I learned some introductory phrases in Maa to be courteous, such as *Sopa Baba*, meaning "Hello

Father" and *Sopa Mama*, meaning "Hello Mother". If they greeted me first, I would respond *Esidai oleng*, meaning "I am fine, thank you". I would greet the elders before Alfred described my needs to them. Alfred was courteous enough to translate most of the conversations he was involved in and never hesitated to ask whether I needed clarification. Generally, my inability to speak Maa hindered me from understanding conversations that Alfred had with his fellow Maasai that may have been relevant to this study.

The second limitation was my marital status and gender. Being an unmarried man affected my ability to interact with women in the research period. In Maasai culture, married women's interactions with unmarried men are restricted unless the interaction is with a relative or person the husband has approved. I interviewed a few married women after becoming familiar with their husbands, who were friends with Alfred. In most cases, Alfred played a huge role in this matter, because he would seek permission from men on my behalf to interview their wives. Widowed women who were also part of the interviewees did not present the same challenge. The reality of my account was therefore gendered by my marital status and by being around Alfred.

The last limitation was my tribal ethnicity. The Maasai community were forbade from communicating about ongoing controversial issues in their community, particularly to non-Maasai people. My name, Munene, is common among the Mount Kenya tribes of Meru, Kikuyu and Embu, and most Maasai would associate me with being Kikuyu, who do not have a good reputation among the Maasai because of land politics. There is also a stereotype that Kikuyus love money and will exploit anyone at any time and at any cost. If asked, I clarified that I belonged to the Meru tribe, which put people at ease because of the similar cultural beliefs of the Meru and Maasai.

Research Ethics

Many ethical issues were considered during this research. My supervisor provided an official letter that I presented to the local administrative chief of Ildamat sub-county for permission to carry out research in the area. I also briefed him on my affiliation with UCT as a PhD student and on the goals of the research. I visited the local Love Word Hope international church, where I met the local reverend, Pastor Kilele, and other community elders who had congregated for a men's meeting. Alfred introduced me to them, and I spoke about the purpose of my work. They encouraged me to address the issues that the community faces in times of drought. While carrying

out the research, I spoke to potential respondents about its purpose, presented them with a UCT approved consent form and on record requested their permission to be interviewed. Many research respondents were uncomfortable signing consent forms and preferred to give verbal consent on the record.

Photography of any sort was undertaken with the consent of research participants with regards to their property and privacy. The study remained open for the participants, and they were welcome to ask questions about any issue about the research. The data collection method respected the community members' decisions and boundaries. Most importantly, the identity of respondents remained anonymous during cross-referencing to avoid possible intra-communal conflicts about controversial matters. Language appropriateness and conversational etiquette respected the rights and culture of all the research participants. Safety was important during fieldwork, as various forms of wildlife roamed in and around Ildamat-Oloyiankalani. In isolated incidents, carnivores such as hyenas and lions strayed from Nairobi National Park and attacked livestock in kraals at night, and it was normal while grazing livestock during the daytime to see wild herbivores such as zebras, antelopes, gazelles, ostriches and giraffes. I always had to exercise caution, and Alfred advised me to always use a battery-operated flashlight when moving outside his house at night, though we always ensured we were home before 9 p.m.

The information unearthed by this research about land practices by the state and/or certain community members that could implicate me through conflict with the state and the community were noted. I have therefore ensured that the data that I sourced from the various sources were cited and presented in an appropriate manner. The next chapter presents the concepts that guided this study.

Conclusion

This chapter has explained the data collection and analysis methods used while carrying out this study in Kajiado County, Kenya. The process of collecting data in the field required the active locating and interviewing of Maasai farmers and other stakeholders in government and the private sector involved in the management of natural resources. Using an ethnographic approach and snowball sampling during the research period enabled me to document and compile an in-depth understanding of Maasai practices and their experience with climate change and environmental

enclosure. It also allowed for follow-up interviews with participants, particularly Maasai farmers, during the transition between the prolonged drought and rainy season. Follow-up interviews were necessary to understand issues that emerged in other interviews and to build a case for Maasai farmers and their livestock practice in a changing environment. As the Maasai practice required them to be in constant contact with their livestock and environment, the data collection process required participation in the livestock tending process and observation of daily activities undertaken to sustain their cattle through the prolonged drought season. Notes were taken of occurrences and events during both the participation and observation phases and were complemented by photography. Observation and participation also remained critical for verifying reported facts, occurrences and narratives in the interviews and other sources. To ensure consistency and data collection integrity, key themes were used in the data collection process to compare narratives and occurrences recorded during the research period. The next chapter presents a historical perspective on the dispossession of the Maasai.

Chapter Four

Historical Land Dispossession of the Maasai of Kajiado County

Introduction

Mbatiany, the Maasai Oloibon (prophet, ritual expert and socio-political leader) was the de facto leader of the Maasai prior to the arrival of the British, from 1866 until his death around 1890. The Purko-Kisongo elders revered him for his prophetic-ritual and military leadership, and his wider political and prophetic influence enabled him to unite the Purko, Loita, Damat and Kisongo Maasai in a critical victory against the Laikipia Maasai during the Iloikop civil war, which lasted from 1870 to 1875 (Berntsen, 1979: 134,138; Fratkin, 1979: 53, 61-64). Many years prior to the arrival of the British in 1895, Mbatiany prophesised the arrival of white people and the railway. In his prophecy he saw white birds, symbolic of Europeans, and a long snake that stretched from the ocean to the lake, symbolic of the Uganda railway, which presented a threat to the Maasai. Indeed, the development of the railway sealed the fate of the Maasai (Hughes, 2006: 27).

Under the Kenya Colony, the British appropriated land belonging to the Maasai and other indigenous communities, who were disinherited from their ancestral lands and driven into colonial-created native reserves. Colonial land policies and institutions essential for nation building were used to justify the removal, control and isolation of native communities from their land, to settle incoming Europeans and to conserve nature. Native reserves facilitated colonial control and served as a source of labour, where a native workforce could be easily harnessed to develop the state and create surplus capital flow through, for example, colonial agricultural estates (see Hughes, 2006: 17; Nunow, 2015: 101; Nyanjom, 2014: 50; Letai, 2015: 85-86). Colonial development disrupted Maasai relationships with the land and traditional forms of resource management, exposing humans and livestock to ecological vulnerability and uncertainty.

This chapter discusses historic literature that follows the evolution of land ownership in present-day Kajiado County, tracing significant land policies and programs enacted to dispossess and move the Maasai throughout the late 19th century and the 20th century. It considers key events that enabled changes in property relations and transformed Maasai land from a communal resource into private property.

Colonial Arrival in Maasailand, Kenya

The expansion of Maa-speaking groups in the Rift Valley of Kenya and northern and central Tanzania is documented to have begun around 1700. The herding community strengthened their influence throughout the region by capturing and controlling territories that ranged from the Lake Turkana region in northern Kenya, to the Central Rift Valley and the present-day Maasai steppes in the southern Rift Valley in Kenya and to northern and central Tanzania (see Figure 6) (Borgerhoff Mulder et al. in Homewood et al., 2009: 5). Toward the end of the 19th century, before the arrival of the British, the Maasai were firmly in control of a territory that covered 160,000 km^2, of which almost 70,000 km^2 were located in Kenya (see Figure 7) (Rutten, 1995: 2).

In the 1800s, Maa-speaking groups engaged in successive civil wars for domination of Maasailand in Kenya. Wars amongst the Maa-speaking sections or *il-olosho*, such as the Iloikop wars, saw domination of Central Maasailand and the Rift Valley by the pastoral Maasai alliance of Kisongo, Purko and Loita Maasai of Kajiado. This alliance fought against their more aggressive agro-pastoral Iloikop counterparts (Laikipia, Uasinkishu, Il-Parakuyo, Il-Chamus and Mukogodo), who are said to have started these wars over territory, livestock holding and their survival on the plateau, which was contested by multiple communities. The first Iloikop war commenced around 1810 on the Uasin Gishu highlands in the Central Rift Valley, while the second and third Iloikop wars followed in 1862 and 1873 in the Mau area, in Rift Valley and on the Laikipia plateau. The pastoral Maasai emerged victorious in all these battles, virtually destroying their agro-pastoral Iloikop counterparts. The surviving populations on the Laikipia plateau dispersed to neighbouring ethnic groups like the Kalenjin (Nandi and Kipsigis) or assimilated with their victorious counterparts. Outlying Maa-speaking groups, such as the Il-Parakuyo, Il-Chamus, Uasinkishu and Mukogodo, that lost land during the wars fled and diversified their practice, combining farming, fishing, foraging, trade and other activities with pastoralism (see: Rutten, 1992: 168; Rutten, 1995: 2; Hughes, 2006: 24).

The vacuum left by the eviction and decimation of the Maasai population on the plateau did not go unnoticed by neighbouring ethnic groups. Bordering agricultural (Kikuyu and Kamba) and raider pastoral (Kalenjin, Pokot and Turkana) communities begun to occupy patches of the vast territory under Maasai control in Kenya. They began moving into Maasailand from various directions, encroaching on Maasai grazing areas. With fewer warriors, the weakened Maasai could

no longer control the vast territories they had incorporated after the wars (Waller 1976: 532; Rutten, 1992: 168; Rutten, 1995: 2).

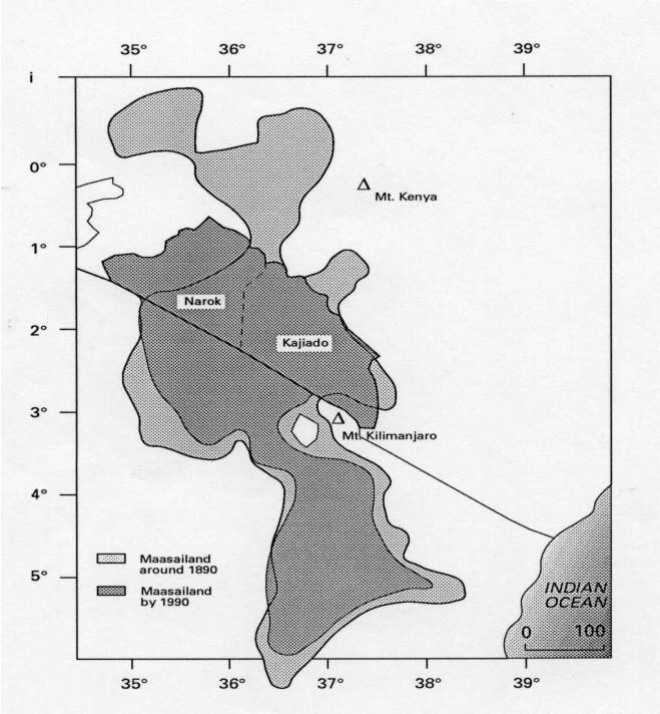

Figure 10: Pre-colonial greater Maasailand around 1890. (Source: Rutten, 1995: 1-2)

As early as the 1880s, disease, natural disaster and internal power struggles further undermined the authority of the already weakened Maasai population. In 1891 and 1892, cattle disease pandemics such as contagious bovine pleuro-pneumonia and rinderpest epizootic swept down the Rift Valley from Ethiopia on the northern border. These diseases persisted for several years, a period that the Maasai named *Emutai* in Maa, meaning a complete wipe out. Disease and drought caused the livestock population to decline by almost 90%, while the Maasai population declined by 50% by the end of the 19th century, succumbing to famine and smallpox (see: Waller 1976: 532; Waller 1988: 77; Rutten, 1992: 168-171; Rutten, 1995: 2; Spear and Waller in Homewood et al., 2009: 5; Hughes, 2006: 24, 35).

Colonial expansion in Kenya thus encountered a significantly weakened Maasai. Land belonging to Maasai in Kenya appropriated under the Crown for European settlement, railway development, wildlife conservation and forestry were administered by the colonial governor of British East Africa. The Crown acquired land in Kenya and much of British East Africa through legislation, such as the *Crown Lands Ordinance of 1902*, the *Indian Land Acquisition Act of 1894*, the *Order*

in Council of 1898 and the *Order in Council of 1901*, which declared the majority of land as unoccupied or acquired in trust for Her Majesty through treaties, conventions or agreements. This enabled "legal" alienation, appropriation and expropriation of native lands by the colonial authority (see Sorrenson 1968: 143; Rutten, 1992: 174; Hughes, 2006: 5,25; Homewood et al., 2009: 6).

The period between 1890 and 1920 marked the arrival and establishment of British colonial rule over Kenya. A young British geologist named Joseph Thomson is credited as the first European to fully traverse Maasailand, travelling from the Indian Ocean coast to the shores of Lake Victoria in 1883-1884 (Rutten, 1992: 169; Rutten, 1995: 1; Hughes, 2006: 23). Thomson described Maasailand as, "A more charming region is probably not to be found in all Africa" (in Hughes, 2006: 23). Thomson wrote that the northern highlands of Laikipia had a climate-environment that resembled a small Britain in Africa, with splendid pastures. Its countryside was filled with "flowering shrubs, noble forests, babbling brooks and streams and pine-like woods where you can gather sprigs of heath, sweet-scented clover, anemone, and other familiar forms" (in Hughes, 2006: 24). This description heightened British interest in the prospective colony.

Thomson's account of Maasailand implied that the area's residents, the Maasai, had fled, leaving the fertile portion of the plateau unoccupied after the annihilation of most of their population in the internecine Iloikop civil wars that concluded in the 1870s. He overlooked the fact that the Maasai occupied plateau grazing areas seasonally. The generalised narrative among other early British explorers continued to describe it as untouched, uninhabited and lacking a master. British administrator John Ainsworth suggested that the Maasai could be gradually ousted from the plateau through military and policy control of their nomadic wandering (Hughes, 2006: 23-25). Thomson's account, and that of other British explorers, smoothed the way for the British to move into Kenya to build a railway and establish a settler colony on the plateau.

The highlands in the central part of Kenya surrounded the capital of British East Africa, Nairobi, and were seen as a strategic economic channel between the coast at Mombasa and the port at Lake Victoria, the source of the Nile. Controlling the Lake Victoria port and Uganda Protectorate facilitated geo-political control over and economic access to Egypt, which was under threat of French invasion (Sorrenson 1968: 9; Rutten, 1992: 171, 173; Nyanjom, 2014: 50). The construction of the Uganda railway began in 1895 to connect Mombasa, on the Indian Ocean coast,

and the port of Lake Victoria near the Uganda–Kenya border. The Ugandan railway ran straight through Maasailand, splitting the Maasai's most fertile land in the plateau of the Rift Valley (see Figure 6) and making land on both sides of the railway strategic for prospective European settlement (Rutten, 1992: 171; Hughes, 2006: 15, 25-27; Nyanjom, 2014: 50).

The establishment of the Uganda railway proved costly for the colonial administration. The total running costs after its completion in 1901 were some £5,550,000. To recover some of these expenses, the administration seized land within a one-mile zone on both sides of the railway. Governor Charles Eliot invited prospective European settlers and offered parcels of land of approximately 10,000 acres (4,046 hectares) at extremely low prices for rent or outright purchase. *The Crown Lands Ordinance of 1902* enabled incoming settlers to acquire 99-year leases for agricultural and stock-farming land (Rutten, 1992: 173,175; Rutten, 1995: 2; Hughes, 2006: 25). The vast majority of land annexed for European settler occupation north of Nairobi was located in the heart of Maasai grazing territory, designated the "White Highlands". Property rights introduced by ordinance privileged European settler occupation and overruled and violated the land rights of indigenous Africans, who were excluded from acquiring or owning land (Rutten, 1992: 175; Rutten, 1995: 2). Europeans were encouraged to settle on either side of the railway in the White Highlands, expediting the settlement and flow of people and goods from the highlands across the colony. The railway also enabled colonial economic development through export and import from the ports of Lake Victoria and Mombasa (Hughes, 2006: 15, 25, 27). Non-Europeans were confined to designated reserves in the lowlands (Rutten, 1992: 176-178; Rutten, 1995: 2; Hughes, 2006: 25).[19] This period marked the beginning of consecutive geographical shifts of the Maasai and rapid land loss to accommodate colonial development.

Shifting the Maasai

White settlement in the hinterlands of Kenya was considered an economic inevitability by the British and required conquest, subjugation and control of the indigenous population. Boundaries were marked and maintained, as they were the core of nation building, separating natives from settlers through buffer zones. They contained nomadism, seen as an uncivilised, chaotic practice that kept Africans idle and unable to stay in a single place at a time. Treaties between the British

[19] Non-Europeans included the native African population, Asian Indians brought to the colony as railway construction workers and immigrant Indians who came to the colony to operate trading shops as merchants (see Hughes, 2006: 25).

and Maasai in 1904 and 1911 figuratively ended the politics of conquest, forcefully shifting the Maasai for settler economic development, key to state building. These treaties locked pastoralism out of its best grazing lands and demarcated boundaries for capitalist ranching and agriculture (Hughes, 2006: 17).

The British lust for territorial expansion at the turn of the 20th century was enabled by an informal alliance between administrators and influential settlers like Lord Delamare to forcibly move Maasai from their key grazing territories. The first wave of administrative colonial land appropriation began in 1904 when Maasai elders and the paramount chief Oloibon Olonana, son of Mbatiany, were manipulated by Commissioner Sir Donald Steward's colonial government to sign a treaty that would "temporarily" lease the community's most fertile grazing land to the British. The Maasai were cooperative and did not resist the threat of British military force (Lindsay in Letai, 2015: 85; Rutten, 1992: 173-175; Hughes, 2006: 5-6, 17). The formation of reserves was intended to contain and control the unwanted movement of Maasai herders and to efficiently exploit their most productive rangelands and watering points (see: Rutten, 1992: 187; Rutten, 1995: 3; Hughes, 2006: 17; Letai, 2015: 85-86).

The 1904 British-Maasai treaty divided Maasai territory into Northern and Southern Maasai reserves totalling almost 24,000 km^2, securing most of the central plateau from Laikipia to Uasin-Gishu, Rift Valley for settler agriculture (see Figure 5).[20] These newly carved territories represented a 50-60% reduction in their pre-colonial territory. By 1906, the Maasai had lost two thirds of their crucial dry-season grazing lands to accommodate expanding settler agriculture in the White Highlands. Some of the richest grazing land in Nakuru and Naivasha in the central part of the Rift Valley were appropriated (see Figure 6), while the reserves were located in marginal, semi-arid areas (Rutten, 1992: 173, 176-177; Rutten, 1995: 2; Letai, 2015: 85).

The British required more land between 1908 and 1920 to accommodate increasing stock and human populations on the plateau. An increase in the immigrant European population from southern Africa and ex-servicemen from the European War of 1914-1918, also known as World

[20] As illustrated in Figure 8, the Northern Maasai reserve was located in present-day Laikipia County, and the Southern Maasai reserve was in present-day Narok and Kajiado Counties. The reserves were north and south of the railway on the margins of the annexed White Highlands, around the Mount Kenya region and central parts of the southern Rift Valley. Uasin Gishu was home of the Uasinkishu Maasai on the central plateau of the Rift Valley in present-day Uasin Gishu County, north of Nakuru (Rutten, 1992: 176).

War One, heightened the need for more land, and colonial eyes now turned to the whole of the Northern Reserve of Laikipia. Norman Leys, a colonial medical officer, wrote:

> No European in the country imagined for a moment that the Maasai in Laikipia wished to leave it. The area, though small, is as fine a piece of country as there is in Kenya, with rich soil and perennial streams, vastly superior in every way to the country south of the Rift Valley. (Leys in Rutten, 1992: 178)

In addition to being very fertile, the Northern Maasai reserve was discovered to be free of livestock disease, making it ideal for dairy production and beef ranching, which initiated another forced negotiation between the colonial government and the Maasai (Rutten, 1992: 177,181; Hughes, 2006: 27; Letai, 2015: 85).

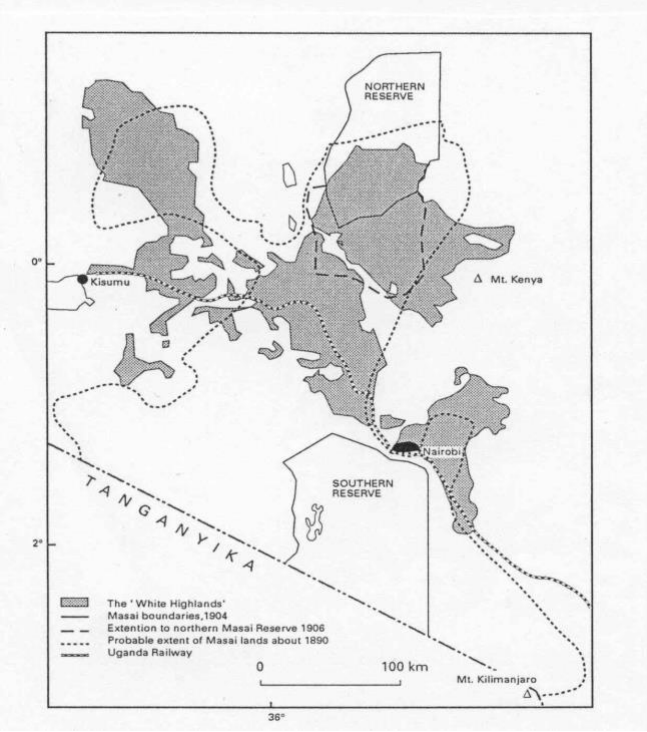

Figure 11: Colonial-created Northern (present-day Laikipia County) and Southern (present-day Kajiado and Narok Counties) Maasai Reserves. (Source: Rutten, 1992: 176)

The second British–Maasai treaty was signed under duress by Maasai elders in 1911, partly because Governor Sir Percy Girourard promised Oloibon Olonana authority over all the Maasai (Rutten, 1992: 178-179: Hughes, 2006: 6; Letai 2015: 85). The new treaty effectively nullified the first agreement of 1904 and completely annexed the Northern Reserve, creating a single Southern

Reserve by slightly extending its boundaries westward, covering present-day Kajiado and Narok Counties and increasing its total area to over 36,000 km^2 (see Figure 8). The treaties considered this Maasai Reserve a closed district, which prohibited Europeans or non-Maasai from acquiring land within it. The 1911 treaty cost Maasai an estimated 50% to 70% of land they had previously utilised. Between 1912 and 1913, colonial administrators relocated the majority of the Maasai population from the newly annexed Northern Reserve and surrounding plateau areas to the newly extended Southern Reserve, moving approximately 10,000 Maasai people, 200,000 head of cattle and 550,000 head of sheep and goats (Rutten 1992: 178-181; Rutten, 1995: 3,6; Hughes, 2006: 6,17; Letai 2015: 85).

In 1913, a minority group of senior Maasai chiefs was supported by British lawyer Alexander Morrison and colonial medical officer Norman Leys to contest their eviction from Laikipia in the High Court. The case was the first to be brought by indigenous Africans against the British East Africa authority. The plaintiffs argued that their eviction from Laikipia was unjust and that the 1911 treaty did not apply to them and the other "northern" Maasai who had not signed it. Inevitably, appeal to colonial justice failed: Leys was transferred to Nyasaland, and the colonial government pressured Morrison and the Maasai to abandon the case using intimidating and frustrating tactics. The court ultimately ruled in favour of the colonial administration, arguing that the Maasai were not British subjects and owed no allegiance to the Crown. The Treaty of 1904, being an agreement between two sovereign states (Britain and Maasailand), was not recognised by British courts, but the Maasai had an obligation to live under British Law, paying taxes but without rights or citizenship (see: Rutten, 1992: 180-181; Hughes, 2006: 6, 67, 71-77).

The settler communities' lease on newly acquired land parcels in the White Highlands was extended from 99 years to 999 years through the *1915 Crown Lands Ordinance*, which withdrew restrictions on settler land accumulation in response to demands for freeholds or longer leases. It also extended the definition of "Crown lands" to lands occupied by native populations, forest reserves and lands that were designated for specific groups – such as the Maasai reserves. The act further strengthened the powers of the colony's governor to appropriate reserve lands for lease or sale to settlers, while preventing Africans and Asians from acquiring land outside the reserves. by the end of 1915, 21,348 km^2 of land (the size of present-day Kajiado County) in the White

Highlands and the Rift Valley had been appropriated by approximately one thousand European settlers and a small number of British aristocrats and their companies (Rutten, 1992: 182).

The colonial administration renamed the southern Maasai reserve Maasai Province in 1924 and created an inter-district boundary in 1926 between Narok District and Kajiado District, with Kajiado township serving as provincial headquarters. By 1930, 48,000 Maasai people, 720,000 cattle and 820,000 sheep and goats resided in the Maasai Province. The pastoral community's herd sizes were affected by their confinement in the reserves and kept their numbers within its carrying capacity. Sharing pastures with wildlife within Kajiado lowered the actual carrying capacity, limiting herd growth. The reserve also lacked sufficient water and was infested with tsetse flies, further restricting the population of Maasai herds (Sandford 1919: 36; Rutten, 1992: 181, 187; Rutten, 1995: 3).

The Carter Land Commission (or Kenya Land Commission) was established in 1932 to address land-loss complaints brought up by Maasai and other indigenous Kenyans. Some of the issues raised were disputes over Uganda railway boundaries; the influx of agricultural communities into their reserve; artificial boundaries between them and other Maasai territories that restricted unauthorised movement; and the handing back of Laikipia grazing lands, which Maasai claimed was granted temporarily to European settlement (former Northern Reserve). The Maasai's requests were overruled by the final report of the Carter Land Commission, which opposed any requests to extend or alter land boundaries in favour of the pastoral community. The report argued that the Maasai held more land than Europeans and other Native communities, such as the Kikuyu, and that the Maasai did not efficiently utilise the land they already held. In fact, the commission suggested that the lease of unused portions of Maasai land to mostly agricultural natives might be justified in the future (Rutten, 1992: 196-197; Rutten, 1995: 3; Hughes, 2006: 96).

The Carter Land Commission led to new legislation, the *Native Lands Trust Ordinance of 1938*, which removed native lands such as the Maasai reserve from the designation of crown lands and put them under the administration of a Native Lands Trust Board. This board was comprised of native board members who dealt directly with land issues in the reserves, similar to already existing customary institutions that administered Maasai land (see Sorrenson, 1965: 689; Rutten, 1992: 187; Rutten, 1995: 3; Letai, 2015: 86). This act instituted the legal expropriation of Maasai land and relieved the British of the responsibility to address Maasai grievances, instead leaving the

Maasai to deal with the issues in reserves amongst themselves (Letai, 2015: 86). The Maasai were worried about losing land to both the British and other native agricultural communities such as the Kikuyu and Kamba, who came from the 1930s onwards due to land shortages in their reserves. These groups, also struggling with the loss of their land to colonial settlers and overpopulation, eyed fertile Maasai land in Ngong Hills in Kajiado North and in Loitokitok on the slopes of Mount Kilimanjaro in Kajiado South (see Rutten, 1995: 3).

Land Crisis in a Post-World War Two Kenya

The end of the Second European War (or World War Two) in 1945 marked a period characterised by low economic growth, calls for wildlife conservation, a Kenyan population increase, land pressure, social tensions and attempts by the colonial government to develop agriculture and livestock in native reserves. Prompted by increasing landlessness, the period also saw an increase in active opposition, mainly among the Kikuyu, which ultimately led to a liberation struggle. The need for change in British land development policies was pushed by the winds of change, which saw a move toward the decolonisation of African countries. This slowed the number of new settlers and their influence over Kenya's political affairs (Jacobs 1980: 294; Rutten, 1992: 209; Rutten, 1995: 4).

Central Province, a predominantly Kikuyu reserve, faced increasing population pressure, and many were looking to move to the neighbouring Laikipia White Highlands and the Rift Valley to seek land for agriculture, but the increasing numbers of Kikuyu squatters in the Rift Valley impeded European agricultural expansion. Their eviction back to the over-populated native reserves in the Central Province heightened land pressure and social tensions, particularly for native ex-soldiers and enlisted servicemen of the King's African Rifles, who became jobless and landless after the war (Gordon 1979: 102; Rutten, 1992: 197-198).

Contrary to the Carter Land Commission's claim, the Maasai had lost comparatively larger quantities of land than other natives to the Europeans. The Kikuyu and Kamba were confined to smaller reserves that could not contain their growing population and need for fertile land. The Kikuyu aggravated their situation by selling land amongst themselves, rendering poorer Kikuyus landless. The Maasai bore the brunt of the land crisis plaguing other densely populated native reserves, which motivated the mostly agricultural communities to look to fertile areas of Kajiado

District, such as the slopes of the Ngong Hills northwest of Kajiado township, Ol-Doinyo Orok near Namanga and Loitokitok on the slopes Mt. Kilimanjaro (Sandford 1919: 55; Rutten, 1992: 187-189; Rutten, 1995: 3-4, 8). The development of wildlife conservation parks and game reserves put more pressure on Maasai land as boundaries were altered to conserve wildlife and isolate key water and pasture resources.

Wildlife Conservation in Maasailand

The establishment of protected areas in the 1940s to 1970s put a strain on land availability in Maasailand. Maasai Mara National Reserve, Amboseli National Park and Nairobi National Park and other protected areas in the Rift Valley, such as Lake Nakuru and Lake Bogoria, were formed in part as a response to international calls for wildlife conservation, increasing the strain on land availability and leading to a call for land consolidation among the Maasai. The call to conserve wildlife in Kenya became popular after the Second European War and with the increasing publicity of the rich wildlife in Maasai areas of southern Kenya (Rutten, 1992: 216, 318-323; Rutten, 1995: 8-9; Homewood et al., 2009: 5). The colonial government's solution to illegal hunting was to create game reserves and national parks, and the government was empowered to alienate resources to that end through the *National Parks Ordinance of 1945*. The establishment of the Southern Game Reserve in 1933 was the colonial government's first effort to conserve wildlife from illegal hunting.

The *National Parks Ordinance of 1945* saw the official proclamation and gazetting of the Nairobi National Park in 1946, which annexed approximately 117km^2 of Maasai land (see Nkedianye et al., 2009: 115). The Amboseli National Reserve, created in 1947, saw the Maasai lose an additional 3,260 km^2 of land. The boundaries of the reserve were arbitrary and impacted heavily on the movement of Maasai and their herds. Finally, the Tsavo National Park, located outside Kajiado District, was declared a national park in 1948 and enclosed key dry-season water sources and pastures utilised by Maasai herds (Kituyi 1990: 46; Rutten, 1992: 216-218). Conservation parks created boundary politics between the Maasai of Kajiado district and impeded their seasonal herd migration. The government completely ignored historical interactions between Maasai herds and wildlife that were based on mutual exploitation of the vast and various water and vegetation resources of the rangelands. For example, the south-eastern boundary of Tsavo National Park was gazetted by the Kenya National Park in 1953, beyond the agreed boundary of 1930, with the result

that the pastoralists lost access to the Njugini River, a key dry-season watering point and grazing area (Rutten, 1992: 202).

Tourism in Kenya grew rapidly after independence in 1963, becoming a key source of income and overtaking major cash crops such as tea and coffee. The Amboseli National Park, which had not placed heavy restrictions on Maasai movement, faced pressure from international wildlife conservation groups from 1965 to 1973 to receive full protection status, leading to a severe decline in Maasai livestock holdings during droughts. International donors attempted to quell Maasai movement into Amboseli National Park by building watering points outside the park, but the park remained an important dry-season basin for the herding community (see Western 1982: 304; Rutten, 1992: 318-323). The Maasai used every political channel available to them to protest the ecological vulnerability the Amboseli National Park presented to their herds during dry seasons, but the government worked with international wildlife conservation lobbyists to maintain their economic benefits, with little consultation with the Maasai.

Amboseli National Park was officially gazetted in October 1974, with its boundaries extended into Kajiado District without the consent of the resident Maasai community (see Rutten, 1992: 318-323). This contributed to the Maasai's ongoing fears of land insecurity as they continued to struggle against the encroachment of landless Kikuyu and Kamba farming communities.

Colonial Response to the Land Crisis in Native Reserves

The grievances of the African population concerning land was dealt with through the African Settlement Board, created in 1945, which responded to land complaints by landless Africans but also aspired to model livestock and agricultural production in native reserves on European settler standards to improve land use efficiency and reduce the pressure of squatter influx in the White Highlands and Rift Valley. The board's name was changed to the African Land Utilisation and Settlement Board in 1947 and to the African Land Development Board (ALDEV) in 1953 to reflect concern for commercially sound agriculture and stock keeping in African reserves (Rutten, 1992: 198; Rutten, 1995: 6-7).

African groups gained influence in the national Parliament in the 1950s, as discord between settlers and Governor Evelyn Baring's government about how to address native landlessness persisted. This provoked the *Report of the East African Royal Commission 1953-1955*, which called for the

reform of economic policy to address the land issues that contributed to the Mau-Mau uprising in Central Kenya (Rutten, 1992: 199; Rutten, 1995: 4). The *Plan to Intensify the Development of African Agriculture in Kenya* of 1954 by R.J.M. Swynnerton, Assistant Director for Agriculture in the colonial administration, came into effect as part of ALDEV. Semi-arid rangelands of Kenya such as Kajiado District were targeted for commercial livestock development because they held the bulk of Kenya's 6,000,000 cattle, seen as an important economic asset. Properly managed under controlled-grazing schemes, livestock quality and value was expected to increase, stimulating commercially viable production to the benefit of the country's economy (Swynnerton, 1955: 7, 62; Rutten, 1992: 198-201; Rutten, 1995: 5-7).

Grazing schemes drew predominantly on the European concept of ranching principled on the control of people, resources and livestock to ensure the viability and efficiency of the livestock development program. The Swynnerton Plan recommended that certain measures be implemented in the grazing schemes: limitation of stock numbers based on the carrying capacity of land; provision of adequate outlets such as markets to offload surplus livestock; control of livestock population; sound pasture management and maintenance; a planned system of permanent water supplies; and tsetse disease management. Demonstration farms were developed to teach modern practices of animal husbandry and rangeland pasture management to pastoralists (Swynnerton 1955: 7, 62; Rutten, 1992: 200-201 Rutten, 1995: 6-7). The ALDEV program facilitated and constructed various water provision infrastructures, such as seasonal and permanent dams, spring wells, boreholes and multiple piping schemes to facilitate easy access to water and limit movement in search of the scarce resource (Morgan 1972: 175; Rutten, 1992: 198).

To incentivise a localised livestock economy within designated sectional boundaries, Kajiado District grazing schemes were developed along sections of *il-olosho* and concentrated a selected number of stock owners around a specific permanent water source. The British implemented an economical grazing-control plan for each *il-olosho* by limiting stock movement from one *il-olosho* to another, encouraging communal grazing committees in respective schemes to manage water and pasture use by their members and discourage cross-boundary pasture sharing (Rutten, 1992: 204-205; Rutten, 1995: 4-5). In light of the semi-arid climatic conditions of Kajiado District, the scheme aimed to discourage pasture misuse by extending the time that wet season grazing areas could be accessed by keeping herds in dry season areas for as long as possible (Swynnerton, 1955:

7,62; Rutten, 1995: 6-7). However, Kajiado District's variable climate conditions raised concern about the static nature of such ranching.

The grazing schemes were poorly planned, rapidly conceived and did not incorporate or consider Maasai stock-raising strategies. Moreover, frequent droughts in the 1950s, such as the prolonged dry periods of 1951, 1954, 1956 and 1957, further weakened the effectiveness of the grazing schemes. Migration beyond designated sectional and regional boundaries to distant pastures outside the reserve became a necessity to avoid livestock loss. Sectional boundaries enforced by government in the grazing schemes were abandoned by the Native Council of Kajiado District in 1959, and the indigenous system of negotiated cross-boundary movement between Maasai sections was informally reinstated, with livestock moving as far as Tsavo National Park and Tanzania (Rutten, 1992: 205-208; Rutten, 1995: 4-6).

The failure of the grazing schemes highlighted the different perspectives on land use of the Maasai and the British and failed to address the land crisis that was plaguing native Kenyans. The tension brought about by increasing land pressure in native reserves prompted the rise of liberation movements geared toward reclaiming land and freedom.

Native Scramble for Land and Citizenship Toward a Post-Independent Kenya

The failure of the colonial government to respond to the land crises plaguing native reserves triggered radicalised politics and movements among African communities, including the popular Mau-Mau struggle movement. Its membership comprised mostly the Kikuyu, Embu and Meru communities of the Mount Kenya region and, to some extent, the Kamba. In October 1952 the Mau-Mau engaged the colonial government in a bloody armed struggle for liberation and land, forcing Governor Baring to declare a state of emergency until June 1959. The colonial government reported casualties of less than 1,000 personnel, while more than 11,000 resistance fighters were killed or executed in raids and crackdowns (Rutten, 1992: 199). The Maasai were frustrated about their marginal position in Kenya, where politics was dominated by the Kikuyu and British. The Maasai became increasingly determined to secure their land against threats of Kikuyu encroachment and continuing wildlife conservation boundary disputes with the state. As early as 1960, Maasai sections began forming development committees to lobby for the legal consolidation of Maasai land (see Hedlund 1979: 30; Rutten, 1992: 202-203, 266-268).

The end of colonial rule in Kenya and the handing over of power from the British colonial government to the majority African population was marked by negotiations at the Lancaster House Conference in 1961. Forming their own political party, the Maasai United Front (MUF), the Maasai were determined to push their agenda of land ownership security, fearing that the 1904 and 1911 British-Maasai treaties, which gave them exclusive rights to Kajiado and Narok Districts, would be dissolved as soon as an independent Kenya under the KANU government of Mzee Jomo Kenyatta came to power.[21] The MUF lobbied the United Nations to recognise them as an independent Maasailand of Tanzania and Kenya and demanded reparations from the British for the unjust appropriation of Laikipia in 1904. The MUF also demanded the immediate return of Laikipia into Maasailand and the legalisation of their tenure as a group.

However, the proposal gained little support in the United Nations and Jomo Kenyatta disagreed with the Maasai, saying it would encourage regionalism and tribalism rather than freedom of movement. The Lancaster House Conference upheld the validity of the British–Maasai treaties and supported Kenyatta's understanding of free movement. The Regional Boundaries Commission was appointed in 1962 to divide Kenya into six administrative regions, with Nairobi the capital. In accordance with the MUF's proposal, which called for semi-nomadic tribes such as the Maasai, Kalenjin, Samburu, Turkana and Pokot to reside in the Rift Valley Province, the Regional Boundaries Commission honoured the right of people to reside in their locality (see Rutten, 1992: 202-204; Rutten, 1995: 8-9).

The Kajiado and Narok Districts remained in government trust at independence in 1963. Lands designated "crown lands", such as the White Highlands, became "government land" (Nunow, 2015: 102; Rutten, 1992; Galaty in Homewood et al., 2009: 5-6). The Maasai district remained a closed area, which African delegates from densely populated areas such as Nyanza, Western Kenya and Nyeri, Kikuyuland had protested since 1959, calling for the integration of land and ethnic groups (Rutten, 1992: 202-203; Rutten, 1995: 9). The agricultural Kikuyu favoured an independent nation that would allow individuals to move freely and settle wherever it suited their livelihood. Despite Kajiado District requiring a permit (from 1963 to 1969), those affected by the Mau-Mau struggle against the colonial government fled there to acquire land for cultivation in

[21] The Kenya African National Union (KANU) was Kenya's first political freedom party, under which Jomo Kenyatta became President. The party was represented predominantly by Kikuyu, Luo and Kamba communities.

well-watered areas previously targeted by Kikuyus on the slopes of the Ngong Hills northwest of Kajiado township, Ol-Doinyo Orok and Loitokitok. The farmers cleared vegetation, fenced plots and grew crops on fragmented parcels of land, affecting key grazing areas, water sources and the movement of Maasai herds (see Rutten, 1992: 212-216, 266-267; Rutten, 1995: 3, 8).

Some areas previously occupied by the Maasai and appropriated by the British settlers, such as Laikipia, were handed over to the independent state. The Kenyatta administration undertook a resettlement program through the British- and World Bank-sponsored settlement transfer schemes (STFS) to allocate previously settler-owned land to smallholder Kenyans. The exercise was marred by corruption and tribal favouritism, however, as most of the land was allocated to individuals and priority was given by the Kenyatta administration to resettle landless Kikuyu people, overlooking the formerly displaced Maasai. Kikuyu and non-Kikuyu loyalists and cronies in the political and civil servant class close to Kenyatta benefitted from land redistribution, and the Kikuyu formed numerous land-buying companies through the political and economic influence afforded to them during the Kenyatta regime. These land-buying companies played a pivotal role in facilitating the resettlement of hundreds of thousands of Kikuyus in the Rift Valley Province and Kajiado district throughout the 1960s and 1970s (see Letai, 2015: 86).

The KANU government's resettlement process agitated the Maasai, who felt overlooked in the distribution of land, particularly in Laikipia. Dominated by Kikuyu, this redistribution forced Maasai sectional development committees led by the young, formally educated political class and elders to push for collective sectional title deed registration to privatise land. Many poor Maasai also feared land grabbing by Maasai elites of protected areas (see Hedlund 1979: 30; Western 1982: 304; Rutten, 1992: 202-203, 212; Rutten, 1995: 9-11; Mwangi, 2006: 157). The state responded positively to the Maasai's call to secure tenure and privatise land, which led to the formation of group ranches by the state.

The idea of group ranches came through state and donor partnership in response to pressure by the Maasai to secure tenure as groups and as a possible mechanism for a livestock economy that would benefit the newly independent state. After the Kenyatta government's land redistribution, the small, marginal areas in Laikipia that remained and most of Kajiado District were redesignated as jointly held single title deed group ranches (see Homewood et al., 2009: 5-6).

Toward the Formation of the Maasai Group Ranches in Kajiado

The colonial government believed that intensive ranching was the most effective way for the Maasai to use their land and leave no room for other communities to enter and cultivate it (see Rutten, 1992: 203), and the ALDEV grazing scheme of the 1950s yielded 24 group ranches from 1955 until 1966. The boundaries and development policies of the grazing schemes served as the blueprint for the formation of titled group ranches in Kajiado District (Rutten, 1992: 212; Rutten 1995: 6-10; Mwangi, 2016: 2-5). The majority of the Maasai sections in Kajiado welcomed the idea of formal, single-titled group ranches that emphasised land privatisation and the development of a commercial livestock economy. The government-backed and World Bank-sponsored Kenya Livestock Development and Rangeland Management Project of 1969 aimed to provide development intervention and services to group ranches through commercial cattle ranching (Gutto, 1981: 47; Tobiko, 1989: 61; Holland 1986: 38; Rutten, 1995: 10; Letai, 2015: 86-87). The state and international donor agency's policies were key drivers of group ranch creation in Kajiado District.

The Range Management Division (RMD) plan of 1963-1967 played an important role in laying the groundwork for land tenure changes in Kajiado District and the structure of the Kenya Livestock Development and Rangeland Management Project. The RMD's mandate was to oversee the recruitment and training of staff, design ranch structures and pilot projects, develop legislation for the allocation of communal pastoral lands, introduce ranch research and draft loan requests for funding. This project was intended to ensure livestock productivity on ranches and enhance commercially viable beef and dairy production for the benefit of the newly independent nation (see Gutto, 1981: 47; Tobiko 1989: 59-61; Rutten, 1992: 269).

Group ranches were large parcels of land owned communally, mostly by people from the same clan, *il-olosho* section or small political unit (called *elatia*). Membership was documented and registered as collective ownership.[22] Group ranches were administered by selected committee

[22] Group ranch membership was limited to men, who were the custodians of land in their community and households (Mwangi 2007: Galaty, 2013b: 22). After the subdivision of the group ranches, land parcels were allocated and titled to men, while women and children lived and worked on the land under the direction of their fathers and husbands; they had no say in affairs dealing with the land. In most cases, land-owning men only bequeathed land to their sons. Land was allocated to wives as secondary-right holders who shared the land among their sons, who facilitated land use for their mothers and wives. Men sometimes allocated land to their wife or wives. Daughters do not inherit their father's land, as they are expected to marry and become dependents of their husbands (see Hodgson, 1999: 115-130: Tarayia, 2004: 201-203; Galaty, 2013b: 20-39)

members and group representatives, who held land and assets on behalf of the group. Livestock movement was limited within each group's specific boundaries, forbidding non-members from grazing their livestock on other ranches. The project provided financial input for infrastructure development and livestock fattening through loans to transform the livestock economy from its traditional nomadic mode to a static commercial ranching system. This commercially oriented livestock economy encouraged destocking to balance pastures and avoid overgrazing while generating an output of meat for national and international markets. The establishment of group ranches also made it illegal for outsiders to purchase land on the ranches (Rutten, 1992: 269, 275-276; Galaty, 1994: 117; Rutten, 1995: 10-11). Group ranches largely resembled communal land holdings, despite groups collectively attaining private free-hold title deeds. This made it difficult to deny grazing access to members of other Maasai sections (Galaty, 1994: 117).

Livestock development projects used static, Europeanised ideas of ranching in a one-size-fits-all approach that popularised the unproven narrative that overgrazing was caused by nomadic herding under customary communal land tenure, undermining pastoralists' ability to utilise land and critically manage key resources (see Galaty, 1992: 38; Rutten, 1995: 17; Fratkin and Mearns, 2003: 113,114,116). The very understanding that rangelands were "open access" was a fallacy, because the western ownership model of boundary establishment and tenure disregarded traditional land management practices. The lack of physical boundaries did not indicate "open access" but was indicative of traditional modes of land and natural resource management for the benefit of all community members and for those who negotiated access (Bromley and Bromley and Cernea in Galaty, 1992: 38).

The traditional collective management of rangeland resources by Maasai elders established grazing strategies and natural resource management plans to balance selected pastures and water sources for the dry and wet seasons, enabling the ongoing seasonal productivity of herds (see Sundstrom et al, 2012: 485). Customary land tenure was viewed as problematic by livestock development project planners, who said it impeded the livestock economy and encouraged land degradation. Ranches applying the Europeanised concept of static ranching made it easier to control animal numbers and pastures, incentivising stock reduction through markets. Livestock development project planners overlooked the traditional pastoral production systems in the rangelands that emphasised resource balance through negotiated seasonal migrations to distant key resources in

the heterogenous semi-arid environment, averting the risk associated with land degradation and droughts while maintaining stock productivity. Only after the ranches failed during the 1970s and early 1980s did project planners concede that the Maasai way of migrating livestock was more economical and ecologically appropriate than static ranches (see Sandford, 1983: 16; Bennett et al. 1986: 158; Rutten, 1995: 18).

Figure 12: The 52 Maasai group ranches of Kajiado District. (Source: Rutten, 1992: 264)

The introduction of the *Land Adjudication Act of 1968* and the *Land (Group Representatives) Act of 1968* by the post-colonial government facilitated the creation and demarcation of 52 group ranches (see Figure 9). *The Land (Group Representatives) Act of 1968* permitted the registration and assurance of group rights to a single title deed (see Wanjala, 1990: 34; Rutten, 1992: 275). The declaration of an adjudication area or section under the Land Adjudication Program was backed by the *Land Adjudication Act of 1968*, which legally enabled the changing of Kajiado's land from a trust held by the government, which was common property, to private group ranches. Adjudicated sections in Kajiado District were geographically similar to the boundaries set by the

colonial government along *il-olosho* sectional boundaries (Rutten,1992: 273-274; Thompson et al., 2009: 80).

Kajiado District group ranches brought some benefits to the Maasai, such as increased water access, schools, shops and health centres. However, while they prevented massive encroachment by landless non-Maasai, they were unable to prevent internal land grabbing by Maasai elites (Rutten, 1995: 10-11) who were part of the land adjudication committee and allocated individual ranches to themselves (see Rutten, 1992: 274; Bekure et al. 1987: 101). This stirred up internal divisions between elite and non-elite Maasai.

The livestock development project experienced many challenges from the start, and the lack of a feasible implementation plan to streamline the group ranch project and efficiently transform it into a market-oriented livestock economy rendered the project an economic failure from the outset. Group ranches were also troubled by their failure to incorporate many landless Maasai as members, and a lack of human resources to supervise development and coordinate matters between planners, ranches and markets further affected the commercial potential of the project (see Rutten, 1995: 10-11). The World Bank lost faith in the project and drastically reduced its funding when the projects' low productivity failed to repay the development loans. The group ranch project also accrued high levels of debt from the government's financial institution, the Agricultural Finance Cooperation (Dietz et al. 1986: 12; Rutten, 1992: 286; Rutten, 1995: 10-11). Droughts severely impacted commercial meat production and forced livestock owners to migrate their cattle away from the ranches for lengthy periods, making it economically challenging to supply markets (see Livingstone 1986: 271; Rutten, 1992: 286-287; Mwangi, 2016: 5-6). Other contributors to the failure of the group ranches were a weak marketing structure to connect producers to consumers, poor livestock price control and capacity problems at the state-owned Kenya Meat Commission, which struggled to uptake livestock during offtake periods (Livingstone, 1986: 257; Rutten, 1992: 292-293).

Strict policies to maintain boundaries, balance stock population and conserve pastures contributed to the livestock project's challenges. Members refused to destock as directed by project planners' stock quotas and carrying capacity to conserve pastures and prevent degradation. For their part, the project planners did not enforce boundaries, and constant trespass across group ranches threatened the viability of the project. The project planners were unable to turn the Maasai into

commercial ranchers, and the Maasai continued to practice their mobile livestock husbandry (Galaty 1980: 157; Coldham,1982: 7; Rutten, 1992: 289-291; Rutten, 1995: 10-11). Most Maasai herds had a high prevalence of dairy cattle for subsistence milk production rather than meat production, which the planners lost complete control over (White and Meadows 198l: i). These implementation challenges and brewing internal disunity within the ranches by the late 1970s led to the failure of the project and to calls to individualise land ownership.

Internal administrative problems perpetuated by the group ranch committees and by external influence from politicians and civil servants frustrated the stability of the group ranches. There were many conflicts around decision making, leadership and the monopolisation of power by individuals who took advantage of illiterate members who did not know their rights. Corruption was also rampant among the high-ranking members of the group ranches, and funds that were supposed to improve cattle production or that were earned from stock sales were mismanaged. Internal frustration caused by mismanagement further aggravated factional divisions along clan and political lines, and group ranch committee power struggles became common. Some dissatisfied committee members resigned, while agitated group ranch members, fed up with mismanagement and growing inequality, pushed for the subdivision of group ranches into individually owned private parcels. The push to sub-divide was also encouraged by exogeneous political forces that wanted to capitalise on Maasai disunity (see Rutten, 1992: 294-300; Rutten, 1995: 10-11).

Group ranches increased division and enmity among the Maasai, because the ranches were highly politicised and corrupt. The wide range of responsibilities imposed by donors, the state and planners was also unsuited to traditional Maasai livestock husbandry. The heated political divisions within the group ranches drove self-interest and self-determination, a rare occurrence among the Maasai, who had remained united during the colonial and post-colonial periods. To quell internal divisions, group ranches were subdivided into private parcels of land to be shared among members, but this, too, led to more challenges than had been envisioned.

Sub-Division and Individualisation of Maasai Group Ranches

In the late 1970s, Kajiado Maasai calls for group ranch subdivision became louder, but the government argued that the semi-arid region was ecologically and economically unfit for small

parcels of land. In 1983, however, the World Bank and the state sponsored the Group Ranch Education Programme (GREP) to consult on a group ranch subdivision process. In 1984, the government conducted a vote across Kajiado District group ranches as to whether to do away with the group ranches or not: 28 ranches were in favour and 23 were opposed (Rutten, 1992: 295-298). Halderman (1972: 1) wrote that subdividing Kajiado group ranches would be an economic disaster that would propagate landlessness and class inequality within the community and result in ecological calamities as a result of inconsistent water and pastures sources. By 1985, most group ranches had resolved to subdivide, but the government of President Daniel arap Moi entertained doubts about individualising the ranches. Those opposed to subdivision claimed it would result in loss of land to non-Maasai, fraudulent land sales, increased erosion from concentrated grazing, increased cultivation, loss of Maasai identity, restriction of wildlife movement to the detriment of tourism, and a decline in meat production (Rutten, 1992: 298-303, 323; Rutten, 1995: 11-12).

Pressure to individualise mounted with looming fears of tenure insecurity, intrusion by outsiders and opportunists within the community looking to grab land. Many group ranch members were convinced to subdivide rather than lose out altogether (see Mwangi, 2016: 7). Supporters of subdivision claimed it would encourage self-determination, improve their economic welfare, facilitate access to land development loans using freehold title deeds as security, reduce the exploitation of poor Maasais by richer Maasais and promote Maasai involvement in farming and industrial entrepreneurship (Pasha, 1986: 307-309; Rutten, 1995: 11-12; Mwangi, 2006: 7,157). In 1984, Land Adjudication and Range Department officials and the Commissioner of Lands provided guidance on the legal steps required to enact the subdivision of group ranches into private parcels.[23]

President Daniel arap Moi's government finally approved subdivision in 1986-1987. The state and majority of Kajiado's residents, elites and leaders saw this as an opportunity to open Kajiado to investment and economic growth. The national government believed that subdivision of group ranches would incentivise productive individual land use and limit trespass and sharing, which would conserve the environment. The group ranches had only lasted for 20 years, and by 1990 almost 80% had been subdivided (Rutten, 1992: 299-303). President Moi's administration was

[23] These had not been stipulated in the Land Adjudication and Land (Group Representatives) Act (see Tobiko 1989: 130-33).

further motivated to subdivide the group ranches because land remained an essential patronage resource and an instrument for his government to continue wielding control over politics, society, and resources. The visible threats of declining traditional sources of patronage such as donor aid, greater international scrutiny over growing corruption, and high political competition created a setting where land became a critical patronage asset to attract political support for President Moi's government. Moreover, fear by state officials and elites that a change in government would end their privileged access to land accelerated subdivision and rapid accumulation of land (Klopp, 2000:8-17).

The introduction of structural adjustment policies in the 1990s after subdivision was already underway would only accelerate the ongoing process. The decline in basic public goods and services such as: subsidized health care and education, employment, and rural extension services and for pastoralists due to decreasing public expenditure forced Many Maasai to seek these services through private arrangements at a higher cost. This would see a further increase in subdivision of group ranches which would place individual landowners at liberty to commoditise their land for financial benefits to meet their needs (see: Rutten, 1992:65-66; Boone et al., 2009:358-359,362; Galaty, 2013b:26; Koissaba, 2016:177).

Official records as of the year 2000 indicate that of the 52 group ranches, 32 were successfully subdivided, 15 were in the process of initiating subdivision, and seven were involved in legal disputes and/or had resolved to subdivide (see Nkedianye et al., 2009: 115). Kenya's capitalist trajectory stimulated market opportunities for cash crop production and high-value export vegetables and flower production, driving demand for land. The long-term goal of the Land Adjudication Act and the Land (Group Representatives) Act of 1968 was to capture economic benefits in arid and semi-arid rangelands, and ultimately to lay the groundwork for future adjudication and registration of freehold land titles and individual land ownership. This initiated a land market that commercialised Maasai land and made it a disposable commodity between a willing buyer and a willing seller (see Homewood et al., 2009: 8, 338).

The dissolution of group ranches in Kajiado was marred by corruption by which political elites, businessmen, formally educated Maasai and former group ranch committee members obtained above-average parcels of land. State land officials in charge of adjudicating subdivisions colluded with powerful group ranch committee members to facilitate the sale of land to non-Maasai for

personal profit and defrauded poorer members of their rightful shares. In most cases, poor Maasai sold land to the wealthier political and business elite or sold directly to outsiders, with most of the beneficiaries being chiefs, Kikuyu businessmen, politicians, civil servants and working-class persons (see Rutten, 1995: 12-14, 21; Thompson et al., 2009: 80-81; Galaty, 2013a: 149-150).

Population growth and land sales between 1986 and 1990 led to a decrease in the size of land owned per person in Kajiado (Rutten, 1995: 12). Kajiado's proximity to Nairobi resulted in a booming land market, and areas such as Kitengela and Athi-River in Kajiado East experienced urban sprawl and demand for land as Nairobi's growth spread outwards. Land acquisition was facilitated for those "most suited", such as the rising elites, politicians and businesspeople in the country's capital and in outside communities that were plagued by land scarcity in their home districts. Rapid disposal of land by Maasai landowners led to more fragmentation and land use changes through development-oriented practices such as urban real estate, large-scale commercial agriculture and horticulture, industrialisation and export processing zones. These developments increased fencing and land fragmentation and impacted Maasai herd mobility (Galaty, 1992: 26-27; Nkedianye et al., 2009: 115-116).

Subdivision of group ranches and the subsequent crisis of land sales impacted poorer Maasai far more than it did those who belonged to the elite political and business classes (Rutten, 1995: 12). In Kajiado, land was disposed of at a rapid rate, and parcels of land ranging from 10 to 1,000 acres were quickly sold off (Galaty, 2013a: 149). Poorer Maasai households were more likely to sell than financially well-off Maasai households, who were more aware of the value of land they held and could afford to keep it. Disposing of small portions of land was seen as a quick way to earn enough money for a lifetime and bypassed the bureaucratic process of mortgaging land. Financial organisations such as the Agricultural Finance Corporation were reluctant to loan money to borrowers without a high level of education who relied primarily on livestock as an income source, so no major improvements or investments were made in poorer Maasai households after subdivision (Rutten, 1995: 13-14). Some Maasai sold off portions of their land to facilitate a luxurious lifestyle to the point of becoming landless, contributing heavily to rising inequality and poverty in Kajiado (Galaty, 1992: 35).

The Constitution of Kenya, 2010 which devolved governance to newly formed County Governments was a critical starting point for land reforms. In Kajiado County, an Executive

Committee led by the Governor through the County department of lands in conjunction with the County land management board, community representatives, civil society organisations and academia, would collectively initiate a land reform process to generate a County land policy. This initiative began to slow the impacts of subdivision and neoliberal reforms which accelerated privatisation and disposal of Maasai land which had resulted in vast household economic inequality. Additionally, County led land reforms increased public participation in land management and policy and protected land rights of vulnerable groups (women and youth) who remained at risk of dispossession through corrupt land transactions and disinheritance (Komba et al.,2018:34-38).

Privatising pastoral rangelands through group ranches destabilised the traditional indigenous system of tenure and facilitated fraud, corruption and land speculation, opening the way for land sales and dispossessing pastoralists through land development (see Galaty, 2013a: 149-150). Individualisation of tenure under the premise of securing land holdings for the Maasai did not facilitate individual development nor secure tenure but enabled private investors to negotiate with different buyers whose livelihood circumstances differed, with land changing hands mostly from poor Maasai to capitalist non-Maasai – the state's ultimate development goal.

Conclusion

Hughes (2006: 17) writes that:

> The failure to pin down and control Maasai people through various strategies such as treaties, grazing schemes, and group ranches proved that, in the long run, pastoralism was never pinned down, rather it only became more subversive.

Colonial attempts to contain Maasai herders did not take into account that their adaptable mobile livestock husbandry was suited to moving across state-enforced boundaries in response to the climate-variable and ecologically heterogeneous rangeland. Their regular transgression of borders was necessary for the survival of their herds and practice. Various treaties and policies by the colonial state were used to justify land appropriation and frustrate the Maasai's mobile lifestyle. The economic success of the colonial state and the subsequent independent state were grounded in the removal of the Maasai from their most productive land to confine them in inferior reserves.

The Maasai's ability to survive and to retain some land throughout the colonial and post-colonial periods shows their resilience and strength as a community, but the requirements of nation building meant that the Maasai's grip on their land had to be systematically undone through policies of the colonial and post-colonial states. Kajiado's land individualization history illustrates that majority of the efforts towards privatising land begun prior to reforms associated with structural adjustment policies took effect and the sequence of governance reforms that have taken place following introduction of the new Constitution of Kenya 2010. Subdivision of Maasai land was not explicitly caused by neoliberal reforms because group ranches began to subdivide prior. Neoliberal reforms only catalysed the process of privatisation. Changing land tenure was primarily shaped by rationale that was associated with colonialism, attempts to integrate Maasai customary land use systems into capitalist relations and liberal notions of property and property rights.

Livestock development projects, land redistribution programs, wildlife conservation and land encroachments were perpetuated by the state to engrain the need for individuality and the abandonment of communal land values. Individuality divided Maasai and facilitated land grabbing by individual private capital. Ironically, individualisation increased landlessness among the Maasai and largely benefitted landless communities that the Maasai had long spent deterring. The ideology of privatisation as key to land security in the face of intense land pressure is responsible for the ecological challenges that Kajiado pastoralists face in this time of climate change.

The ecological consequence of land fragmentation and the decline in flexibility and customary resource management in Kajiado County raises a key question: What implications do new forms of land enclosures in Kajiado County present for the livelihood of the Maasai, who already live in a fragmented environment in a time of climate crisis? The next chapter looks at how the progressive enclosure of common resources as private property in the rangelands continues to undermine Maasai efforts to cope with the effects of climate change.

Chapter Five

Two Competing Visions of the Same Land in a Time of Climate Crisis

Introduction

Chapter four detailed how the colonial and post-colonial governments of Kenya historically enabled the appropriation and enclosure of vast tracts of pastoral Maasai land, disrupting their adaptive practice of mobile livestock husbandry. An examination of the literature showed how land use policies and programs initiated by both the British colonial government and the post-colonial government facilitated changes in property relations that disenfranchised Maasai land rights, dismantled their customary resource management institutions and ecologically marginalised their livestock economy. Despite the known consequences of state-sponsored dispossession of the Maasai, environmental enclosures continue to accommodate neoliberal interests at the expense of aggravating environmental pressure.

This chapter presents narratives about challenges faced by Maasai farmers under the growing crisis of grazing-commons enclosure and the private management of water resources. The chapter begins with local narratives of elderly Maasai that attest to the community's historical alienation, providing an account of their encounter with the growing privatisation of common resources and the consequences over time. The narratives illustrate how the intensified transformation of grazing and water resources into private property has disrupted Maasai resource access and management rights and exposed them to risk. The chapter reveals the risks that the ongoing enclosure of grazing and water resources as private property present to the Maasai's ability to build adaptive capacity to the intersecting impacts of climate uncertainty and environmental enclosure.

A Curse from the Witch Doctors: *Wazee* Narratives about Kajiado's Changing Environment

Elderly Maasai, locally referred to as *Wazee*, shared their past experiences with the changing environment and climate, offering significant insights into their implications for current Maasai practices of mobile livestock husbandry.[24] Mzee Benja was one of several *Wazee* with whom I interacted courtesy of a friendship with Alfred. The elderly man was widely revered in his village of Esilanke-Kipeto because of his informative stories, photographic memory and his counsel when

[24] *Wazee* (singular *mzee*) is a Swahili term meaning elderly persons. It can refer to both elderly men and women but is predominantly used to refer to men.

called upon. I caught up with Mzee Benja at his farm to listen to his stories about the climatic and environmental changes he has witnessed and experienced in his lifetime. He described his experience:

> "In the olden days, our core business was to look after cattle. Nothing else! We would pray for prosperity and offer thanksgiving to *Enkai* [Maasai God] for rains, grass and cattle. This place [Kajiado] was green, and wildlife grazed and watered next to our cattle. But now there is no respect and people have come to hate cattle. During my father's days they welcomed the British, who eventually took our land. They took some for game parks and for their farming. Now after independence, more land disappeared when everyone was given their own land. The corrupt rich Maasai, Kikuyus and companies started taking land from poor Maasai like me, because we could not defend ourselves. Droughts became very common, and people lost a lot of animals because they had no land to keep them. Since 1980 until now I have lost almost 800 cattle to droughts, because land for keeping cattle has reduced. Now I only have 20 cattle. It was like a curse in dark magic [*ilikuwa ni kama laana ya wachawi*]! The rich did not care whether the people and their cattle lived or died! For me, that is a complete lack of respect for our culture!"[25]

Mzee Benja's narrative links land grabbing over time to the decline in livestock numbers among Kajiado households. Like many poor Maasai in Kajiado, Mzee Benja experienced land grabbing by political and capital elites after the independent government of Kenya advocated policies that favoured changes in property relations to secure individual landownership and encourage private capital production (discussed in Chapters one and four).

Mzee Benja recalled that his immediate neighbour, a wealthy man known as Ole Tajiri, extended his property boundary and usurped 250 acres (101 hectares) of land from Mzee Benja's original 450 acre (182 hectares) land holding in 1990. He argued that Ole Tajiri used his political influence to collude with the local administrative chief and officials at the former Ministry of Lands office in Kajiado town to execute the illegal acquisition. Mzee Benja attempted to confront Ole Tajiri through the local administrative chief and traditional elders from Esilanke-Kipeto from whom he sought counsel. Mzee Benja believes that Ole Tajiri pressured the administrative chief and traditional elders to drop his complaint and accept an undisclosed sum of money. Mzee Benja declined the offer, because the amount did not compensate for the actual value of the disputed land, which contained a *silanke* (an earthed water pan).

[25] Mzee Benja interviewed in Esilanke-Kipeto in August 2017.

Mzee Benja decided to take the matter to court in 1992, but the judgement was never delivered, perhaps, he says, because of Ole Tajiri's interference. After a prolonged wait and increasing financial debt from legal fees, Mzee Benja abandoned the case against Ole Tajiri in 1994, leaving him with 200 acres (81 hectares) of land. Mzee Benja partly blames the decline in his livestock numbers to losing this land and the *silanke* – he lost approximately fifty cattle in the drought of 1992-1993 as a result of insufficient grazing and water to sustain his large herd.

Mzee Jackson of Keeokonyokie, the father of Alfred's friend Jackson, was concerned about the rapid increase in physical boundaries when landownership was privatised. The elderly man recounted his experiences migrating livestock under restrictive conditions:

> "Most rich people and companies who bought land in Kajiado did not care about Maasai! They put up a lot of fences all around their land to protect their big farms. Now where would the cattle eat? Especially those days when there were bad droughts, like in 1984 and 1992. We would cut fences and go into rich people's land, because our cattle were dying. But the rich people called the chief to chase us away! Before the government divided this land, we all shared it. Our cattle ate together and Maasai lived happy and free! If it rained in the land of the Matapato, Kaputei, Kisongo, Purko or Dalalekutuk [sections of Maasai] or in far Maasai areas like Narok County or Tanzania, one could move with their cattle there and graze peacefully. This is because during those days Maasai were united by respected elders who controlled all the grass and water! Those days were the best for Maasai and their cattle!"[26]

Mzee Jackson's narrative reflects the intensification of physical boundaries in Kajiado to protect and demarcate private property boundaries (see Image 3), which disrupted seasonal herd mobility and compartmentalised key resources. Whereas grazing was commonly managed according to traditional land ownership, individual land ownership placed key resources in the hands of individuals who generally prioritised their own interests. In times of climate stress, many Maasai felt that their only option was to force their way onto unused private land to graze their herds.

[26] Mzee Jackson interviewed in Kajiado in August 2017.

Image 3: Private land parcels in Ildamat-Oloyiankalani, fenced with wooden poles and wire. (Source: Author)

Mzee Jackson recalled losing 70 livestock during the drought of 1992-1994, because he could not access dry-season grazing in the Ngong and Loitokitok areas, where private farms had acquired large parcels of high-potential land for cultivation. At the height of the drought, Mzee Jackson and other herders vandalised part of a perimeter fence on an estimated 100 acre (40 hectares) parcel of unused land in Ngong and camped on the property to graze their herds. The absentee owner of the land, a wealthy and politically connected Kikuyu businessman, accused them of trespassing and grazing illegally on his property.[27]

According to Mzee Jackson, the herders told the landowner that they would move when their cattle had finished grazing, arguing that all the herders wanted was grass and water and that the landowner was not utilising the land. The landowner reported the matter to the local administrative chief, who came with police officers to evict the herders and their cattle. The herders pleaded with the local administrative chief to allow them to graze until the rains returned to their home, but their pleas fell on deaf ears and they were evicted. Because of the eviction, Mzee Jackson claims he lost 20 cattle to the drought, as he could not find another grazing refuge to cushion the effects of the prolonged drought. Vandalising the perimeter fences of unused private land to access grazing became a common Maasai herder practice during droughts.

Mzee Pose, Sima's father in-law and Alfred's neighbour, also recalled the intensification of physical boundaries and isolation of resources that exposed Maasai herds to climate vulnerability:

[27] After changes in property relations took effect, increased enclosures became a major impediment to seasonal livestock movement in Kajiado County. This crisis was particularly attributed to absentee landowners, who fenced their large parcels of unused land to discourage herds from grazing and blocked seasonal livestock routes between grazing grounds, challenging traditional natural resource management (Nkedianye et al., 2009: 116-120, 128).

> "From 1975 to now [2017] I have lost a lot of cattle to droughts! Maybe even more than 500. The worst was in 1984, when I lost 150 cattle and only remained with 50! They died while I was trying to migrate them from here [Ildamat-Oloyiankalani] to Amboseli National Park [southern Kajiado], which was risky because the government did not allow this. However, because they were severely malnourished by drought, we had no choice. Many of our cattle died from hunger and diseases. Again in 1987 to 1988, an outbreak of East Coast fever and drought killed more than 130 of my cattle. This was around the time when Maasai were losing a lot of land, and it affected the way we used to graze our cattle. The losses continued, and between 2000 and 2010 droughts finished most of my herd, which was about 200. Now I am 69 years old, and I only have 20 head of cattle. So the climate has changed: when we expect it to rain, it does not – and if it does, it is not much."[28]

Mzee Pose's narrative parallels those of Mzee Jackson and Mzee Benja, which also associated falling Maasai livestock numbers with declining seasonal grazing land and exposure to increasing climate variability. Farmers dependent on livestock as their main source of livelihood became vulnerable to a downward spiral of poverty.

Mzee Benja used the metaphor "like a curse in dark magic" to allude to the consequences of privatising the grazing commons. The prosperity of the Maasai livestock economy depended on land, and their lack of access to it led to hardship. Mzee Benja's metaphor resonates with the term "capitalist sorcery" coined by Phillipe Pignarre and Isabelle Stengers in *Capitalist Sorcery: Breaking the Spell* (2011). As a system of sorcery without sorcerers, capitalism manifests when the state and private actors with interests in capital production use sanctioned knowledge (e.g. from scientists, policymakers, financial bureaucrats) to justify destructive solution(s) of extractive capitalism as a response to an identified or looming crisis, which is publicly branded as necessary to attain universal prosperity. However, the consequent destruction of common areas and livelihoods develops the realisation among those impacted of human and non-human vulnerability (Stengers and Pignarre, 2011: 39-43). Changes in property relations did not guarantee individual land ownership security and prosperity for the Maasai but resulted in ecological marginalisation and the disruption of their traditional practice of sharing water and forage.

Despite the government's awareness of the environmental and climatic implications for Kajiado's Maasai and their herds, it continued to facilitate the private acquisition of large tracts of land, exacerbating resource pressure. The narratives of Mzee Benja and Mzee Jackson show that rural political leaders (tribal chiefs) played a critical role in enabling neoliberalism. The authority vested

[28] Mzee Pose interviewed in Kajiado in August 2017.

in chiefs as fiduciaries or land managers who oversee transactions of customary land stems from colonial governments, which appointed them with a mandate to manage land in native reserves. This was a strategy to attain control over land, natural resources and agricultural production at the expense of rural native populations (Amanor and Ubink 2008: 14, 60-61; Maloba, 2017: 3; Stenberg and Rafiee, 2018: 20).[29]

Among the Maasai, Chief Lenana signed the British–Maasai treaties of 1904 and 1911 that relocated Maasai from fertile Laikipia to Kajiado's semi-arid lands, because he wanted to consolidate various Maasai sections under his authority. While Maasai sectional leaders staged protests, the colonial East African Protectorate High Court dismissed the Maasai's case on the technicality that the treaties were an act of state and were thus not challengeable in a colonial court. When the state approved the privatisation of Maasai communal land in Kajiado in the post-colonial era, Maasai chiefs of different sections emphasised to their subjects the importance of individual land ownership to prevent further dispossession. However, chiefs who played a critical role in land redistributions took advantage of their sections' fear of dispossession to allocate large parcels of land to themselves (see Mwangi, 2007: 65-66, 77).There has been some scholarly debate about the re-emergence of chiefs and their efficacy in land adjudication, with scholars such as Nuesiri, (2014) writing about the positive role that chiefs have played, especially in the governance of land in rural environments.

Nuesiri (2014: 52-55) writes that the re-emergence of chiefs in the post-independence era is seen as a reinvention of their role in Africa's democratic transition, which accepts traditional law. Local and international NGOs dealing with land and human rights concerns have worked to protect the rights of traditional authorities and develop their capability to participate in the democratic state. The importance of chiefs in the democratic process and land reforms lies in the trust that their people have in them and in their ability to reinvent themselves to retain their influence and represent the interests of their people to the state. The role of chiefs in the post-independence era is regarded by states and NGOs as critical for the effective implementation of various land tenure

[29] The colonial and post-colonial governments of Kenya, Nigeria and Ghana all established chiefs as the political representatives of native peoples. However, it was their loyalty to those governments that earned them the authority to transact land; chiefs also amassed wealth for themselves, and their loyalty to the government was critical for policing political dissidents (see: Amanor and Ubink 2008: 14, 60-61; Maloba, 2017: 3; Stenberg and Rafiee, 2018: 20).

reforms occurring across Africa. Accordingly, governments and NGOs patronise chiefs' authority to facilitate the decentralisation that is critical to ensuring significant land reforms in Africa.

Conversely, scholars such as Mamdani (1996: 60, 147-149) and Ntsebeza (2005: 212, 213) argue against the re-emergence of chiefs in Africa's democratic transition, describing them as an authoritarian instrument of the centralised state's indirect rule over rural dwellers and land reform processes. Mamdani, (1996: 60, 147-149) suggests that chiefs have not only facilitated the central state's policies but also enjoy a degree of sovereignty through judicial, legislative, executive and administrative power likened to a clenched fist As the only local tribal authority with a mandate to make recommendations to the state about land reform process, chiefs' role in post-colonial Africa as administrators of justice often manifested as administrators of coercion and propagated a regime of land dispossession. While the chiefs' rule was not decentralised, their rule over tribal lands and residents can be seen as decentralised despotism, as they were widely viewed as agents of indirect state oppression, facilitating state-sanctioned land dispossession and evictions (Ntsebeza (2005: 212, 213).

The power conferred by states to chiefs to negotiate large-scale land deals reveals that local-level politics is important in understanding the fundamental dynamics of land deals that are highly unfavourable to smallholders (Chinsinga and Chasukwa, 2015: 142-143). The lack of formalised land rights for smallholders using land under traditional arrangements undermined their bargaining power and empowered chiefs, because the privatisation of Maasai land through the chief's administration was seldom recorded. Moreover, the lack of formal state oversight by President Daniel arap Moi's regime and its failure to recognise the efficacy of communal landholding when approving Maasai land privatisation to solve post-independence land insecurity hardly benefitted the Maasai community (Mwangi, 2007: 77,95, 140-141). Instead, it facilitated Maasai chiefs' and elites' access to land for speculative purposes, with the result that portions were sold to non-Maasai commercial interests for cultivation and conservation.

While chiefs hold their authority over rural lands through birth right or direct appointment by the state, Nuesiri (2014: 59) argues that chiefs should be elected to reduce corruption involving land management and dispossession. Communal land would instead be administered by a communal organisation and land distribution would have to be endorsed by other elected local authorities,

making chiefs directly answerable to their electorates and introducing checks and balances for land allocations, reinforcing the democratic process in the management of communal land.

During droughts, the chief of Ildamat-Oloyiankalani plays an important role in managing conflicts over illegal grazing that erupt between Maasai herders and private landowners, mostly of non-Maasai origin. Cases of trespassing and illegal grazing are reported to the Ildamat-Oloyiankalani chief's office. According to Alfred, the chief prefers to mediate between herders and private landowners to avoid ongoing conflicts. Outside the chief's office, confiscated livestock are penned in a kraal as desperate farmers attempt to negotiate the release of their animals. Regarding the trespassing conflicts, the chief said:

> "All I can say is that trespassing has only been a problem during the droughts, because people want their cattle to survive. However, I do not condone this behaviour [trespassing]. Most offenders see grass and cut fences to allow their animals to graze on other people's land without permission. Like the other day, I confiscated some sheep and cattle reported to be grazing on another person's farm. But most of the time the landowners and I prefer to let the people go on a warning and do not press criminal charges, because it is an honest mistake during such droughts. I will not say that it is a big problem, because Maasai are respectful and not violent. I do not condone this behaviour: the law is the law, and people must respect other's property. If you trespass, you have to face the law."[30]

While the chief of Ildamat-Oloyiankalani is not a democratically elected official, his sensitivity to the challenges faced by Maasai herders is proof of the social agreements that can facilitate access to dry-season grazing without conflict and facilitate a consultative, democratic process of environmental management.

Nuesiri (2014: 52-55) argues that chiefs play a critical role in mediating social agreements between the state and its citizenry and ensure the state fulfils its obligations, which is important in the absence of a supportive policy to formalise Maasai herders' mitigative efforts, such as collective grazing arrangements, which better sustain their historical rights to forage and do not criminalise them (Burnsilver and Mwangi, 2007: 34-35).

Maasai reclaim their common-resource management approach by granting each other grazing access rights (BurnSilver and Mwangi, 2007: 21-35; Sundstrom et al., 2012: 490-495), drawing on traditional norms of reciprocal grazing rights between various clan-based Maasai sections or *il-*

[30] Chief interviewed in Kajiado Town in September 2017.

olosho sustained by complex social kinship relations, political, religious and economic interactions, and ongoing reciprocation. Collective grazing arrangements enable the continuity of herd mobility and maintain flexibility in a fragmented landscape, expanding grazing options to access resource heterogeneity and lower the risks of climate stress.

It is not generally expected that sharing resources will occur where commons are privatised, but individual land-owning Maasai in Kajiado County share their pasture, representing a strengthening of customary norms rather than a breakdown thereof (Mwangi, 2006: 169-176; Mwangi, 2007: 137-138; Burnsilver and Mwangi, 2007: 4; Sundstrom et al., 2012: 483). Collective grazing arrangements show that rights are constituted in bundles and that an individual owner with full ownership rights may allow access to other individuals through negotiations (see: Schlager and Ostrom 1992: 250-260; Meinzen-Dick et al, 1997: 1303-1312). As noted by Ostrom (1990: 183), individual resource owners may invest in mutually beneficial collective strategies.

Formalising customary community range management in Botswana rangelands has emerged as a strategy for countering privatisation, restoring a commons approach and countering the impacts of enclosures on livestock mobility. Research in Botswana's rangelands shows that precipitation variability results in highly variable ecological production, which determines rangeland productivity (Atkinson et al., 2006: 6-7), counter to claims by advocates for privatisation that livestock densities are the main determinants of rangeland productivity. An understanding of dryland ecosystem dynamics and the opportunistic nature of mobile livestock husbandry has played a key role in managing herds and pasture and has increased state support for indigenous rangeland management systems that emphasise the importance of herd mobility, motivating a broader change to renew indigenous rangeland management systems as a solution for protecting customary land rights. Moreover, traditional range management's potential value to improve rangeland biodiversity and livelihood production also protects existing grazing commons from elite enclosure.

Preference for collective grazing arrangements contradicts dominant colonial and post-colonial scholarship and state policy that justified the privatisation of resources and intensification of livestock production (Burnsilver and Mwangi, 2007: 34-35). Considering the importance of heterogeneity to lower risk, a policy dialogue is necessary to sustain co-operative arrangements and strengthen mobility between shared parcels, despite privatisation. Where collective action is

in effect, it is critical to develop policies that protect private rights and sustain the commons approach against continuing enclosures.

The enclosure of grazing commons in Ildamat-Oloyiankalani continued unchecked as herders struggled to access viable pastures during periods of drought. As detailed in the next section, the ecologically marginalised Maasai and herders remain at risk of the effects of drought.

Fragmenting a Fragmented Landscape under Climate Crisis

Alfred was always informed through his networks about ongoing land deals in Ildamat-Oloyiankalani and surrounding areas. One ongoing land deal involved Mzee Ole Lebaga and a prominent businessman from Kajiado town known as "Ibrahim". Mzee Ole Lebaga was a dairy farmer and Alfred's partner in the livestock trading business. According to Alfred, Mzee Ole Lebaga was among the largest landowners in the Ildamat-Oloyiankalani area, owning an estimated 400 acres (162 hectares). Ibrahim approached Mzee Ole Lebaga about acquring a portion of his land near Kajiado town suitable for commercial farming and a food processing plant. Mzee Ole Lebaga agreed to sell 100 acres (40 hectares) to Ibrahim for a sum believed to be close to KES100,000,000 (USD1,000,000). After the transaction was complete, Ibrahim erected a perimeter fence around his new property,[31] indicating that Maasai herders would have to contend with yet another enclosure that would isolate them from declining pastures. On learning of his business partner's decision to sell his land to Ibrahim, Alfred was disappointed, saying:

> "I tell you brother, the story of land in Kajiado is a very dangerous one, and it will not take us anywhere. Ibrahim is very rich, and he will build a factory and start a big farm like the ones in Oloosuiyan, because he has already started drilling water [a borehole]. Once land is sold and a new person buys it, things change. That land is completely out of Maasai hands! As you saw, the land was fenced immediately. That means that the water and grass are no longer for Maasai. People will cry that cattle are dying, but the new owners will not listen to their grief. Maasai are running out of options to sustain their cattle. We do not even know whether we need to change our way of living. But for now, we need to keep on fighting for the survival of our cattle, because they are what we depend on to take care of our families!"[32]

[31] Since the 1990s, non-Maasai (ex-urban dwellers and elites) looking to gain from the demands of urbanisation, horticulture, mining and industrialisation have benefited from most of the land transactions in Kajiado. The growing demand for land has seen an exponential rise in local land prices (particularly near well-watered areas, trading centres, major roads and conservation areas), which has incentivised landowners to sell their land to reap high profits (see: Nkedianye et al., 2009: 116-118; Galaty 2013b: 23-29).

[32] Alfred Interviewed in Kajiado in December 2017.

The enclosure of land as private property sacrifices the commons approach, as access can no longer be negotiated. The growth of financialisation in the 21st century and its commodification of natural resources has closed the commons more tightly than before. Large-scale, investor-driven land acquisitions through economic and legal leverage control resource commons and suppress efficient, equitable, local and responsive resource management to maximise profits. Alienating local livelihoods from access to the commons benefits capital growth as cheap labour and drives outward migration, proliferating poverty and the class divide. Moreover, financialisation does not bind itself to planetary limits, because it accumulates by dispossession. Ongoing investor competition to control more resources worldwide is aided by the pressure imposed on national economies by speculative finance and futures to exploit the commons (Bollier and Helfrich, 2012: 487-491, 1261).

As further noted by Bollier and Helfrich, (2012: 487-491, 1261), states and investors rush to exploit and secure resource commons to secure economic supremacy, political relations and future markets, which are dictated by the flow of natural resources. The sophisticated economic and legal leverage of financialisation and its proximity to key state decision makers is critical to overriding traditional claims to commons and enclosing more commons as a long-term strategy that is detrimental to communities and likely to limit their ability to resume traditional collective management practices. When combined with current trade agreements, financially enclosing the commons may result in a legally permanent enclosure that significantly undermines policy space for socio-political activists such as farmers. In particular, it jeopardises the ability of people to sovereignly generate their livelihoods away from state and investor control.

The commons began to disappear in Kajiado as the accumulation and enclosure of grazing land by private capital rose, and herders faced mounting difficulties to negotiate access.

Image 4: Drilling a borehole on newly acquired private land. (Source: Author)

Mzee Ole Lebaga had grazing arrangements with Alfred and other farmers, such as Mzee Kilele. Selling land changed ownership of resources, such as *silanke* and groundwater (see Image 4), which also contributed to the crisis of water insecurity in Kajiado County (more about Kajiado's water crisis in the next section). Selling land nullified collective grazing arrangements intended to adapt to environmental fragmentation by widening the grazing area for livestock.

The ecology of rangelands such as Kajiado County is characterised as heterogeneous, and herd mobility in these variable environments is critical. The heterogeneity of rangelands is characterised by uneven distribution of forage and water and fluctuates over time. Forage and water heterogeneity is generated by essential landscape features, such as soil, elevation and topography, which generate heterogeneous patches of varying species of vegetation. Heterogeneity is also generated by rapid changes over time, particularly by extensive gradients in precipitation that change the location of forage and water. A key trait of heterogeneity is the existence of key resource areas such as wetlands and wetter-hill slopes that serve as an ecological safety net for herders in times of drought and frequently determine whether herders will cope with periods of harsh drought. Heterogeneity thus enables rangelands to sustain more livestock (see: Little 2003: 22; Coughenour, 2008: 45-58), but herders must remain mobile to access forage and water across space and time.

As land acquisitions continue to fragment grazing land, so the herders' difficulty in adapting increases. During droughts, Alfred and other farmers occasionally graze their livestock on private land previously part of their mutual grazing arrangements. Illegally grazing livestock on unused private land had long been practiced by *Wazee* when they were exposed to climate stress and lacked

grazing options. Labelling the crisis of marginalised communities' access to enclosed resources as "illegal" highlights the necessity for changes in policy and social agreements about land.

Image 5: Alfred's cattle grazing illegally on private land. (Source: Author)

As drought intensified in 2017, desperate farmers vandalised private fences to access land formerly part of their collective grazing schemes. The fences of commercial farms or small-holdings were rarely vandalised because of the risk of being caught by alert managers or landowners.

Alfred grazed his cattle on unused private land and did worry much about the consequences of this trespass (see Image 5), saying:

> "Ahh, that is their problem and not mine! Where do they want the cattle to go? If there is grass on the land and no one is using it, then let others who are in need use it. What is the problem? Don't they know that our cattle are dying because they are buying up all the land? Let them go to the chief or police. As long as we have not harmed anyone or stolen anything, then there is no problem!"[33]

Most Maasai farmers exposed to climate risks by enclosures argued that their exclusion from critical grazing areas by absentee landlords (and backed by authorities) ignored the risks to their livelihood effected by climate change and resource pressure.

In Loliondo, Ngorongoro District, Tanzania, a collective of eight Maasai villages mobilised in 2013 to protest their eviction and the annexation of 1,500 km^2 of grazing lands around the Serengeti National Park to facilitate private hunting blocks for elites from the United Arab Emirates, in direct violation of local Maasai land rights. The Maasai occupation was recognised

[33] Alfred interviewed in Kajiado in September 2017.

through a survey that legally certified their boundaries. Affected Maasai villages challenged their eviction in Tanzania's court of appeal, gaining international attention. An international online campaign garnered close to two million digital signatures and aided a Maasai victory as the government reversed its decision (see Abbink et al., 2014: 9). The Maasai approach toward enclosure of their commons has been by large non-violent through their choice of pursuing legal channels. The case has not been the same in northern Kenya where socio-ecological change has brought about violent conflicts.

In Tana-River County, Kenya, the high court of Kenya upheld the issuance of a title deed over 40,000 hectares of seasonal grazing land in the delta region that was utilised communally by the Orma and Wardei pastoralists to TARDA-Mumias for commercial sugar cultivation. In 2012, The two pastoralists communities who brought the legal petition against sugar cultivation company between the years 2009 and 2010 contesting its unlawful acquisition resorted to inter-ethnic violence which were aggravated by dry season grazing competition and politically incited by their elites under the auspice that one community was conspiring to secure prime land and resources for its people. While the Orma and Wardei pastoralists suffered casualties in livestock and people, the state would fail to intervene and benefited from the divisive political atmosphere to ensure the disunited communities would not disrupt the investment further (see Nunow, 2015:101-112).

Similarly, in Turkana County, Kenya, the high court in Meru in 2009 failed to uphold the petition of Turkana pastoralists contesting the legality of a lease granted by Marsabit County Council to LTWP wind power project for a 150,000 acres land concession in 2009 as opposed to 40,000 acres that was agreed to prior. This act resulted in the pastoral community engaging in violent battles with the wind energy company and police. Moreover, it further escalated politically motivated inter-ethnic violence between the Turkana pastoralists and their neighboring Samburu, Rendile and Pokot pastoralists who also contested rights over the grazing land. The resulting cattle raids between the rival pastoral communities and casualties would further be aggravated by recuring drought conditions (see Cormack and Kurewa, 2018:94-95, 102; Schilling et al., 2018:586, 584-590).

Maasai access to grazing resources during droughts continued to be limited by land transactions in Kajiado County. However, they would would continue pursuing legal channels and peaceful

protests to contest against enclosures of their commons The next section describes how property privatisation enclosed grazing areas but also impacted the Maasai's access to water resources.

The Water Shortage Crisis in Kajiado County

Kajiado town and rural areas such as Ildamat-Oloyiankalani experience water shortages, another stressor experienced by Maasai that compounds the environmental stress of grazing land scarcity. The water crisis of Kajiado County is exacerbated by the isolation of rural populations from the state-owned Nolturesh freshwater pipeline, commissioned by the Kenyan Government in 1991 and completed in 1992 (Rutten, 2005: 8-10; Mutuma, 2014: v-3, 26, 38, 44). The pipeline descends from the slopes of Mount Kilimanjaro in Loitokitok, Kajiado South and, under the management of the National Water and Pipeline Corporation, was intended to serve the domestic needs of Kajiado District and surrounding areas. However, the lack of a legal framework to prioritise water allocation enabled political and capital elites to divert water for commercial use. The Magadi Soda Company in Kajiado draws water for its soda ash mining and processing, and other commercial industries and large-scale food (e.g. poultry and ostrich) and horticulture (e.g. roses) farms in Kitengela and Athi River downstream also draw from it. Stoni Athi Limited, a horticultural farm, stored 6,000,000 litres of water from the pipeline for flower production – enough to supply 120,000 households. Alienated from this supposedly public water, Kajiado's Maasai herders must access water from distant pay-to-access boreholes and climate-sensitive surface water resources.

The historical knowledge of the *Wazee* offers insights into the water crisis plaguing the Maasai of Kajiado County. Mzee Benja said:

> "This problem of water has been with us for a very long time, particularly during the droughts. Since I was a young man, around the 1960s, we always depended on seasonal rivers, pools and springs, which served a lot of cattle, goats, sheep and people. But you know, if it did not rain, they would stay dry for long. Sometimes the droughts would be so bad, and we would be forced to water the livestock far around Lake Amboseli and Loitokitok. But wildlife parks took water like Lake Amboseli, and we were no longer allowed to use it. Even some rich people took land with water. So either people would travel further and let some of their animals die, or return home with all of them dead. In 1991, the government brought water from Mount Kilimanjaro in Loitokitok and together with our politicians they promised us we would get access to that water! However, it never happened, because that water was taken to the farms of big politicians and businessmen."[34]

[34] Mzee Benja interviewed in Esilanke-Kipeto in August 2017.

Mzee Pose's narrative parallels that of Mzee Benja:

> "We have our water here in Kajiado from Loitokitok that the government brought from Mount Kilimanjaro. That water – as we speak, it is being used in the homes and farms of politicians and businessmen, while we continue suffering. The water belongs to the government, and they can do what they want with it. Since long ago, our water always came from seasonal springs, pools and rivers. However, during the droughts of 1973, 1975, 1980, 1984 and 1994, cattle died because it was hard to access water, because some springs and lakes were taken by government for wildlife or by rich people. So only in 2006 to 2007 did we start seeing more access to water from European well-wishers who built boreholes for us. One was drilled down here [pointing to a neighbouring parcel of land] in 2004, but there was no water. Another borehole was drilled in 2006 near Oloosuiyan and it had water, but it was far from most people's reach. Since it was the only place people could get water, sometimes cattle would stay a whole day without water."[35]

Maasai's dependency on surface water became a liability as water sources were appropriated for wildlife conservation and large private land investments (Rutten, 2005: 8-9). In Kajiado's desiccated landscape, water inaccessibility for rural Maasai pastoralists became indicative of a need for policy change in water governance to assure equitable access for all.

In South Africa, Kader Asmal, a constitutional law professor and Minister for Water Affairs and Forestry in Mandela's government, instituted policy reforms that recognised water as a social issue. In 1998, he introduced the *National Water Act*, which designated water a public trust to be administered by the government on behalf of the whole community and that could therefore not be owned. The democratisation of water under this act emphasised collective responsibility for the maintenance and distribution of water, freeing it from capital production by declaring that farmers, mining companies, municipalities and other parties could not build dams that would dry up rivers in water-scarce areas. A free basic water allowance was instituted to meet the minimum needs of the poor, and high-volume users paid for their consumption to ensure equity and efficiency. Per the Act, water for basic human needs and ecological functions are prioritised over commercial needs. Rivers and other catchment areas are collectively managed and protected by catchment management agencies that consider their local communities' needs, and neighbouring countries have equitable access to shared rivers (Singh, 1999: 27-37; Asmal et al., 2011: 226, 243-245).

According to legal experts (Singh, 1999: 51-52; Karodia and Weston, 2001: 13-20; Stein, 2006: 2182-2183; Godden, 2005: 197-205), the *National Water Act of 1998* reformed the water sector

[35] Mzee Pose interviewed in Kajiado in August 2017.

by democratising the management of a scarce resource to address distribution injustices, and public trust remained fundamental to all future decisions regarding the allocation of water resources. The Act's introduction of a public rights system for integrated water management facilitated equitable water access proposed under the new constitution, symbolic of the newly democratic state's pledge to the sustainable use and management of a natural resource critical to all South Africans. Identifying water management areas, prescribing processes that guided organisations' water management and allowing stakeholder participation to develop local organisation and management systems played a major role in water distribution. The greatest degree of community involvement in its application, through delegations such as community management agencies and water user associations, safeguarded equitable distribution of the scarce resource. This integrated approach allowed checks and balances instituted by the Water Ministry (as the principal custodian at all levels of organisation) to manage water as a public trust and ensure the overall objective of delivering water. The Act shows that equitable and effective water legislation requires devolved decision making to local authorities for water services.

The Kajiado County's Department of Water and Sanitation dismissed claims that the Nolturesh water pipeline benefitted the private interests of a minority elite to the detriment of water-insecure Maasai herders. The Senior Water Officer at the County Government of Kajiado said:

> "Kajiado town used to get its water from Nolturesh which came from the slopes of Mount Kilimanjaro, in the Loitokitok area – that was in the 1990s. Then, as you know if you have water services, people tend to come nearer to the pipeline. Because of that demand, water could not reach most rural areas in the county. Rumours were passed on saying that the water was being diverted to flower farms and the rest. I don't think so, because those flower farms have boreholes, and whatever water they are getting from Nolturesh is for drinking. Actually, that Nolturesh water serves three counties: Kajiado, Makueni and Machakos. Although people in Kajiado claim that the water is theirs, the constitution states clearly that water is a national issue. It does not belong to a certain county. The national government controls big water projects that serve multiple counties to ensure equity, regardless of from which county the water originates. This reduces problems such as favouritism and conflicts of interest. So when people say that water goes to irrigate farms – that one is not good, it is not right, it is wrong!"[36]

The Nolturesh water pipeline did not serve the public it was intended to serve, with the state citing maintenance failures and difficulty in meeting high domestic water demands. Many politicians used the Nolturesh pipeline to win the hearts and votes of the water-insecure residents of Kajiado

[36] Senior water officer interviewed in Kajiado in November 2017.

County in the 2017 election season, but these promises did not bear fruit, and the residents were forced to look for alternative sources of water.

Maasai rely mostly on rain-fed *silanke* to water their herds and households, but during droughts they may pay for access to boreholes (discussed in the next chapter). Under South Africa's *National Water Act of 1998*, water sources such as ground aquifers and surface water such as rivers were reclaimed as common resources to be collectively managed by local river management committees, who ensured equitable distribution and environmental sustainability (Asmal et al., 2011: 243-244; Singh, 1999: 9, 12, 46). The resource was no longer developed and managed by drillers and hydrologists alone, and the regulation of groundwater as a common resource ensured that the basic water needs of 60-90% of South Africa's rural communities were met (Asmal et al., 2011: 243-244).

In Kajiado, ground water exploitation was facilitated by private and public European donors who developed community waterpoints via electric pump boreholes. The Nalepo watering point was established in 2006 by a European donor agency in the Damat Maasai territory of Ildmat-Oloyiankalani.[37] As with most watering points in rural Kajiado, concerned community members registered themselves with the County government as a collective self-help group to establish a watering point. The registered group elected a representative chairman, a secretary to oversee operations and a treasurer in charge of collecting water user fees and overseeing operational costs (e.g. electricity and infrastructure maintenance). They developed a proposal and petitioned donors, mostly from European non-governmental agencies, to fund groundwater exploration and infrastructure development. Should sufficient water be found on private land, the owner would be asked to donate the land to the county government to be held in trust for the community. In exchange, the community would offer a piece of land similar in size.

However, the county government did not always ensure that the land was placed in public trust, leading to the privatisation of boreholes and the disruption of water provision to drought-stricken herders. Hydrology and climate experts project that heavy reliance on groundwater in arid, drought-prone environments of the Sahel, Horn of Africa and southern Africa are very likely to be affected by climate change (Alley, 2001: 161; Bekkar et al., 2009: 252-262; Bovolo et al., 2009:

[37] Residents referred to the sponsors as Dutch, Swiss or *Wazungu*, which means "European people" in Swahili. While the donor was clearly European, the speakers could not remember the names of the organisations.

1-3; Niang et al., 2014: 1216-1220; Wu et al., 2020: 1-6). A rise in precipitation anomalies, the prevalence of drought conditions and the growing demand for groundwater will strain groundwater aquifer recharge and further contribute to the water crisis. These challenges suggest that the community must consider mechanisms of water exchange and preservation to mitigate risk and ensure collective benefits and equity when accessing and managing the resource.

Collective labour has played a major role in enabling farmers in water-scarce environments to conserve their natural water sources (Maathai, 2006; Mabeza, 2013). In her memoir *Unbowed*, Wangari Maathai (2006) recounts how she mobilised rural women farmers from central Kenya under her Greenbelt Movement to restore their desiccating environment. Struggling with declining soil fertility, a lack of clean water and firewood, these women took collective action to develop indigenous tree nurseries and plant seedlings on their land to conserve soil and water catchments. They were not equipped with forestry diplomas but were urged by Maathai to rely on their crop knowledge to nurture tree seedlings, becoming "foresters without diplomas" (Maathai, 2006: 135).

Similarly, Mabeza (2013: 128-130) recounts how a collective of farmers belonging to the Zvishavane Water Project in Zimbabwe adopted Zephaniah Phiri Maseko's ideas of water harvesting and soil conservation, turning their drought-prone dryland into a wetland agro-ecosystem. Maseko used metaphors to deliver the message and methods of water harvesting. He is opposed to groundwater extraction, which he describes as "reaping where you have not sown". Maseko writes of "marrying soil and water" to "harvest" and "plant" rainwater to counter runoff and erosion. A critical aspect of this strategy is to create deep contour ridges with infiltration swales (or pits) on agricultural land and to plant trees to stabilise the soil and prevent erosion and evaporation. Digging stone pit reservoirs to permanently trap water channelled by the contour ridges preserves water for irrigation (Mabeza, 2013: 128-130).

Ensuring that the environmental sustainability of water sources remained uncompromised helped conserve existing water supplies in a water-scarce environment. Community management and protection of water catchments (e.g. dams and wetlands) under the guidance of the National Water Conservation Campaign maintained biodiversity, saved rainwater runoff and improved land productivity (Asmal et al., 2011: 234-244). The collective management of *silanke* water pans by two or more Maasai families improves water access and allows neighbouring and distant families to reciprocate access. Families can pool their labour and resources to develop contours and/or

infiltration swales to collect and direct rainwater to their water pan and prevent runoff. Planting and maintaining a variety of vegetation around water pans to promote riparian biodiversity conserves soil and water and mitigates the effects of erosion and evapotranspiration. A collective of families living proximal to a borehole could thus create infiltration swales and/or contours to sink water into the borehole aquifer in exchange for access to the borehole water. This collective maintenance of *silanke* water pans and borehole aquifers would improve the resilience of the water sources against unpredictable droughts.

The importance of establishing a collective mechanism to ensure equitable access to and management of groundwater resources is important, especially when conflicts arise over the ownership and management of boreholes. The Nalepo water pump system broke down in the 2014 drought, disrupting water provision, and community members alleged that financial mismanagement and an ongoing attempt to grab were the primary cause. The details of this scandal are explored in the next section.

Grabbing Land and Water: The Story of the Nalepo Watering Point

A local church attended by Alfred and many other residents of Ildamat-Oloyiankalani played a significant role in sourcing donors for the Nalepo watering point. However, the church's pastor and allied congregation members embezzled the finances and attempted to take the watering point for themselves, which was discovered when no money was available to repair a malfunctioning water pump (Image 6).

Image 6: Nalepo watering point's broken pump. (Source: Author)

The donors had not included a maintenance plan, assuming that the elected management team would utilise income from water-user fees to maintain the infrastructure. Similarly, if a crisis were

to arise, it was assumed it would be solved by the community, or that a new team of managers would be elected to meet the community's water needs. In Kenya's rural drylands, donors did not equip herding communities with the skills required to maintain boreholes, which contributed to the dismal performance of most donor-funded water projects (Mamburi, 2014: 50-55).

In 2009, after almost three years of using the watering point, community members saw that the elected managers were struggling to maintain the water infrastructure – particularly during droughts, when water demand was high – as a result of broken pipes and, ultimately, a mechanical breakdown in 2014 that stopped water provision completely. A concerned group of community members (including Alfred) suspected that the appointed managers of the watering point were embezzling funds from the water user fees.

Their suspicions were confirmed by a land search in the Kajiado Lands Office, where records showed that the watering point property's ownership had been transferred to the church instead of to the community trust under the Kajiado County government.[38] The watering point was operated as a private venture for the church, which allowed the pastor and his allies to financially benefit from the water from its inception in 2006 until its decline in 2014.

The land where the watering point was developed was previously owned by Mzee Kilele, who had agreed to swap the land and water source to the community under the trust of the county government. However, it became apparent that the land-swapping agreement was simply a ploy by the pastor and his faction to get the land from Mzee Kilele. The elderly man's illiteracy and poor understanding of the legal process enabled the church to register the land and watering point with the church, without compensating him as agreed. The transaction lacked any legal documentation, such as a title deed or signed agreement witnessed by a lawyer and the chief, to prove that the land had been transferred to the community. Before taking legal action, a group of elders from the Damat and Keeokonyokie sections came together to reach a civil agreement and recommended that the project be owned by Mzee Kilele and the church. The concerned community members disagreed, as they wanted the church completely out of the ownership picture.

[38] Alfred cautioned me about pursuing this narrative, because he did not want the community to chastise him for allowing an outsider to investigate community matters. The identity of the church and its pastor are not disclosed because most of the respondents worshipped there and still respected the pastor despite the issues plaguing the watering point. "The church" is used to refer to the pastor and allied congregation members who were part of the scheme to defraud the community.

Mzee Kilele was adamant that the land should be in the name of the community trust under the county government, saying:

> "I provided my title deed so that the land where water was found could be given to the community. In return, they would give me another piece of land from the community, but the people did not follow the agreement. That is what brought about all these disputes. The church actually was the one that wanted to take this borehole. I gave them the relevant documents for the transaction, my title deed and a copy of my national identity card to complete the transaction, but they were used to transfer the land to the church, using my wife and son as signatories without my knowledge. They even wrote a fake letter saying that I approved the process. So I petitioned the case in court, because it was fraud. The church people then asked me to drop the case so that they can put me as a co-owner of the land. I declined, because I had donated the land for the benefit of the community, which the church was unhappy about. So this conflict severely divided the community."[39]

Mzee Kilele's son Zekie offered his perspective on the matter, confirming many of his father's claims:

> "My father gave land to the community, and the church was a group of people who were only there to help with the process. My parents did not go to school, and they donated the quarter-acre piece of land orally, and there were certain people who took advantage of them. They just took Mzee's title deed and went to transfer ownership of the quarter acre to the church, and that is what started the problems. There was no paperwork to show the land was transferred to the community, or even an advocate or the chief to co-sign as a witness. If you do a search for Nalepo watering point, you will not find a title deed! The swapping process was frustrating, and my parents gave up. The people that were doing the paperwork of the transaction did a lot of suspicious things. Over time, we noted that a certain group of people were dictating to the community about the management of the water. That is when we came to know that the title deed of the piece of land was not in the community's name. So we raised our concern about the situation, and we demanded that the title of the land be written to the community, and the custodian of that parcel of land must be the county government of Kajiado, because they were our trustees. That is why you see that the water is not functioning, because the case is still in court."[40]

Reaching a civil agreement outside the legal system was not possible, because the church wanted to maintain some form of ownership of the watering point. The concerned community members took the matter before the Environment and Land Court in Kajiado town in late 2014.[41]

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[39] Mzee Kilele interviewed in Kajiado in November 2017.
[40] Zekie Kilele interviewed in Kajiado in August 2017.
[41] When one Maasai defrauded another Maasai or the collective, an alternative form of recourse that the community would pursue was through a local sitting of elders. The sitting of elders would constitute of elderly land owning Maasai males who retained the customary right of providing resolutions to conflicts. When land conflicts proved difficult for the elders to solve, they would alternatively suggest for the matter to be taken to court by both affected parties.

The case was suspended in early 2015, because it had become a financial burden and was dividing the Ildamat-Oloyiankalani community. Both parties refused to drop the case, so judgement is pending until further notice. On record, the disputed property remains owned by the church. The church and community members separately tried to source funds from private and public donors in 2015 and 2016 to repair the broken pump, but with no proof that the watering point was a communal resource, donors declined to help.

The National Drought Management Authority (NDMA), the state's leading agency for matters concerning droughts, was willing to assist the community. I spoke to the Drought Officer at NDMA who was familiar with the Nalepo watering point's case, who said:

> "These problems are becoming very common, and we have many such cases where you find out that community boreholes belong to certain people. How can that be so? It tells you one thing, which is money! Because during droughts, most of these boreholes generate money from selling water. We bought them a water pump, but we have not been able to fit it because of their own politics. They came here as two groups with different stories, but we were not convinced. The land is private, and when they brought the proposal, it was indicated that it was a public, community borehole. We are not allowed to work on private property, and community boreholes do not exist on private land. These kinds of conflicts are common, but we are only obliged to deal with public property. The arrangement of who is to donate the land, that is the business of the community, and they must deal with it first."[42]

Again, the problem of private property is at the root of the problem limiting water access, and Alfred and his Damat community members had to find alternative sources of water in the neighbouring Keeokonyokie Maasai section for their households and livestock.

The Keeokonyokie watering point is two kilometres from the Nalepo watering point. Access was negotiated by the Damat section leaders, who engaged the Keeokonyokie section leaders. Prior to their watering point being developed by a European donor in 2007, the Keeokonyokie Maasai accessed water at the Damat's Nalepo watering point – sharing water resources is a mutually beneficial traditional practice. Additionally, social relations built through ceremonial activities such as marriage, circumcision and religious or political power negotiations and livestock trading strengthen bonds and encourage ongoing reciprocal access to water.

[42] Government Drought Officer interviewed in Kajiado in August 2017.

Fetching water and watering livestock is generally part of women's daily domestic duties, so women were more affected by the inconvenience of travelling by foot in drought conditions to access water. Alfred's neighbour Sima, who also lived near the dysfunctional Nalepo watering point, was frustrated by the long travel for water, saying:

> "It is very exhausting having to wake up early, prepare my family, feed the cattle and travel more than two kilometres to fetch water. Then afterwards we must return home to cook, clean and go out to fetch firewood. It is all a struggle, and it gives us a really hard time. If we had water close to us, our livestock wouldn't be suffering because of having to walk far. If the water was closer, we would fetch water faster and go about our businesses to get money or look for more fodder. But we must finish all our duties first before we go about our daily business. Isn't that a waste of time? Sometimes there is no water because of electricity outages, but animals like cattle have to water every day. We are hoping that these people stop fighting and fix our water."[43]

The Keeokonyokie watering point served herds and households from both the Damat and Keeokonyokie Maasai sections. During dry seasons, the Keeokonyokie borehole operates from early morning until late afternoon, seven days a week, to meet the high demand for water. Regular power outages in Kajiado County inconvenience farmers further, interrupting the borehole's pumping process. With no alternatives, households and livestock temporarily go without water, particularly concerning for already drought-affected cattle.

Alfred was disappointed that the ownership dispute and pending judgement had cost the community access to a convenient and secure water source, saying:

> "This borehole is ten minutes from my home, but it has never had good management, which is not a secret to many of us. We sourced help from the Government Drought Agency, but they declined because of the ownership dispute. The county government agreed to assist us, and we were given a budget of KES1.5 million (USD15,000) to fix the water pump. But because of our dispute, the donation was withdrawn and awarded to another community. The problems have never been solved, and the case itself is still in court. So now we can even stay for ten years without using this borehole until the case is ruled. The government cannot put its resources where there is a dispute. It has to be clear whether the borehole will return to the community, the church or Mzee Kilele. These fights have made us lose donations, because we were foolish about how we handled our issues – and above it all, we have lost our water."[44]

[43] Sima interviewed in Kajiado in August 2017.
[44] Alfred interviewed in Kajiado in August 2017.

Borehole access allowed herders to cope with the effects of climate change on surface water and with isolation from water sources caused by financial enclosures. The loss of access to a permanent water source magnified their livelihood vulnerability to climate change and resource pressure.

Mwalimu, a retired teacher and dairy farmer, was the secretary of the Keeokonyokie watering point and oversaw the provision of water to both Damat and Keeokonyokie households and herds every day. He was concerned about the growing trend of grabbing donor-funded water projects in Kajiado, and he said:

> "There is a water crisis in Kajiado, and it is impacting a lot of people during the dry seasons. Here in the area, there are boreholes that are being manipulated by rich people to enrich themselves while oppressing the poor, who are now being forced to access water here. This is because there are quarrels over the ownership of their borehole, which was drilled on private land, causing it to be shut down. After using the water for some time, the conflict started when their managers struggled to pay for electricity. The bill was very high, because in the dry season the borehole runs day and night. The managers misappropriated money, and even some urgent repairs could not be undertaken. At one time we tried to make a committee representing the various boreholes in the area to help with such matters, but differences among communities made it difficult."[45]

The people described by Mwalimu as "rich people" understood the financial value of water caused by its scarcity. Mwalimu pointed out that the Nalepo watering point was deliberately constructed on a private parcel of land under the guise of it being a community-owned project. The ability of private individuals to gain control over donor-funded watering points shows the insufficiency of policies to regulate Kajiado water resources.

The county government of Kajiado did not have a water policy or water act to guide the planning, implementation and management of water resources. According to Mutuma (2014: 6-11, 26-27, 44), this policy gap has contributed to poor regulation of water sources and a lack of equitable water distribution in the drought-prone and water-scarce area. The new Water Act of 2012 was amended to bring it into line with the constitution, which devolved water management and service provision to counties and mandated local water service boards to develop and manage water services and resources within their jurisdiction. This was intended to address the crisis of mismanagement plaguing donor water projects and ensure that they be registered under the trust of the state to ensure management oversight, equitable distribution and avoid conflicts of interest.

[45] Mwalimu interviewed in Kajiado in August 2017.

Conclusion

Developing community-based rangeland resource management systems that draw on the strengths of traditional management approaches is an alternative way of addressing the challenges of common resource management in the rangelands (Atkinson et al., 2006: 6-7). It is thus critical to recognise indigenous knowledge systems and thereby empower communities to manage their rangeland resources and sustain their livelihoods.

This chapter explored the ongoing crisis of common-resource privatisation in Kajiado County that undermines the consensus-based democracy of resource governance, disrupting Maasai's historical access rights and exposing their livestock economy to climate vulnerability. Two sets of evidence support this finding.

First, the transformation of land into private property and the enforcement of boundaries has weakened Maasai herders' commons approach, severing social relations from ecological relations. Inadequate agreements and an inability to negotiate resource access and management rights has led to the criminalisation of seasonal grazing dependent on extensive movement between rangelands. Formalising community range management and collective grazing strategies have emerged as alternatives for restoring the commons approach and decriminalising grazing by building social agreements to manage historical resource access and management rights.

Second, the management of water sources as private property rather than common resources in Kajiado has remained the root of distribution injustice and illustrates the importance of democratising water sources through policy transformation to enable collective water management. This would reduce the accessibility disparity that affects drought-prone populations and would encourage alternative mechanisms of collective responsibility for maintaining water sources. This chapter has shown that the persisting vulnerability of the Maasai livestock economy to climate risk derives from the ongoing privatisation of common resources. Accordingly, it calls for alternative strategies that uphold consensus-based democracy in the management of and access to resources. The next chapter describes Maasai livestock husbandry and how farmers in Kajiado County sustain livestock and commercial dairy production in the face of resource enclosures and climate uncertainty.

Chapter Six

Maasai Livestock Production: Coping with Climate and Environmental Change in Kajiado County

Introduction

The previous chapter highlighted the growing crisis of resource privatisation in Kajiado County, which is disrupting Maasai resource access and management and exposing their already ecologically marginalised practice of livestock keeping to climate risk. This chapter presents an empirical account of how Kajiado's Maasai continue practicing their livestock husbandry despite climate uncertainty and variability. The chapter begins by looking at a dairy cooperative initiative that gives Maasai a fundamental role as commercial dairy farmers. Maasai livestock husbandry is continued in their undertaking to produce milk and commercialise it as a livelihood. The chapter investigates the challenges that climate stress puts on Maasai dairy production and the strategies undertaken by Maasai to sustain their dairy production and build adaptive capacity to the intersecting impacts of climate change and resource enclosures.

The Maasai Kajiado Women's Dairy Cooperative Society

My quest to learn about the Maasai Kajiado Women's Dairy Cooperative Society (MKWDCS) took me to the organisation's headquarters at the Oleleshwa Collection Centre in Kajiado town on 5 December 2017,[46] after securing an interview with the cooperative's ever-busy manager Victor. Victor told me about the formation of the organisation in 2003, when a network of self-help groups of approximately 400 Maasai women from Il-Bisil Town in Kajiado Central Constituency, Kajiado County conceived the idea of selling their unprocessed milk for profit.[47] In 2005, the groups formally registered to collectively sell their milk to their customer base, comprised mostly of consumers from informal markets in the local settlements and neighbouring towns.

After eight years, frustration with their unreliable customer base, poor pricing and the inconvenience of long distance travel to sell their produce became problematic, but the women lacked the necessary resources to address these issues. Mrs. Nkaissery, a native of Il-Bisil Town and wife of the late Kajiado County politician and elder Honourable Retired Major-General Joseph Nkaissery, heard of the women's plight and sought to help. She saw the potential of connecting

[46] The organisation's headquarters were on the grounds of Kajiado town's Anglican Church of Kenya before moving to their office at the Oleleshwa Collection Centre in Kajiado.
[47] Il-Bisil is 30 km from Kajiado Town.

Maasai herds from the deep rural interior to the formal national dairy market through dairy processors for more profitable returns.

In 2011, under Mrs. Nkaissery's leadership as the organisation's patron, the groups were consolidated and formally registered as one dairy cooperative. Mrs. Nkaissery's networks and influence helped the newly registered cooperative secure a partnership to sell their unprocessed milk to the state-owned milk processing company New Kenya Cooperative Creameries (New-KCC). Her networks and influence helped the organisation secure funding from various donors to build the cooperative's first milk collection centre, named the Oloililai Collection Centre in Il-Bisil Town, which was equipped with milk storage and cooling facilities and a collection truck.

Around 2010, membership expanded from the original 400 members to 1,500 members in Il-Bisil Town. In 2013, close to another 4,000 members joined, bringing the organisation's active membership across Kajiado County to around 5,000 by 2016. The organisation established six more collection centres in Kajiado County with a collective capacity of 30,000 to 40,000 litres of milk per day during the dairy season. The Oleleshwa Collection Centre in Kajiado town's central business district served Alfred and farmers from Ildamat-Oloyiankalani and others from neighbouring areas such as Oloosuiyan, Enkorika and Esilanke-Kipeto. The MKWDCS also changed from being a Maasai, women's-only organisation and opened its doors to men and other interested members of the public to sell their milk, while still remaining predominantly Maasai. The cooperative's shareholding remained limited to women.

The motto of the MKWDCS is "from grass to grace", referencing the grass that nourished the cattle and brought grace to the farmers. In this case, the grace was the transformation of Maasai milk production from an informal practice into a formal, commercial practice. I developed a better understanding of this motto on 9 December 2016 at a convention held for the dairy cooperative's farmers at the Oloililai Collection Centre, courtesy of an invitation from Victor. The purpose of the convention was to inform farmers about techniques to improve milk production in the face of the uncertain climate. The organisation's collection centres were plagued by prolonged recurring droughts that adversely affected milk production – they were closed from 2014 until 2015, because both the long and short rainy seasons underperformed. This impacted rangeland grass availability and forced farmers to migrate their cattle to dry-season grazing areas outside of Kajiado County.

A drought management officer at the National Drought Management Authority (NDMA), the state agency in charge of responding to, coordinating and managing drought interventions, elaborated on the climate change challenge in Kajiado and Kenya and the intensity and frequency of droughts:

> "So when I look back in terms of drought, we have information indicating that 2013 was a very good year. However, in 2014 the short rains of October, November and December were not very good. The 2014 drought effects spilled into 2015 because of major rain failure in 2014. So early January 2015 you could see some drought conditions. In 2015 the long rains of March, April and May failed, and the short rains of that same year were not good, which aggravated the situation further. Now, since 2004, 2005, 2006, 2009, 2011, 2014, 2015 and now in 2017, you can see the trend that drought is now becoming frequent and prolonged. This can be attributed to a number of factors, possibly climate change, and for that Maasai should keep expecting the unexpected when it comes to rain performance."[48]

Droughts in Kajiado County were becoming intense and frequent. Drought conditions persisted throughout 2017, forcing all the collection centres to shut down as early as May.[49] Mrs Nkaissery was aware of the impact of climate anomalies on milk production and said that the goal of the dairy cooperative was to remain open throughout, from January to December, and to deliver at the minimum 10,000 litres of milk per day to the New-KCC.

According to Mrs. Nkaissery, the only way the organisation could meet this goal was for farmers to retain their land. Mrs. Nkaissery addressed a crowd of mostly women, telling them:

> "Please tell your husband not to sell land – and I hope some of the men that are here are listening to me. We can see that Kajiado has changed, and the environment is making it difficult for livestock to move. I want us to keep our land and use it to cultivate fodder so that we can produce milk from January until December, so that our women and families can continue to grow through this business."[50]

Land was critical to proactive measures against droughts such as fodder cultivation, but decisions around land use were predominantly made by men, except in households where women were widows. Married women had to seek permission from their husband to utilise land for purposes such as cultivating crops on a small scale.

To better understand the challenges of Maasai livestock husbandry, I moved to farms in the rural areas where the herds were kept and milk was produced for delivery to the collection centres.

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[48] NDMA officer interviewed in Kajiado in August 2017.

[49] In Kenya's seasonal bimodal climate, long rainy seasons occur in March, April and May and short rainy seasons occur in October, November and December.

[50] Mrs. Nkaissery speaking in Kajiado in December 2016.

From Farms to Market: Moving the Milk

My journey tracing the milk began at the farms in Ildamat-Oloyiankalani. Every morning during production season, women woke up between 5 and 6 a.m. and headed to their family's cattle kraal to begin milking. If the family was polygamous, each woman was responsible for milking her own cattle. In addition to the stress of stubborn cattle and suckling calves, the women juggled domestic duties such as preparing food and children for school. Most Maasai cattle kraals do not have a milking pen, and milking is done inside or outside the kraal (Image 7).[51]

Image 7: Felister milking her family's cow while a calf suckles. (Source: Author)

Alfred's wife Felister was in charge of milking her family's cattle, and she described to me how she started her mornings:

> "I am the one who milks our cattle. I milk almost ten dairy cattle, which means I have to wake up at 5:30 a.m. and milk for one hour. After milking, I store the milk in a plastic container. Since I also milk the cows in the evening, I use this clean aluminium cooking pot to store the milk in a cool area of the house, there by the cupboard, because we do not have a fridge. In the morning, you can also mix both fresh and stored milk to deliver. My husband also wakes up at the same time, and he usually prepares tea or helps me milk if he feels like it. Otherwise by 6:30 a.m. I wake the kids up for school and prepare breakfast for them and my husband. My husband will take the milk to the collection centre along with some of our neighbours' milk. The rest of the day, I wash the house and dishes and release the cattle and sheep to graze. After that, I fetch water and firewood, then come home to prepare lunch and then dinner."[52]

[51] In Kajiado, milking cattle is predominantly done by women. The men mostly observe the milking process, inspect the kraals, do a head count of the livestock and examine each animal's physical health.
[52] Felister interviewed in Kajiado in August 2017.

Waking up early in the morning to milk the cows and pack the milk for delivery to the collection centre was important for farmers keen for their product to reach Kajiado town on time. When milking is complete, women divide the milk into two consignments: one for the MKWDCS and the other for household use. Keeping some milk for domestic use is a priority, because milk is an important part of the Maasai diet.

As most farmers live in rural areas far from Kajiado town, finding transport is difficult. Women are mostly preoccupied with domestic duties, tending to livestock or engaging in non-farm work such as trading and wage employment. Most farmers preferred the convenience of contracting *bodaboda* deliverymen to deliver their milk (Image 8A),[53] and many paid them with milk instead of cash. For example, every five litres of milk a deliveryman collected from a farmer might earn them one litre of milk, which they could sell on to hotels or collection centres.

Every farmer places their filled, initialled milk container(s) by the roadside for the *bodaboda* to collect (Image 8B). Alfred had been a *bodaboda* deliveryman since 2014 – in addition to delivering his own household's milk, he delivered milk for seven other households from Ildamat-Oloyiankalani and neighbouring Keeokonyokie. In a single day, he delivered almost 200 litres of milk. Transporting milk from Ildamat-Oloyiankalani to Kajiado town took him about 45 minutes, but torrential rains in the rainy seasons sometimes extended his journey. To avoid losing time on this lengthy and unpredictable journey, it was important that farmers had their milk ready by the roadside on time.

[53] As noted, *bodaboda* is a common term used to refer to motorcycles as a form of public transport, or taxis to transport people and goods. It is commonly used by people in urban, peri-urban and rural environments. In Kajiado, *bodaboda* operators also use their motorcycles to deliver milk for farmers in rural areas such as Ildamat-Oloyiankalani.

Image 8: A) A bodaboda deliveryman collecting milk. B) Women waiting for their milk containers to be collected from the roadside. (Source: Author)

Only a handful of people delivered their milk by foot, bicycle or other means of transport. The Collection Centre was run by a team of five clerks – Faith, Albert, Manu, Elton and Solomon – and was active every day from 8 a.m. until 1 p.m. Faith was posted at the collection centre by New-KCC to oversee the collection of milk on behalf of the state's dairy processing company. Albert was appointed on behalf of MKWDCS to monitor and record milk collection. Manu, Elton and Solomon were in charge of consolidating milk deliveries from other collection centres and overseeing the transportation of the total milk consignment from Kajiado town to the New-KCC factory in Dandora, Nairobi (Image 9).

The clerks were the first people to receive the milk from the suppliers, testing that it was fresh by uncapping the containers and smelling the milk. They also subjected the milk to a lactometer test to ensure it was not contaminated with water. The farmers knew that density and freshness testing was common at the collection centres, but some took their chances and mixed fresh milk with water or milk that was not fresh to increase their quantity. The freshness tests were critical for not contaminating a whole batch of milk. After ensuring the milk was fresh, the clerks poured them into a 5,000-litre capacity milk chiller, and each supplier's delivery log sheet was endorsed for the amount of milk supplied.

New-KCC did not have a milk processing centre in Kajiado County, so the milk had to be delivered to the New-KCC factory in Dandora, Nairobi, 80 km away. Milk collections stopped after midday, when clerks would start to prepare the consignment for collection by New-KCC's tanker. When the New-KCC tanker was not available to deliver milk to Nairobi, as was often the case, the cooperative used its delivery truck, which did not have a chilling tank. Instead, the milk was

pumped into plastic and aluminium 100-litre containers and loaded manually onto the truck (Image 9).

Image 9: Manu and Faith pumping milk from the chiller into the New-KCC milk truck tanker. (Source: Author)

The Oleleshwa Collection Centre often struggled with surplus milk, because they only had one chiller, with a capacity of 2,000 litres (left in Image 9). Up to an additional 1,000 litres would be stored in the 100-litre containers, and hydrogen peroxide would be added in minimal quantities to preserve the milk and prevent bacteria. Because the collection centre did not have a power generator, this was also done when there was a power outage, a common problem in Kajiado County. Unexpected power outages caused the collection centre to lose close to 1,000 litres of milk a month, meaning that farmers would not be paid despite having delivered their milk. This raised concerns about the cooperative's ability to handle large quantities of milk.

Despite the challenges of transporting milk from farms to collection centres and finally to the processor, Kajiado's dairy farmers play an important role in the nation's food security, but their practice is threatened by climate uncertainty and environmental change.

We Are Now Working for the Cattle: Coping with Climate Uncertainty and Environmental Change

> "It was still challenging even after you left! January you were here, and we had a little bit of milk and there was some grass. Our problems started in May. The cattle finished the grass, the rains did not fall and by June to July we started suffering until now. We are now working for the cattle! The cattle are not working for us!"[54]

[54] Alfred interviewed in Kajiado in August 2017.

This was Alfred's description of the climatic and environmental challenges that transpired after I left Ildamat-Oloyiankalani at the end of January 2017 to resume my studies in Cape Town, South Africa. Prior to my departure, the short rainy season of 2016 had been inconsistent, but most of the farmers still produced commercially viable milk, because there was ample grazing and water from the long rainy season of 2016. They continued producing until April and May 2017, when the long rainy season failed and drought conditions led to a progressive decline in grazing and water sources, adversely impacting milk production and leading to the closure of all the MKWDCS milk collection centres.

There was a visible decline in key resources in most rural parts of Kajiado. In Ildamat-Oloyiankalani, the once attractive soft, green pastures turned brittle and brown, with some areas dry and dusty, revealing the bare rocky terrain beneath (Image 10B). The once-full rainfed water pans that served livestock were also visibly exhausted under the scorching sun (image 10A).

Image 10: A) Drought-impacted silanke water pan. B) Drought-impacted forage in Ildamat-Oloyiankalani. (Source: Author)

Maasai dairy farmers living in Kajiado's rural areas were highly dependent on free-range grazing and watering, which enabled them to produce milk for household consumption and commercial use. Most dairy farmers' households held land under a private title deed, and the challenge of resource isolation in a fragmented landscape did not deter them from their mobile livestock husbandry. They continued free-range grazing through collective grazing arrangements formed between various individual land-owning households allied through kinship and friendship.

As described in the previous chapter, Maasai collective grazing arrangements continued the traditional practice of reciprocal grazing and water rights, allowing Maasai to expand their forage

base and graze their herds on neighbouring and distant land parcels across changing climatic and ecological conditions. This practice was critical to mitigating risk during times of climate stress. Like traditional grazing arrangements, the new collective grazing arrangements were sustained by social, political, religious and economic interactions and ongoing reciprocation. Distant communities were brought together by the meat-eating ceremony of *Ol-pul*, circumcision ceremonies, conflict resolution meetings, livestock market days, thanksgiving prayers to the Maasai God *Enkai*, bride wealth negotiations and struggles for political leadership, strengthening bonds and collaborative relationships.[55]

Image 11: Alfred herding his cattle near a silanke on Ole Ngishu's land. (Source: Author)

Collective grazing arrangements also benefit from water access for livestock from rain-fed *silanke*. Most farmers' households have access to a *silanke* that is either co-owned by adjacent households or is individually owned (see Image 11). The rotation of herds across widely distributed grazing areas avoids concentrated grazing and resource exhaustion.

Contemporary collective grazing arrangements show that the traditional practice of sharing key resources did not decline among Maasai as a result of fragmentation and growing privatisation but evolved to accommodate change through the retention of complex social networks formed through clan kinship and friendships, which improved flexibility and expanded the seasonal grazing base (Galvin, 2009: 191; Mwangi, 2006a: 28-34; Sundstrom et al., 2012: 486-494; Galaty, 2013b: 33-34; Galaty, 2013c: 501; BurnSilver and Mwangi, 2007: 4-8, 19-25, 32). Collective grazing arrangements are also the manifestation of a consolidation of traditional norms and

[55] At *Ol-pul*, Maasai men slaughter a sheep, goat or cow and grill it on an open fire. This event is mostly open to men, who feast and engage in various forms of song and dance (see Hodgson 1999: 127, 128, 138).

complex social relationships for a shared cause (Mwangi, 2006: 169-176; BurnSilver and Mwangi, 2007: 4).

Alfred had collective grazing arrangements with several households, including Mzee Kilele, his neighbour in Ildamat-Oloyiankalani, who owned 300 acres (122 hectares) of land; Mzee Benja and Ole Ngishu, who owned 200 acres (81 hectares) and 260 acres (105 hectares) of land in Esilanke-Kipeto respectively; his kin in Kisaju, who owned 80 acres (32 hectares) of land; and his in-laws in Enkorika, who owned 100 acres (40 hectares) of land. In the course of a year, Alfred alternated his herds between his family's 250-acre (101 hectares) land and that of his associates, which varied climatically and ecologically. The lands of Mzee Benja and Ole Ngishu were located at a higher altitude that was cool and windy; Mzee Kilele's sloped land was partly covered by shrubs and was dissected by a seasonal stream; and his kin's and in-laws' lands were in the prairie grasslands. As part of the arrangement, Alfred made his own land available to his associates.

I spoke to some of Alfred's associates, such as Mzee Benja, about the grazing agreements:

> "It has been in our culture for a long time as the Maasai community to share what we have with each other, because all cattle belong to us and nurture the community. So this boy [referring to Alfred] is my friend. His father has been a dear friend of my family, and we have known each other for a long time. This boy also helps me and my family when we are in need. Sometimes he comes to greet me with respect over a cup of tea. So I cannot let him suffer when I have grass on my land, and he cannot let me suffer when there is grass on his land. It is that simple!"[56]

Alfred frequently paid courtesy visits to his allies for tea or to help them tend to their cattle. He took part in social events such as *Ol-pul* and talked about current affairs and took part in conflict resolution meetings and political rallies when called upon. His *bodaboda* and livestock trading businesses also strengthened his relationships.

Ole Ngishu appreciated the practice of sharing resources, because it helped Maasai farmers remain resilient against land loss and climate change. He said:

> "We share what we have, because we are all affected by drought and lack of pastures. We also want our cattle to live. So whatever little that we have we share among ourselves, and that is how Maasai are supposed to live. If we have grass and water here in Esilanke-Kipeto, we invite them [referring to Alfred]. When they have grass and water, they will call us.

[56] Mzee Benja interviewed in Kajiado in November 2017.

> This changing climate is not any one person's fault. It may decide to rain here today and not rain there tomorrow!"[57]

In November 2017, Alfred moved his herds from Ildamat-Oloyiankalani to Ole Ngishu's home. While most parts of Kajiado County were gripped with drought exacerbated by a poor short rain season, Esilanke-Kipeto had received enough rain in the first week of November to regenerate pastures and *silanke*. Alfred and many other farmers negotiated with kin and friends in Esilanke-Kipeto to move their herds there.

Sharing key water and pasture resources among individual households acts as a safety net against increasing climate uncertainty and variability. In wet seasons, cattle provide farmers with milk, but during droughts the farmers must provide for the cattle. In the absence of their own forage and water, farmers look for alternative ways to nurture their herds, and purchasing may be their only option. However, the downturn in their milk business requires them to have alternative income-generating opportunities to acquire resources for their herds. The next section explores how farmers in Kajiado utilised income from commercial dairy production to develop long-term economic opportunities that facilitate access to resources during times of drought.

Commercialising Dairy to Cope with Drought and Resource Scarcity

The production and selling of milk is negatively affected by drought because cattle lack access to ample forage and water. As described earlier, drought conditions are becoming longer, and farmers may go for lengthy periods without milk – and therefore income. Making the livestock economy resilient against climate uncertainty and environmental change depends on farmers' ability to provide resources for their herds throughout the year, but resource options for livestock, particularly for dairy cattle, come at a cost. It is thus important for farmers to channel income from selling milk into other economic opportunities.

At the end of every month, the farmers receive payment for the milk they delivered to the cooperative that month. Alfred used his proceeds to start his transport business, which he operates throughout the year. He told me how he got his business started:

> "This milk has helped me a lot, just look at these sheep and cattle you see here. I have been selling and delivering milk to the dairy cooperative since 2014, and when I received my payments, I did many things. I managed to buy this motorcycle, which I use to transport

[57] Ole Ngishu interviewed in Kajiado in November 2017.

> people, goods, water and milk to earn more money. By 2016 I had bought enough sheep! So I sold some and bought five head of dairy cattle, built this house and also did a wedding. So the dairy has really helped me and my family, even my son and daughter are in school. When it is dry like now, the *bodaboda* taxi business supports me, my family and my cattle."[58]

Alfred used his motorcycle to deliver milk but also to ferry people and goods, such as water, fodder and groceries, mostly from Kajiado town and Ildamat-Oloyiankalani. Alfred faced stiff competition from other *bodaboda* operators and some *matatu* operators during droughts.[59] The lack of dairy income among Maasai farmers also forced many to limit their travel costs, so Alfred relied on loyal customers.

Image 12: Mama Salau crafting a Maasai leather shanga belt decorated with glass beads. (Source: Author)

Women also use dairy earnings to venture into other businesses (with the permission of their spouse if they are married). A group of middle-aged and elderly Maasai women at the MKWDCS convention on 9 December 2016 at Oloililai Collection Centre informed me that they used their earnings from selling milk to start businesses such as grocery shops, garment shops, livestock trading and the trading of *shuka* and handcrafted Maasai goods made from *shanga*.[60]

[58] Alfred interviewed in Kajiado in August 2017.
[59] Vans and pickup trucks used as pooled transport between town and the rural interior are known as *matatu*, which ferry more passengers and goods in one journey but are not reliable because they only do two or three trips a day. *Matatus* drop passengers and goods on the roadside, whereas *bodabodas* drop people and goods at their homes.
[60] *Shanga* are Maasai ornaments (necklaces, earrings, bracelets) and accessories (belts, pouches) crafted with glass beads. *Shuka* is a wrap popularly worn by the Maasai as part of their traditional cultural dressing (right in Image 9, showing Mzee Kilel's wife dressed in a blue *shuka*).

Felister's friend Sima, who was married to Alfred's friend Alex, was a successful businesswoman and dairy farmer. She spoke to me about how the dairy business benefitted her family:

> "Honestly, this dairy cooperative has really helped us Maasai women. We do not have anything that we can claim ownership of. I cannot say that the cattle are mine. The cattle belong to my husband and the milk belongs to me! Although my husband has supported me to pursue business, because he has seen that I have become productive and an independent business lady. The milk business has boosted my other business of selling garments and Maasai *shanga*. I have also been able to buy livestock and buy household necessities such as groceries, and sometimes pay our daughter's school fees when my husband is financially struggling. When I go out to work, I also buy cabbages or hay for the cattle. If I buy today, my husband will buy tomorrow, and that is how we help each other out. So in short, the milk business has helped me and my family a lot."[61]

Using proceeds generated from selling milk, Sima and other women purchase handcrafted *shanga* goods from the Maasai women who make them (Image 12) to sell them on at their shops or by the roadside in Kajiado town. Income generated in such ways during droughts helps them meet their household and livestock needs, especially when their husbands struggle.

Alfred's neighbour Mama Larry is a widow and retired teacher who funds multiple business ventures with her dairy income:

> "As you can see, I am a widow and there is no one here to take care of me. My small pension as a retired teacher and the small businesses I do support me and my grandchildren. The money from the dairy has helped me a lot. I put some of it in my savings and the rest to my business. I buy material, glass beads and leather to make traditional dresses, belts and bracelets that I sell to different people. I also have a shop in town that my daughter runs, which helps us a lot. So this milk has uplifted us. I can bring home food for my grandchildren and pay their fees. Also, I buy hay, molasses and cabbages to give to my six cattle here."[62]

Widows like Mama Larry, who are mostly responsible for their households, invest in other businesses to ensure they are able to provide for their families and cattle throughout the year, but not all women are able to use income from selling milk to pursue other economic opportunities. Instead, they are confined to domestic duties and tending to livestock. As most households preferred not to discuss their financial management, it was difficult to get an overview of how household finances are managed. However, it was clear from my observations and interactions in

[61] Sima interviewed in Kajiado in August 2017.
[62] Mama Larry interviewed in Kajiado in August 2017.

Alfred's home that he and his wife share responsibility for managing the household money to meet their domestic and livestock needs.

As described in Sima's and Alfred's narratives, farmers acquire livestock with income from selling milk as another business that can be engaged in throughout the year. In dry seasons, they might sell part of their livestock to meet their household and other livestock needs. Elderly farmers without other income opportunities are most likely to sell some of their livestock to meet their needs during droughts. Butcheries, slaughterhouses and *nyama choma* restaurants, mostly in Kajiado town, buy livestock almost daily,[63] but farmers risk financial loss during droughts because of the poor physical health of their livestock. Developing long-term economic activities secures income sources for farmers during droughts so that they can sustain their households and livestock. The next section shows how farmers buy resources to sustain their livestock to cope with drought.

The Challenge of Tending to Cattle during Drought

Every farmer in Kajiado County who owns livestock hopes that they will survive long enough to see the next rainy season. Mama Larry summed up the Maasai's commitment to their cattle during drought:

> "Cattle have a big role and are part of the family. People have a strong relationship with them. Cattle are compared to children, and some people spend more time and money on cattle than their family. If the cattle suffer, the people also claim to feel their pain!"[64]

Some dairy cattle, with their ribs protruding, become so weak that they cannot get up after resting their exhausted bodies on the ground. Farmers must keep an eye on them and not let them stray too far.

[63] *Nyama choma* is the Swahili term for a barbecue or braai and loosely translates as "grilled meat". Many restaurants in Kajiado Town serve *nyama choma*, as Maasai consume meat frequently and in large portions. The demand for mutton and beef is thus high throughout the year.
[64] Mama Larry interviewed in Kajiado in December 2016.

Image 13: Alfred assisting Mzee Kilele's wife Mama Kilele to lift a stranded cow. (Source: Author)

It was not uncommon to come across farmers and their neighbours, young and old, gathered around a cow trying to lift it up. Neighbours and friends occasionally called on Alfred and me for help (Image 13). Alfred described the importance of this practice:

> "In Maasai culture, cattle belong to everyman. If I come to your place and see that your cow is suffering, I must confront the situation and help the cow. When I came into that home, I was annoyed to see that the cow was stuck in a very bad position. So I could not leave without ensuring that the cow was up. If it would have been difficult to lift the cow, then we would have called the owner or neighbours so that we can see if we can lift the cow up together. I would not want another man to come across my cow that is in pain and leave it stranded, especially with this drought when they are very weak. I was not even expecting a thank you. I did that because the cow is mine as a man, and I know the next time I go to that home I will be welcomed."[65]

During these events, Alfred sometimes spoke with the cattle owners about their fear of losing cattle to another drought. Alfred himself feared the worst for his 20 head of cattle, which were very weak in the drought. He, his son, three siblings or his wife watched the cattle and ensured they were all driven back from grazing and into their kraal by 6 p.m. Alfred was mostly concerned about a dairy cow named Archie, who had not dropped her placenta after a birth and was thus already weak before being impacted by the drought (Image 14).

[65] Alfred interviewed in Kajiado in August 2017.

Image 14: Archie feeding on supplemented fodder. (Source: Author)

Archie's physical appearance distinguished her from the other cattle, as she had a curved spine that gave her back a U-shaped appearance. Archie was one of Alfred's 12 dairy-producing cows and gave him sleepless nights, because she had to be lifted up almost twice a day. Alfred was motivated by the dream of seeing all of the cows, particularly Archie, recover from the drought:

> "This cow of mine must survive this drought. I am telling you, she must survive! I will do whatever it takes for her and the other cattle to survive. No cow can die here on my watch – never! Just wait until next season: it will be very green, and I will be relaxing while drinking milk from these cattle without stress."[66]

Many farmers facing the same struggle did whatever was necessary to ensure their livestock survived the droughts. Farmers such as Sima told me that most able-bodied members in her household were working for their herds, saying:

> "Today, we woke up very early, at about 4 a.m., and we began by making breakfast and preparing fodder for the cattle. After that, we released them from the kraal to feed. When they finished eating, I drove them to water, because it was my turn today. While I was there, I also fetched water for our domestic use. When we finish, I prepare myself and leave the house with my husband to go run our businesses in [Kajiado] town, and we bring home fodder. Mama Dennis and Mama Alex go out to forage for cattle feed. So no one is just sitting at home, we are all trying to do something to make sure the cattle survive, because we depend on them."[67]

Many households, such as Sima's, are polygamous, so there are enough people to help with domestic duties and livestock. Every morning Sima, collaborated with her in-laws, Mama Alex and Mama Dennis, to fetch water, do domestic chores and tend to the family's livestock. Sharing

[66] Alfred interviewed in Kajiado in August 2017.
[67] Sima interviewed in Kajiado in August 2017.

duties allowed them to complete tasks in a timely manner and go about their other daily activities and bring home more fodder.

Image 15: A) Alfred preparing cabbages and vegetable residue for his cattle. B) Alfred feeding his cattle with hay. (Source: Author)

Across the sparsely populated landscape of Ildamat-Oloyiankalani, it was common to see young and old men and women and boys and girls preparing fodder, feeding cattle and driving them to the local community watering point in the early morning hours. Alfred was responsible for feeding and watering 20 head of cattle and 60 head of sheep. In his household, his wife, school-going siblings, son and I woke up at 6 a.m. to tend to the cattle. We prepared the fodder brought by Alfred, such as hay, cabbage and vegetable residue (Image 15A). The cattle were then released from the kraals to feed on the fodder (Image 15B). Archie, being the weakest, fed separately under Alfred's watch (Image 14). The sheep were rarely fed, because they foraged by themselves. After feeding, Alfred's siblings and son drove the cattle and sheep to the community watering point and then to the graze in a field arranged through the collective grazing scheme. This procedure occurs in most households every day in the face of drought, until it is time to migrate them to dry-season grazing grounds.

The next section examines how farmers access fodder and water for their livestock, showing the challenges they face and how they respond to them.

The Challenge of Coping with Climate Uncertainty

> "Right now, I am forced to buy grass and cabbages for my cattle, because there is no grass. I must also buy water for them every day, but there is not enough money because of this

drought. But whatever it takes, I will work hard every day, because my cattle will not die on my watch!"[68]

The drought-induced lack of forage forced farmers to turn to fodder vendors, such as vegetable vendors at the *soko* (Image 16B) and mobile fodder vendors who have their trucks filled with fodder at the Kajiado town open ground (Image 16A).[69] These two forms of vendors are separated by Kajiado town's central business district road and serve as farmers' primary source of fodder. Competition for fodder is high among farmers during droughts, and men and women of all ages and from all over flock around vendors to buy fodder. Some also collect whatever biomass residue they can find from the ground around the vendors' businesses. Alfred purchased fodder for his cattle two to three times a week, taking home one or two bales of hay and a 100-kg bag of cabbages. The vendors' businesses boom in the late afternoons, as motorcycles buzz around and cars and pickup trucks are packed with bales of hay and/or bags of cabbages. Accompanying Alfred, I often ran into other farmers congregated around vendors to negotiate fodder prices, such as Sima, Mama Larry, Ole Ngishu, Mzee Kilele's son Zekie and Mzee Benja's son Benja Junior.

Image 16: A) A fodder vendor's truck with bales of hay. B) A vegetable vendor's stand in the soko. (Source: Author)

Vegetable vendors charged KES200 (USD2) per 50-kilogram bag of mixed vegetable residue containing rotten cabbage, collard greens, kale and more. Mobile fodder vendors offered a variety of straw fodder, such as hay and grass, for which they charged KES250 (USD2.50) per bale. Mobile fodder vendors also sold fresh and rotten cabbages at KES300 (USD3) per 100-kilogram bag. Farmers occasionally supplemented their cattle's feed, particularly for the weaker ones, with

[68] Zekie interviewed in Kajiado in October 2017.
[69] *Soko* is the Swahili name for a farmer's market or a vegetable market.

dairymeal from agro-veterinary stores,[70] but at KES1700 (USD17) per 100-kilogram bag, it was much more expensive than the fodder from vendors.

The water shortage in Kajiado County forced farmers to purchase water to supplement their households and livestock needs, as cattle must be watered on a daily basis. Community watering points that drew water from boreholes served as the farmers' prime source of water in these times (Image 17).

Image 17: Farmers fetching water for household use and watering livestock at Keeokonyokie Watering Point. (Source: Author)

Watering cattle cost KES30 (<USD3) per head per month, while sheep and goats were charged KES10 (<USD1) per head per month and households were charged KES20 (<USD2) for each 20-litre container of water for domestic use. The cost of water for each household and their herds varied according to household size and herd size. Alfred's herd of 60 sheep and 20 cattle cost him KES1,200 (USD120), and his household of five people (including me) used 200 litres of water a week, costing KES800 (USD80) a month. The monthly total was KES2,000 (USD200). A household with a larger herd and a higher domestic water consumption had to spend more money on their water needs. As the drought intensified, some families struggled to meet their daily water needs, forcing them to water their livestock less frequently to meet their domestic water needs.

Most farmers are tied up with domestic needs such as food, water, clothing and school fees, in addition to providing for their livestock. Poorer farmers such as elderly Maasai are the most vulnerable, because they struggle to meet the needs of themselves and their livestock without

[70] Dairymeal is a type of feed consisting of maize germ and/or wheat germ. It is mostly available from agro-veterinary shops, which generally stock veterinary products for livestock.

alternative means of income. As Maasai hold their cattle in high esteem, they may reduce domestic spending to meet the needs of their cattle, and Alfred sometimes provided fodder for the livestock at the expense of his family's needs, which at times caused conflict with his wife.

In the midst of a prolonged drought in the year 2007, mobile fodder vendors increased their prices in late October. The vegetable vendors sold food for domestic use and not fodder so could not offer competitive prices. Visibly infuriated by the higher costs in the uncertain dry period, Mzee Kilele said:

> "It was bad, because finding money nowadays is hard. That is why you see if we go two more weeks without rains, people will stop buying feed(s) for their cattle. This is because we have sold many animals at poor prices so that we can buy them water and something to eat, which is no longer possible. We have reached a point where things have become extremely difficult. We cannot feed people and animals every day. It is difficult! The best we can do now is pray to God that the rains return to save the remaining cattle."[71]

Fodder vendors set the price range for hay and grass at KES300-350 (USD3-3.50) per bale and a 100-kg bag of cabbages at KES350-400 (USD3.50-4). It was not uncommon to hear desperate farmers arguing and exchanging insults with vendors, who argued that the price hike was justified by the farmers' high demand, which increased the vendors' operational because they had to make more trips to commercial farms outside of Kajiado County (e.g. in Narok County, 220 km from Kajiado, and in Kirinyaga County, 180 km from Kajiado).

Image 18: A) Zekie with biomass residue from garbage dumps in Majengo slums. B) A commercial crop and dairy farm in Oloosuiyan. (Source: Author)

Zekie, the son of Mzee Kilele, resorted to looking through garbage dumps in Majengo slums, a low-income neighbourhood in Kajiado town, for anything edible for his cattle (Image 18A).

[71] Mzee Kilele interviewed in Kajiado in October 2017.

Visibly exhausted but with half a smile on his face as he packed his bag with maize leaves and stalks from a garbage dump, he said:

> "Can you imagine a grown man like me has to dig through people's garbage to find food for my cattle? People are burdened with feeding animals. They have to scavenge through waste, because some of them like me cannot afford to buy fodder anymore. It is expensive! We do not know whether we need to change our way of living. So we are hoping that God will intervene so that the drought cannot finish what we depend on to put food in our stomach [alluding to cattle], because we have run out of options."[72]

Other farmers pleaded with employees and farm managers at commercial farms in their neighbourhood to allow them to forage for residue from previous harvests. Sima's mother in-law Mama Alex and her co-wife Mama Dennis headed to commercial farms in Oloosuiyan daily to forage after completing their domestic duties and tending to their family's livestock (Image 18B), leaving home at 10 a.m. and returning by 8 p.m., covering almost 20 km between their homes and the farms. Their efforts helped Sima and her husband Alex, who struggled to supply their 15 cattle with water and fodder. On some days the women were able to forage enough, but on many days they were not. Mama Alex explained:

> "We only go to places where we are allowed to get in. We can even do this work for a whole year if it does not rain, until we save our cattle. If we stay home, would the cattle not die? If you would like to sustain your cattle, you must put in effort to go and look for fodder – even if it is 60 to 100 kilometres away, you will go all the way. We leave home early and hope that by 3 p.m. we get enough fodder. Sometimes we succeed and sometimes we do not. Sometimes the farm workers chase us away. But all that matters is that we get something, especially for the weak cattle."[73]

As drought conditions intensified, the farms closed their gates to the desperate farmers, saying they could not handle the high number of farmers who showed up at their gates for assistance.

Sustaining livestock with purchased water and fodder was a short-term coping strategy against drought that sustained cattle in anticipation of the next rainy season. Cattle carcases littered across Ildamat-Oloiyankalani and other rural areas showed how harsh the drought was, and many feared that December 2017 would pass without rain. Mzee Kilele, whom the community respected and spoke highly of on account of his large herd of 150 cattle and 200 sheep, struggled to feed and water them regularly, and one or two of his animals died every week. In the end, he lost 30 head

[72] Zekie interviewed in Kajiado in August 2017.
[73] Mama Alex interviewed in Kajiado in August 2017.

of cattle (mostly calves and dairy cows) and 40 head of sheep. His compound was littered with dead and dying cattle too weak to get up (Image 19). When the rains failed in the short rainy season of 2017, the situation seemed hopeless.

Image 19: Cattle carcasses on Mzee Kilele's farm in November 2017. (Source: Author)

Similarly, Mzee Benja, who had 40 cattle and 100 sheep, lost 20 cattle and 30 sheep to the drought. Alfred said:

> "These rains will not fall, and feeding all these cows is not easy. Even you can see people are suffering. Cattle are dying left and right, and it is not yet December. Now we must move so that they do not die here! I will take them anywhere, but not in Kajiado! Maybe Machakos or Makueni, and they will stay there until the rains come."[74]

Farmers began to lead their herds on lengthy journeys to various dry-season grazing areas, leaving almost empty kraals and a low customer turn out at the fodder vendors' market. The next section describes how farmers migrated their cattle to dry-season grazing to cope with the drought.

Migrating Herds to Cope with Resource Scarcity and Drought

The seasonal migration of cattle to distant grazing sites was an important strategy for Maasai farmers, because it allowed them to maintain seasonal mobility, seek refuge during droughts and was similar to their commons approach. If drought conditions intensified in Kajiado, cattle could camp at grazing sites for a lengthy period until the next rainy season and farmers would be able to cope with the combined pressures of drought and resource scarcity. Mama Larry spoke to me about this practice:

[74] Alfred interviewed in Kajiado in November 2017.

> "It is a must for every Maasai to move their herd! Whether they are rich or poor, they must move their herd! This has been our way of making sure that our cattle survive the droughts. Very soon you will see that there will no longer be any cattle in most households, because the owners will move them far away from this drought."[75]

Counties bordering Kajiado (Machakos, 88 km away; Nairobi, 77 km; Narok, 220 km; Makueni, 207 km; and Kiambu, 93 km) were preferable destinations for dry-season grazing, because they were closer.

Figure 13: The location of Konza Technopolis City (117 km from Kajiado). (Source: Johari, 2015: 8)

Before moving their herds, farmers must ensure that the areas they want to migrate their herds to have favourable climatic conditions and sufficient water sources and pastures. Through their social networks, farmers keep each other informed about where rainy seasons have performed well and about security, political instability and law enforcement in potential grazing areas.

The purchase of exclusive grazing rights from private landowners with unused rangelands pasture has enabled Maasai to cope with land fragmentation and climate risks during droughts (Goldman and Riosmena, 2013: 593-595; Letai and Lind, 2013: 169-170; BurnSilver and Mwangi, 2007: 21; Ameso et al., 2018: 12-13). Maasai have sustained this strategy by developing networks with the private landowners from whom they purchase their grazing rights.

Because more than 70% of land is held under private tenure, most parts of the counties are fragmented. In addition to having a national park, counties such as Nairobi were rapidly urbanised

[75] Mama Larry interviewed in Kajiado in August 2017.

as a result of robust population growth, and most of the landscape is occupied by buildings and infrastructure. Other urbanised counties (such as Nakuru, Kiambu and Machakos) also support a peri-urban or rural environment occupied by protected areas and small- to large-scale, privately owned farms; Narok had multiple wildlife conservation areas and privately owned small- and large-scale farms. Maasai farmers commonly seek to lease unused land from private individuals, securing pasture access rights and obviating the need for trespass, but they inevitably face risks when grazing outside their home areas (discussed in Chapter seven).[76]

Image 20:A) The parcel of grazing land leased by Alfred and Tulata in Konza-Malili, Makueni with a cattle kraal and a polythene shack for their herdsman, Maiyan. B) Maiyan grazing Alfred's cattle (Source: Author)

Maasai farmers sought out the proprietors of suitable private land through their networks to negotiate a monthly fee to graze their cattle until the next rainy season. Alfred was among many farmers from Ildamat-Oloyiankalani and Kajiado County who migrated their cattle to Konza-Malili, Makueni County, near the site of the proposed Konza Technopolis City (see Figure 10). The area is located along the Mombasa–Nairobi highway, approximately 117 km from Ildamat-Oloyiankalani. Alfred and his friend Tulata from Esilanke-Kipeto village, with whom he worked in the *bodaboda* business and livestock trading, placed their herds under the watch of Tulata's cousin, Maiyan (see Image 20B).[77] They leased land for a monthly fee of KES5,000 (USD50) and paid an additional KES800 (USD8) to construct a cattle kraal and a polythene shack for Maiyan

[76] When enclosures block farmers' access to dry-season forage at the height of a drought, they may trespass on state land, private land or nature conservancies. However, law enforcement increasingly impounds herds, and violent conflicts result in loss of property, livestock and human life.

[77] As the farmers were not nomadic and were permanently based in Kajiado, they preferred to hire herders from their family to move and tend their herds.

on the grazing site (see Image 20A). Herdsmen such as Maiyan charge around KES4,000 (USD40) per month for their service.

Herds spent close to five months grazing outside Kajiado County and returned to Kajiado in April 2018 during the long rainy season, which stretched into the month of June. Under these favourable climatic conditions, the land was rich in pasture and water pans were filled to capacity (Images 21A and 21B), and farmers' herds grazed and watered freely through collective arrangements among individual households.

Image 21: A) Alfred's cattle grazing in Ildamat-Oloyiankalani after the long rainy season. B) The researcher and a recovered Archie. (Source: Author)

Alfred was particularly relieved that his cattle survived the long drought, and he was looking forward to another season of dairy production. Archie's recovery particularly delighted Alfred and justified all the coping strategies he had employed (Image 21B).

While the surviving livestock slowly recovered, the bones and skulls of the less fortunate livestock littered the environment as a bitter reminder of the brutal drought the farmers and their herds had experienced. Alfred said of the drought:

> "It has been a very tough year and a half for us Maasai people here in Kajiado. As you saw last year, the droughts almost killed our animals. You saw how much we struggled to feed them and water them every day. We had to move them to Makueni, where they stayed for some time before we were chased away – when we lost some cattle, like my black one [referring to a dairy cow] that I told you about. So we kept on moving around until we

> could get pastures to sustain our cattle until the rains returned here at home. So now we wait for them to eat and produce milk for us to go back into business again."[78]

Maasai narratives of livestock loss caused by violent resistance to their herd migrations from various forces at dry-season grazing grounds outside Kajiado were common (discussed in the next chapter), but migration remains an important strategy and long-term solution to sustain herds and reduce risk rather than purchasing additional resources. Though climate and environmental conditions were favourable for the cattle on their return, farmers had to wait close to a year for their cattle to produce commercially viable milk again, because they cows must mate, undergo a nine-month gestation period and give birth to lactate.[79]

Conclusion

This chapter presented various Maasai strategies undertaken during the prolonged drought of 2017 specifically but that are linked more generally to the impacts of climate change on livestock resources in a fragmenting rangeland commons. The decline of common grazing resources forced Maasai herders to seek alternative methods to build their commons approach.

Kenya's post-independence land reform policies supported the privatisation of land hitherto communally held by Maasai (Behnke and Scoones, 1992: 1–30; Scoones, 1995: 353–360) and accelerated the growth of land-based investments, leading to environmental degradation and key resource depletion and fragmenting the grazing commons. Capital's ongoing investments in East Africa's rangelands through roads, energy, wildlife conservation and commercial agriculture, justified by narratives of land degradation and resource scarcity, is rapidly dispossessing pastoralists and enclosing key grazing commons (Scoones et al., 2014: 2-7; Scoones, 2021: 5-6). The rush to commercialise rangeland commons for private interests is at the expense of already climate-vulnerable pastoral communities, but rangeland fragmentation has not stopped the Maasai from consolidating their traditional grazing customs or developing new grazing customs to facilitate grazing continuity (BurnSilver and Mwangi, 2007: 4; Mwangi, 2006: 169-176).

The chapter presented two sets of evidence in support of this observation. First, individual landholding Maasai formed collective grazing arrangements through kinships and friendships that

[78] Alfred interviewed in Kajiado in June 2018.
[79] The average gestation period for cattle is 280 days (Huho et al., 2011: 787).

enabled them to expand their grazing base and share resources. Under these arrangements, farmers could continue to practice extensive mobile grazing, rotating herds across wide, heterogenous ecologies that differ in climatic and ecological conditions in wet and dry seasons. In periods of drought, collective grazing arrangements allow farmers to take advantage of an increase in precipitation variability between different ecologies caused by climate uncertainty. Herders rotate their herds in the dry seasons but temporarily supplement their livestock with fodder and water in anticipation of the next rainy season.

Second, when drought conditions intensified, the Maasai used their networks to identify private landowners outside of their home area from whom to purchase exclusive grazing rights as dry-season safety nets. This secured long-term grazing for the farmers as they waited for the next rainy season. This chapter has shown that seasonal herd mobility to access grazing in different environments is an important way for Maasai to cope with the impacts of environmental stress and climate shock that are aggravated by the fragmentation of their complex rangeland.

These grazing strategies, which adapt to commons fragmentation but are yet to be formalised into policy (Behnke and Scoones, 1992: 24-25), reflect pastoral innovation for alternative strategies that emphasise opportunism and flexibility. They are a model for pastoral land use and management policy that reflects pastoral needs and that counters conventional, centralised state rangeland management policies and devolves local resource management to pastoralists. These mechanisms encourage mobility in landscapes fragmented by large-scale land investments under changing climate conditions and show that marginalised pastoralists are learning to live with uncertainty. The next chapter consolidates insights into state-sponsored and private investor-driven enclosures of Maasai grazing commons for national economic growth and considers their implications for Maasai land use and management.

Chapter Seven

Land for Economic Growth or for Grazing Cattle?

Introduction

The previous chapter showed the great lengths to which Maasai dairy farmers went to keep their livestock alive in the face of climate and environmental stresses exacerbated by the fragmentation of their complex rangeland ecology. It described the mechanisms they used to cope with drought and the impacts of climate change in 2017 and 2018. This chapter looks at state-sanctioned investments on critical grazing commons to grow the nation's economy and consolidates insights into the enclosure of the commons and its impact on Maasai livestock economy and land ownership. The chapter opens with an examination of the process to develop a wind farm by the Kenyan government on Maasai land and the Maasai challenge to the state's neoliberal approach to develop the wind farm in violation of their land rights. This chapter describes the methods of collective disruption used by the Maasai in a time of climate crisis to protect their remaining grazing commons from the state's neoliberal strategy of growth by dispossession.

We Fear Being Squatters on our Land: The Story of Wind Energy in Esilanke-Kipeto Village

Mzee Benja was among 60 land-owning Maasai from the wind-rich village of Esilanke-Kipeto approached by Kipeto Energy Limited (KEL) in 2011 to lease their land for the Kipeto Wind Power Project. The 60 landowners whose lands were part of the project's footprint agreed to a 30-year lease according to which they would be compensated with an annual lease payment, a modern brick house, electricity access and borehole water. Half the landowners would host the turbines and accompanying infrastructure (e.g. power cables, roads), while the other half would host the power transmission lines that would transmit power to the sub-station in the neighbouring town of Isinya.

Image 22: A modern brick house constructed by KEL for a landowner. (Source: Author)

The wind power project was scheduled to be operational by 2019 but in 2017 and 2018, when this PhD research was undertaken, KEL was still planning and conducting feasibility tests for wind potential in the area and construction had not yet begun. Despite the long wait for the wind energy project to take shape, landowners were satisfied with the annual lease payments they received as they waited for housing (Image 22), electricity and water to be delivered.[80] Mzee Benja said:

> "This wind power project brings good development to this area and benefits families. The company is not taking the land. They are paying me close to KES1,000,000 (USD10,000) a year to harvest the wind, which is free, to develop electricity for the residents and the country. They even said it will be good for the environment. I do not see any problem with that at all! I have not sold the land, and life will continue as usual!"[81]

The landowners believed that the wind energy project was a sign of development for the rural, sparsely populated Esilanke-Kipeto village. By leasing their land to the project, they retained their land rights while securing a regular annual income. KEL representatives apparently also explained that the wind energy project would benefit both the community and the country, and their daily livelihood, environment and land rights would not be interfered with.

Neoliberal proponents of renewable energy transition regularly use economic and scientific rationale to promote wind energy projects, where harnessing wind power for development represents nature and modern technology working harmoniously together. The scientific view is

[80] According to Mzee Benja, KEL's annual lease payments varied according to the size of the land or the losses faced by the project and were based on negotiations between farmers and the energy company.
[81] Mzee Benja interviewed in Kajiado in August 2017.

that wind energy is a neutral technology that provides unlimited economic growth, and the economic view is that wind is an infinite resource that can be harvested and transformed into an alternative source of energy (Avila, 2018: 601). However, communities are increasingly questioning the feasibility of the win-win scenario's social, political and environmental implications (Avila, 2018: 601; Howe, 2019: 9-11).

As part of the lease agreement between KEL and the Esilanke-Kipeto landowners, the wind energy company kept the landowner's title deeds and invoked a subdivision clause that prevented the landowners from undertaking any land transactions or subdivision without consulting the energy company in order to prevent interference with the project's footprint. The young adult sons of the landowners, who referred to themselves as "the youths", were opposed to the subdivision clause, which they viewed as a threat to their customary right to inherit land. The youths alleged that the KEL representative's negotiations with their title deed-holding fathers ignored the traditional mandate as future heirs that gave them equal rights to make decisions about the family land.

Mzee Benja's son Benja Junior, a *bodaboda* taxi operator, dairy farmer and friend to Alfred, outlined his concerns:

> "There is a point on the land that my father is supposed to give me as inheritance, where I wanted to build a house and a cattle kraal for my family, but the company told me to move about a further 500 meters away, because they would ground a turbine and its cables there. However, this is a discussion that the company had with my father and not me. The company does not work closely with the youth. They mostly talk to the elderly men like my father, because they hold the title deeds. The elderly men cannot understand critical issues in the agreement that we, the youth, may understand because we went to school. When they signed the agreements, they gave away their right to make land decisions and our right to inherit land. We the youth did not sign the agreement! That is why some of the youths have protested, and their families were removed from the project. It is because we fear being squatters on our land! We depend on our land to survive! So if we lose any part of it, we will die of poverty! That is why I am against this project and I may leave it!"[82]

According to the youths, their fathers' individual negotiations with the wind energy company signed away family land rights. The wind energy company's authority over the leased lands was exemplified by relocations to accommodate infrastructure without consulting those directly affected (the youth) and that went unopposed by the land-owning fathers. This was also an indication that the fathers now lacked authority over their own land and made the youths worry

[82] Benja Junior interviewed in Kajiado in August 2017.

that the negation of traditional land succession could jeopardise their future ability to sustain their livestock and families.

When national renewable energy goals encounter indigenous territories and livelihood, indigenous communities' sovereignty over their land, livelihood and resources is at stake, and affected communities openly challenge the technical standards of appropriation of their territory and resources. Emergent environmental justice viewpoints aim not to impede renewable energy transitions but to open a wider dialogue about alternative transitions that addresses issues of territorial integrity, livelihood and cultural rights. Local mobilisations raise the importance of wind energy development as a social matter rather than as a technical or managerial matter (Avila, 2018: 612-614).

A KEL representative who wished to remain anonymous denied that the wind energy company had sidelined the youth and threatened their traditional right to inherit land. According to the representative, the negotiations were done in accordance with the needs of the landowners, and KEL's decision to lease the concession area rather than acquire it was done in accordance with the landowners' wish to retain ownership – despite the *Land Acquisition Act* mandating that lands that host a public service project (such as the proposed wind park) must be acquired. The representative said:

> "It is unfortunate that a small minority are against this project and cannot see how it is beneficial to their community and Kenya as a whole. Most of the landowners and families are satisfied with the project, because the project respects their right to own land. The electricity generated here is very important for combatting climate change, which is a global disaster. Also, Kenya's economy needs to grow so that people can benefit from jobs. These people [referring to the youths] are only worried about themselves and cannot see the bigger issues. But I believe once we start operating, they will appreciate the outcome."[83]

Any technology presented as environmentally sustainable, affordable and resilient, such as wind energy, is often viewed with suspicion (Avila, 2018: 601; Howe, 2019: 9-10), and opposition to renewable energy infrastructure is blamed for impeding future possibility and risking uncertain climatic consequences (Howe, 2019: 9-10). According to this logic, the permanent disruption of indigenous ecologies and livelihoods in the process of shifting toward renewable energy is a necessary cost of planetary well-being, and the need to mitigate global warming supersedes any

[83] Anonymous representative of KEL interviewed in September 2017.

minority claims. This is despite indigenous communities arguably making the lowest contribution to rising global temperatures. But the old methods of extraction and exploitation are easily retained in this new arena of ecological and climatic sustainability, sourcing cheap resources and land at the expense of local communities. Watson (2014: 230) suggests that systems of governance are likely to adapt to accelerate the speculative financialisation of the commons, which will further dispossess poor communities and suppress their rights to contest unlawful seizures. It is thus critical to confront neoliberalism's drive to seize and financialise commons utilised by the poor.

The youths' opposition to the wind energy project was reinforced by the financial enclosure of a critical dry-season grazing area for a state-proposed smart city, as described in the next section.

Now the Same Government Wants to Come Here: Resisting Wind Energy in Esilanke-Kipeto

In 2008-2009, the Konza Technopolis Development Authority (KoTDA), in conjunction with local and multinational private investors, procured 5,000 acres (2,023 hectares) of land from shareholders of the former Malili Group Ranch to develop Konza Technopolis City. This was a flagship project under the Kenya Vision 2030 economic development blueprint, intended to steer Kenya to become a major African information communication technology hub (see Watson, 2014: 218; Johari, 2015: 2; Angelidou, 2017: 11; Avianto, 2017: 1, 54). However, the purchase of the land from the Malili Group Ranch, whose members were mostly elderly and illiterate Kamba people, was marred by corruption. Representatives of the ranch shareholders and local political elites allegedly colluded with officials from the Ministry of Information and Communication to defraud landowners of their rightful compensation, and the landowners eventually brought cases of fraud, theft and forgery to court (Johari, 2015: 32; Avianto, 2017: 55).

Image 23: Konza Technopolis City's partially vandalised fence to allow grazing access to livestock. (Source: Author)

However, in the national interest (Van Noorloos, 2019: 433), the government fast-tracked the commencement of the construction of Konza Technopolis City. The proposed smart city's 5,000-acre landholding was enclosed by a perimeter fence to keep herders and other "trespassers" out (Image 23). Unscrupulous land dealers who sought to gain profits from land speculation rushed to acquire the valuable adjacent land (Watson, 2013: 228-229; Johari, 2015: 41; Avianto, 2017: 63), and informal settlements were marked for demolition and livestock grazing and smallholder agriculture were prohibited within a 10-km radius of the proposed smart city. This was the state planning authority's way of controlling informal practices around Konza Technopolis City to facilitate the manifestation of the formal planning and vision of the state and investors (see Van Noorloos, 2019: 420-435).

The land enclosures and planning restrictions in Konza-Malili disrupted the dry-season grazing routines of Maasai herders, who now feared arrest. Most of the herders who had migrated their cattle to Konza-Malili in December 2017 to escape Kajiado County's drought conditions only grazed there until January 2018 because of the strict grazing restrictions. These restrictions deterred the Maasai herders from returning to Konza-Malili to seek dry-season grazing, but the limited alternatives for dry-season refuge left them vulnerable to future drought conditions.[84]

Rob Nixon's *Slow Violence and the Environmentalism of the Poor* (2011) draws attention to "unimagined communities" whose livelihood is a critical obstacle to the highly discriminative

[84] In the period of December 2017 some herders attempted to migrate their cattle to Namanga, Southern Kajiado to easily access the grazing across the Northern Tanzania border. However, news of the Tanzanian government's order to confiscate any Kenyan Maasai cattle found grazing on Tanzanian soil forced the herders to either retreat back to their home areas or continue seeking pastures in Southern Kajiado until the return of the rains.

narrative of national development. Unimagined communities are produced by the contemporary nation-state and are maintained by desired future development. Imagined future development excludes communities viewed by the state as an inconvenience in the course of national ascent. The removal of such communities is visualised in the development planning process prior to their physical dislocation by the nation-state to financialise common resources. The outcome is "spatial amnesia" as communities are "unimagined" and rendered physically landless and visually vacated from space and time under the auspices of development, thereby separated from the nation state's idea of a national future and a national memory (Nixon, 2011: 150-151).

The criminalisation of dry-season grazing and the visible deprivation of Kamba farmers to facilitate Konza Technopolis City showed that the state's development model was based on dispossession. Howe (2019: 9, 106) writes that the mobilisation of civil society has emerged as an effective strategy to disrupt the energy-development domination of indigenous territories. Fearing a similar fate of dispossession, the youth challenged the development of the smart city infrastructure to protect their land rights.

Tulata, a young Maasai man who frequently accompanied his friends Alfred and Benja Junior on the dry-season migration, recalled the implications of the enclosure of the Konza-Malili commons:

> "When has any government project ever helped the poor? Never! They are a deception that only enrich brokers and politicians! Since 2008 we have watched the government, politicians and brokers grab land belonging to Kamba people because the government wants to build Konza City. The Kamba people have now become poor, because they have no land to farm or keep livestock. They run to the same government and politicians crying, but they are ignored! Even us Maasai cannot graze there during droughts, because the lands now belong to investors and government. Tell me, is that a fair way to treat the poor? Now the same government wants to come here to Esilanke-Kipeto with this wind project and tell us that it is development so they can take our land away from us! Never! We will not allow that! This is our land too, not our fathers' alone. We depend on it to raise our livestock, and we are obligated to protect it, because we have nothing else."[85]

Alfred also condemned the enclosure of dry-season grazing in Konza-Malili by the state and private investors and supported Tulata's and the youth's decision to withdraw their families' lands from the wind energy project. In a discouraged tone, he said:

> "You know now things are changing very fast and most of us never know what new development the government will bring next. These developments are taking every space

[85] Tulata interviewed in Kajiado in July 2018.

> that we use to graze our cattle, which is leaving the cattle we depend on to die of drought. I think what my friends did in Esilanke-Kipeto to oppose the wind project was good, because they can now keep their land. We Maasai do not want to be the next victims of government development. That is why as a community we need to continue working together to protect the land that remains in our hands from developers and corrupt people. This is because Kajiado is the only place that is safe for Maasai and their cattle. Otherwise developers will become rich while we die of poverty without land and cattle."[86]

Like-minded young Maasai such as Alfred, Tulata, Benja Junior and the youths who would inherit family land remained active in opposing further proposals to develop neoliberal infrastructures on their commons. The young adult Maasai doubted that they would benefit from the state's economic growth agenda, as they understood it as being sustained by dispossession of agrarian communities and the disruption of their livelihoods. The welfare of their cattle and families is dependent on land, without which their future remains in danger.

According to Bollier and Helfrich (2012: 620-636), social struggles have emerged as a sovereign practice of collective will to radically disrupt neoliberalism, defend rural commons and resist the alienation of rural livelihoods. It displaces neoliberalism from the centre of social life and reclaims a communal way of being. For it to function, however, community obligations must be prioritised over individual rights. The collective disruption of private capital requires key decisions to be made with explicit knowledge of communities. The emergence of collective will in the contemporary commons allows for a united effort, knowledge and resistance to defend resources and land, challenge development projects and reclaim ways of living. To enclose the enclosers, as contemporary social struggles aim to do, alliances must be made with others looking for alternative ways of living or struggling to protect vulnerable ecologies and dependent communities' rights.

Howe (2019: 105-135) describes the mobilisation of civil society in the Isthmus region of Oaxaca, Mexico – such as the Assembly of Indigenous Peoples of the Isthmus in Defense, which consists of agrarian, indigenous and other concerned citizens – that have emerged to counter the domination of indigenous lands by Mareña Renovables. The collective argues that the development of wind energy in the region is a threat to human rights, indigenous sovereignty and terrestrial and marine ecology that supports farming and fishing. Moreover, the project's lack of transparency in its dealings with the state epitomises the state's failed responsibility to its citizenry. Through its

[86] Alfred interviewed in Kajiado in July 2018.

intention to deprive indigenous lands and financially benefit European investors, the wind energy project was perceived as an undertaking to parallel that of the conquistadores. Through road blockades and similar disruptive tactics, the assembly drew on Oaxaca's historical legacy of organised militant opposition against outside forces (e.g. Aztec invasion, Spanish conquest, student movements and defiance against centralised state control). The popular mass resistance stood for the rights of vulnerable populations in the face of state and corporate pressure and attracted local action and trans-local media responses. The courts halted the project and instructed the government not to permit any construction until the matter had been fully adjudicated.

In early February 2017, around a dozen youth went to the wind energy company's temporary office in the designated development area in Kipeto village. They first spoke to the resident KEL representative to seek an audience with the Kipeto wind energy representatives, requesting that their families should no longer participate in the wind energy project. However, this first attempt to engage with the wind energy company got no response. According to Tulata and Benja Junior, the youth marched to KEL's temporary office again in late February 2017, where they warned that they would use legal intervention or physical demonstration to prevent commencement of the project.

The wind energy company was concerned about the instability in the wind energy project's footprint and sent a team to listen to the grievances of the protesting youth and negotiate a solution to avoid injunctions and other legal challenges that might delay commencement of the project. The youths and their families met with the company's representatives and elders from the community, but neither party wanted to compromise and the meeting did not last long. KEL refused to withdraw the subdivision clause from the lease agreement, arguing that it would compromise their ability to control and monitor activities within the project's footprint during operations. The youth argued that KEL had lost their trust when they ostracised them from the initial negotiations, and they demanded their land back. KEL revoked their families' participation in the wind energy project, as they did not want to take the risk that what they termed a minor dispute might cause future disruptions to the project.

Conclusion

This chapter has shown that Maasai are assembling at the local level to protect their land rights by disrupting the neoliberal domination of their commons by financial enclosures. This is evidenced by the assembly of youths who mounted resistance against the state-sponsored wind energy project on their families' lands. The youths' collective resistance is driven by two critical factors. First, they challenged the transparency of the appropriation of their land, which threatened their sovereignty over land and resources. Second, they questioned the state's economic dependence on the dispossession of agrarian communities and the disruption of their livelihoods. The collective mobilisation of like-minded people concerned with protecting cultural and ecological rights has emerged in the Global South as a critical mechanism to protect livelihood rights and the commons from disruption by energy companies motivated by private capital growth. This chapter has demonstrated that the Maasai understand that their land rights are dependent on their opposition to the financialisation of the commons and that collective activism is critical to defending the commons against enclosure.

Conclusion: Engaging the Ecological Marginalisation of Pastoralists in a Time of Climate Crisis

Introduction

The last three chapters focused on the empirical material pertaining to the adaptive capacity of Maasai pastoralists' livelihood to risks of resource commons enclosure in a time of climate crisis. Three key findings emerged from the empirical material. First, the study found that the ongoing crisis of resource privatisation in Kajiado County is undermining consensus-based democracy in the governance of declining resources by disrupting Maasai herders' historical access rights and exposing their livelihood to climate risks. Second, pastoralists have developed strategies to cope with drought and the impacts of climate change and environmental stress, which are aggravated by the fragmentation of the rangeland commons. Collective grazing arrangements and the acquisition of exclusive grazing rights that enable herd mobility between varying climate ecologies are critical coping strategies. Lastly, the thesis found that Maasai herders who were exposed to the enclosure of critical grazing commons actively assembled to protect their land rights and disrupt further neoliberal domination of their existing commons.

This chapter critically considers the findings in the context of the concept of adaptation. The presented sets of findings are interconnected and their synthesis intertwines. I examine the implications of the enclosure of common resources as private property for historical Maasai access rights and elaborate on the types of resource pressures that this causes and the underlying factors that perpetuate them, and I evaluate the implications of resource rights for the adaptive capacity of the Maasai. Second, I discuss the strategies developed by pastoralists to cope with the intersecting impacts of climate change and resource pressure, categorising how coping strategies are utilised and elaborating on the underlying mechanisms that support them. I evaluate the meaning of these coping strategies in relation to Maasai adaptive capacity.

Lastly, I discuss the emergence of collective activism among the Maasai to resist ongoing neoliberal domination of their diminishing commons. I revisit how collective activism is critical to disrupting neoliberalism and protecting the commons in the Anthropocene, and I conclude by evaluating the importance of collective activism for the adaptive capacity of the Maasai. The thesis concludes by summarising key research insights and presents the broader thesis argument in

relation to pastoralists' adaptative capacity and how it can be used to rethink or contribute to alternative policy about common resources in a time of climate crisis.

Rethinking Access to Common Resources

The key takeaway from Chapter five is that common resources have been and continue to be privatised in the rangelands, which undermines consensus-based democracy in the governance of resources, disrupting herders' historical access rights and exposing their livestock economy to climate vulnerability. Private capital uses its political, economic and legal power to control, enclose and commodify the planet's common resource areas at the expense of local livelihoods, overwriting their traditional and equitable exploitation and responsive resource management to maximise profits (Bollier and Helfrich, 2012: 482-492; Raworth, 2017: 311-314). The enclosure of the remaining common resource areas accessible to pastoralists threatens their capacity to adapt, because their social relations are tied to ecological relations.

Pastoralists require access to resources, and users are open to reciprocal negotiations, because the rangelands climate and resources are heterogeneous (Galvin et al., 2008: 383). A strong socio-ecological relationship enables pastoralist communities to better respond to constraints and change (Bradley and Grainger, 2004: 451-470; Pretty, 2002: 61-86; Folke et al., 2005: 455; Galvin et al., 2008: 382). Ecological fragmentation brought about by an increasing privatisation of the commons is jeopardising the sustainability of pastoralism as a socio-ecological adaptive strategy (Berkes and Folke, 1998: 359; Galvin, 2008: 371, 383). The rapid transformation of land into private property and the enforcement of property boundaries is weakening pastoralists' commons approach by severing social relations from ecological relations (Chapter five).

As noted throughout Chapter four, the introduction of property boundaries brought about by changes in property relations has lowered pastoralists' flexibility and increased risks because of the need to negotiate resource access and management rights. Their exposure to climate vulnerability compels herders to ignore private boundaries and graze illegally (Chapter five; Galaty, 2013c: 501; Goldman and Riosmena, 2013: 592, 595; Letai and Lind, 2013: 168-169). The criminalisation of herders' access to now-private enclosures calls for new ways of rebuilding the commons approach and restoring their historical rights.

Understanding the suitability of herd mobility to the rangeland's heterogeneous ecology, Atkinson et al. (2006: 6-7) argue for the formalisation of pastoralists' community range management as a strategy for restoring the commons, protecting customary land rights and countering the extended impacts of land privatisation. Burnsilver and Mwangi (2007: 34-35) argue that collective grazing arrangements must be recognised by policy as a mitigative effort that sustains herders and should receive protection and private rights. Rebuilding the commons using approaches such as collective grazing arrangements remains important in this time of climate crisis, because the ability to adapt to change will decide whether pastoralism as a socio-ecological system can withstand future disturbances or crises (Galvin, 2009: 193).

As noted in Chapter five, collective grazing arrangements can be disrupted by the decision of individual herders in a collective to sell land. This thesis did not look explicitly at how herders might solidify their collective grazing arrangements against individual sales, but policy to formalise the importance of collective grazing arrangements in the fragmenting rangelands remains critical.

Bollier and Helfrich (2012: 487-491, 1261) argue that economic supremacy, political relations and future markets combine with current trade and investment agreements to drive private investors' push to legalise the permanent enclosure of more common resource areas. This weakens the policy space for global communities to reclaim the commons and sustain their traditional collective responsive management. Rebuilding the commons approach will contribute to a policy space for preserving the democratic governance of diminishing common resources and protecting the rights of user communities against ongoing neoliberal enclosures of the commons for economic gain.

The management of water sources as private property is at the root of the distribution injustice impacting pastoralists (see Chapter five). Distribution injustice suffered by rural dwellers in desiccating environments is a result of policies that treat water as a technical issue engineered to serve the interests of a minority elite rather than as a social issue (Asmal et al., 2011: 226, 243-245). Policy that designates water as a public trust administered by the state on behalf of its citizens ensures that water resources are not managed as private property (see Singh, 1999: 27-37; Asmal et al., 2011: 226, 243-245). The management of water as a public trust ensures the greatest degree of community involvement in its management and distribution and protects its equitable

distribution (Singh, 1999: 51-52; Karodia and Weston, 2001: 13-20; Stein, 2004: 2182-2183; Godden, 2005: 197-205).

Distribution injustice affecting pastoralists reflects a lack of effective policy to govern rangeland water resources and access. A policy gap in water management and service provision is contributing to poor regulation of water sources and a lack of equitable provision, which impacts drought-prone and water-scarce areas (Mutuma, 2014: 6-11, 26-27, 44). This policy gap is also reflected in the mismanagement of pay-to-access community boreholes, which are managed as private property. The crisis of borehole water mismanagement and failure is in part a consequence of donors failing to equip pastoral communities with maintenance plans and skills (Chapter five; and Mamburi, 2014: 50-55).

Ground water remains important for meeting the water needs of underserved rural communities. Asmal's argument for democratising water recognises the importance of reclaiming borehole water, which would place the borehole under the management of a local collective to ensure equitable distribution and sustainability (Asmal et al., 2011: 243-244; Singh, 1999: 9, 12, 46). The reclamation of boreholes in the rangelands as common property through policy could avert individual mismanagement by giving responsibility for its management to a collective to ensure equitable access. Community use and management of boreholes would also facilitate collective labour to preserve aquifers by planting trees to conserve soil (Maathai, 2006: 135-137) or harvesting and sinking rainwater (Mabeza, 2013: 128-130). The collective preservation of aquifers also serves as an exchange mechanism and does not disadvantage poorer herders who might not otherwise be able to afford payment.

Preserving rangeland aquifers in the Anthropocene is critical, because hydrology and climate experts project that a growing reliance on ground water and increasing precipitation anomalies and drought prevalence are likely to stress aquifer recharge (Alley, 2001: 161; Bekkar et al., 2009: 252-262; Bovolo et al., 2009: 1-3; Niang et al., 2014: 1216-1220; Serdeczny et al., 2016: 5; Wu et al., 2020: 1-6). In the semi-arid rangelands, pastoralists' dependence on ground water during droughts thus exposes them to increased vulnerability.

Rethinking access to common resources in the Anthropocene remains critical, because herders' access rights to grazing and water resources determines their ability to cope and build adaptive capacity to the stresses of a changing climate and environment. The next section discusses the

strategies that pastoralists have adopted to cope with the intersecting impacts of climate change and environmental enclosure.

Adapting Herd Mobility to Cope with the Intersecting Effects of Climate Uncertainty and Rangeland Fragmentation

The key message of Chapter six is that collective grazing arrangements and the acquisition of exclusive grazing rights are coping strategies adopted by herders to mitigate the intersecting impacts of climate change and the fragmentation of their complex rangeland ecology. These strategies show that pastoralists are adapting their mobile livestock husbandry to the fragmenting rangeland – contrary to the uncertainty expressed by some rangeland scholars (Markakis 2004: 30; Letai and Lind, 2013: 169, 176; Little, 2013: 248-249; Galaty, 2013b: 20-21; Galvin 2008: 193-194) about whether their practice can remain viable on grazing land being consumed by neoliberal state and private capital land grabs. Changes in rangeland climate patterns have motivated herders to innovate to remain mobile in their fragmenting habitat to reduce their vulnerability (see Chapter six). Herd mobility remains a critical strategy for coping with risks associated with rangeland climate variability (Mworia, and Kinyamario, 2008: 10-11; Sundstrom, 2009: 8-9; Goldman and Riosmena, 2013: 588; BurnSilver and Mwangi, 2007: 1-2; Bobadoye et al., 2019: 97).

Rangeland climate patterns have displayed increasing uncertainty and variability over time, characterised by frequent and intense drought conditions (see Chapter six). Climate scientists argue that anthropogenic climate change has significantly affected declining precipitation in the long rainy seasons and increased temperatures and inter-annual precipitation variability in the short rainy season (Bobadoye et al., 2014: 184, Uhe et al., 2018: 554; Kaoga et al., 2018: 223, 227). Exposure to multiple stresses of climate and environmental change requires pastoralists to innovate alternative ways to adapt their traditional herd mobility to access fragmented rangelands and mitigate drought risks (Galaty, 2013b: 33-34; Galaty, 2013c: 473-510; Goldman and Riosmena, 2013: 588-589, 595). Adapting mobility through collective grazing arrangements and the acquisition of exclusive grazing rights builds adaptive capacity by widening the livestock grazing base to increase access to isolated rangeland heterogeneity.

The high precipitation variability that affects the availability and variability of the quantity and quality of pastures and water and determines rangeland heterogeneity is a significant factor in prompting herders to move. The opportunistic nature of herd mobility facilitates continuous access

to widely distributed key resources (Chapters five and six; Ellis and Swift, 1988: 455-458; Westoby et al., 1989: 266-274; Illius and O'Connor 2000: 283; Kamara et al., 2005: 55-56; Solomon et al., 2007: 489,491; BurnSilver et al., 2008: 226, 230; Behnke, 2008: 331; Coughenour, 2008: 45-58, 68; Mwangi, 2017: 22-23). Despite fragmented environmental conditions, mitigating risks associated with climate change impacts such as droughts is anchored in ensuring continuous mobility and accessing rangeland heterogeneity (Chapter six.). Securing grazing access inside and outside of their domain increases pastoralist flexibility and facilitates extensive seasonal movement between different ecosystems and micro-climate zones to minimise risks of climate uncertainty and variability.

Movements between accessible grazing bases are undertaken in accordance with the severity of drought conditions. Pretty (2002: 74) argues that risks associated with climate change make it fundamental for communities to adapt their practices to new environmental conditions, and Maasai have adapted their strategies of mobility to respond to levels of drought and the impacts of climate change on the environment and livestock (Chapter six). Collective grazing arrangements are undertaken to exploit grazing between different micro-climate zones within their domain at the onset of drought conditions, and supplementing their herds' water and fodder lowers risks of loss to increasing uncertainty while they wait for rains. Collective grazing arrangements are not undertaken exclusively and continuously, because they are dependent on resource abundance and successful precipitation (Mwangi, 2006a: 28-34; BurnSilver and Mwangi, 2007: 4-8, 19-25, 32; Galvin, 2009: 191; Sundstrom et al., 2012: 486-494; Galaty, 2013c: 501; Galaty, 2013b: 33-34). Acquiring grazing rights outside of their domain lowers the risk of loss against persistent drought conditions attributable to shifting precipitation patterns.

Using the strategies of collective grazing arrangements and the acquisition of exclusive grazing rights to remain mobile reduces herders' vulnerability to risks associated with increasing climate uncertainty and variability. This is supported by Bobadoye et al. (2019: 97), who conclude that herd mobility remains a key adaptive strategy despite land fragmentation. Adopting multiple ways to support mobility and access heterogeneity is effective at containing the risks associated with climate uncertainty and variability. Galaty (2013b: 33-34) argues that adaptation strategies that support new forms of mobility in a fragmented environment demonstrate the resilience, flexibility and ingenuity of pastoralists.

The coping strategies of collective grazing and acquiring exclusive grazing rights shows that pastoralists are embracing new forms of mobility to build adaptive capacity at a time of climate crisis. The next section reviews how networking plays an important role in strategies adopted by herders to adapt to rangeland fragmentation and increasing climate uncertainty.

Networking to Access Resources

Individual herders and their social relations and networks (described in Chapter six) define their adaptive capacity in the rangeland, because they actively enable them to respond to environmental changes (Folke et al., 2005: 455; Galvin et al., 2008: 383). Developing grazing networks with other resource holders inside and outside herders' domains enables them to share grazing rights and remain mobile. Galvin (2009: 191-192) notes that despite the disruption of Maasai customary resource-sharing networks by changing property relations, Maasai have innovated ways to rebuild their resource-sharing networks to adapt. The development of resource-sharing networks to cope with the fragmented environment and avert climate risks answers Pretty's query (2002: 74) of whether pastoralists might accumulate various forms of networks to adapt their practice to the changing environment.

The formation of collective grazing arrangements through networks of land-owning Maasai allows them to share grazing rights to access heterogeneity in the fragmented rangeland (see Chapter six; Sundstrom et al., 2012: 486-494; Galaty, 2013c: 501; BurnSilver and Mwangi, 2007: 4-8, 19-25, 32). The traditional Maasai institution of sharing non-exclusive grazing rights has declined as a result of changing property relations, but the formation of collective grazing arrangements shows that the traditional institution of sharing resources has adapted to the new, fragmented environment.

The Maasai are building networks outside of their domain with mostly non-Maasai landowners to secure exclusive grazing rights and continue practicing extensive mobility in the fragmented rangelands to cope with prolonged climate risks, requiring herders to have financial privileges (see Chapter six; Goldman and Riosmena, 2013: 588-589, 593-595; Letai and Lind, 2013: 169-170; Ameso et al., 2018: 12-13).

In the absence of the climate-sensitive livestock economy, herders must diversify into other long-term economic activities to obtain financial privileges (see Chapter six). This contradicts claims

by Homewood et al. (2001: 12548; Galvin, 2009: 188-189, 191; Homewood et al., 2009: vi, 1-2) that livelihood diversification is undertaken by pastoralists to meet household needs because of a decline in livestock production as a result of land use changes. Diversifying livelihoods also provides pastoralists with financial privileges to secure access rights to resources.

Goldman and Riosmena (2013: 595) argue that economic inequality among pastoral households places poorer herders at risk, as they do not have financial privileges to secure access rights to grazing resources outside their domain. While the thesis did not explicitly look into the relationship between economic status and resource accessibility, it was noted in Chapter six that some herders lack financial privileges to access resources, exposing them to climate vulnerability. Poorer herders' inability to purchase exclusive grazing rights from private landowners to cope with extended drought conditions calls for alternative strategies to rebuild the commons approach. Networking with other resource holders is essential for pastoralists to cope with the stresses of changing environment and climate. The next section discusses the pastoralists' use of collective activism and its significance in protecting land rights and preventing enclosures in a time of climate crisis.

Collective Activism: Defending Pastoral Land in the Anthropocene

The key takeaway from chapter Seven is that pastoralists are actively assembling to disrupt neoliberal domination of their commons and defend their land rights. Bollier and Helfrich (2012: 620-636) argue that collective activism has emerged as a sovereign practice among willing allied individuals who share concern for defending the commons, its resources and livelihood from neoliberal domination. Allied pastoralists who shared concerns about observed threats to their right to land assembled to resist the development of a wind farm on family land. Community resistance to renewable energy transition is not motivated by the impedance of national goals of renewable energy transition to mitigate climate change but to challenge unethical standards of land and resource appropriation (Avila, 2018: 612-614).

Pastoralists' resistance to new forms of energy development is driven by a growing trend among communities to question the social and environmental consequences of the "win-win" situation of such development on local communities (Avila, 2018: 601; Howe, 2019: 9-11). Pastoralists' resistance to renewable energy development is in part fuelled by concern over the state's neoliberal

growth of the national economy through the dispossession and marginalisation of rural communities. Nixon (2011: 150) argues that the nation state's economic progress is sustained by displacing local communities and rendering them invisible, producing marginalised citizens, transforming landscapes and exploiting common resources.

Neoliberalism is underpinned by dispossession, which directly undermines pastoralism by collapsing the platform where its sustenance is anchored (Galaty, 2013b: 20-34). Defending pastoral land against neoliberal domination is critical, because renewable energy potential in the rangelands may increase speculative demand for land by investors and exacerbate land scarcity in Kajiado County (Koissaba, 2016: 8, 179-181; Koissaba, 2017: 3-8). Defending pastoral land against neoliberal accumulation is also critical to the existence of pastoralism and the livestock economy in a period dominated by climate adversity. Climate evidence shows a visible decline in Kajiado County's annual precipitation (Bobadoye et al., 2014: 184; Kaoga et al., 2018: 223) and an upward trend in average temperatures (Uhe et al., 2018: 566-567), which have both been causally linked to successive droughts (Amwata, 2013: 78; Bobadoye et al., 2016: 120; Kaoga et al., 2018: 227).

Changes in climate pattern and a loss of grazing land have been associated with the progressive decline of Maasai livestock population (Amwata, 2013: 110-112). The decline of the livestock economy and a lack of coping mechanisms or livelihood alternatives will drive pastoralists out of the rangelands or force them to adopt maladaptive activities harmful to their environment (e.g. charcoal burning) (Paavola, 2008: 643-652; Hartmann and Sugulle, 2009: 37-39; Niang et al., 2014: 1219-1220, 1235).

While wind energy production is important for mitigating global climate change, it should not be achieved through the disruption of complex socio-ecological systems. Collective activism against wind energy development challenges the idea of saving the global climate and growing capital by sacrificing communities' lands, livelihoods and rights (Howe, 2019: 9-10).

Sacrificing pastoralist land rights to facilitate wind energy undermines pastoralists' ongoing struggles with habitat loss and exposure to climate vulnerability. The dispossession of local communities to facilitate wind energy development reinforces the fundamental flaws of the capitalist mode of production by upholding the need to exploit economic and climate-adaptive energy sources at the expense of minority communities. The new era of environmental and climatic

stability preserves practices of extraction and exploitation and continues to source cheap resources and large tracts of land at the expense of local communities (Howe, 2019: 9-10).

The mobilisation of local opposition reveals the importance of wind energy development as a societal issue rather than a technical issue. The general technocratic perception of renewable energy opposition by host communities such as the Maasai is that it hinders future possibilities and increases the dangers of climate change (Avila, 2018: 601; Howe, 2019: 9-10). Such a narrative implies that permanently disrupting indigenous ecologies and livelihoods is an inevitable cost, because the need to mitigate rising temperatures caused by industrialisation surpasses minority rights (Howe, 2019: 9-10).

Pastoralism is already vulnerable to the combined stresses of climate and environment. Achieving Kenya's national climate mitigation goals by further disrupting pastoralist rights to land risks entrenching their vulnerability. Collective activism and pursuit of legal channels by the Maasai of Kajiado County to disrupt privatisation despite failures of the legal system and the state illustrates their high degree of self-organisation in a time of climate crisis. These non-violent modes of contesting against privatisation of the commons contrast the approach of other pastoral communities in Kenya such as the Samburu, Turkana, Pokot (see Cormack and Kurewa, 2018:94-95, 102; Schilling et al., 2018:586, 584-590), Orma and Wardei (see Nunow, 2015:101-112) whose contestations have largely been disfavoured by the legal system and the state, therefore escalating violent conflicts that are exacerbated by combined stresses of droughts and grazing decline. Assembling to disrupt neoliberal domination over grazing land in a time of climate crisis builds adaptive capacity against vulnerability to environmental change and climate shocks.

Conclusion and Recommendations

This thesis has examined the intersecting impacts of common-resource enclosures and changing climate in the rangelands on Maasai pastoralists and the strategies they have undertaken to build adaptive capacity. The narratives of the Maasai describe the ongoing private enclosures of critical grazing and water resources in the arid and semi-arid rangelands that are impacting accessibility and their ability to sustain the livestock they depend on. The purpose and rationale of this thesis to examine the adaptive capacity of pastoralists to the intersecting impacts of climate change and environmental enclosure was motivated by the lack of existing scholarship on rural agrarian

transformation about how pastoralists are coping with the rapid transformation of their rangeland resources and increasing climate adversity. This research sought to document the stresses that pastoralists are experiencing as a result of environmental and climate change and to explore pastoralist strategies to access resources in response to their exposure to climate vulnerability by neoliberal resource enclosures. Climate change is a physical reality for the Maasai of which demonstrates that there is no linear relationship between climate change and social change. Rather, climate change and social change are inter-linked.

Three key insights were raised in this thesis. First, that common grazing and water resources in the rangelands are being increasingly enclosed as private property by private investors and the state, disrupting herders' historical access rights, making their livestock economy vulnerable to climate change and undermining the consensus-based democracy of resource governance. Pastoralism depends on access to common resources and negotiable users, and the growth of private property in the rangelands diminishes the commons approach of pastoralism by severing social relations from ecological relations. The privatisation of property has also led to water distribution injustices and criminalisation of the pastoralists' grazing practices, limiting their ability to negotiate resource access and management rights. This thesis argues that the rapid transformation of rangeland resources into private property threatens the ability of pastoralists to cope with the intersecting impacts of climate and environmental stresses.

The inability of pastoralists to access and manage water and grazing resources increasingly designated as private property in a time of climate crisis highlights the need for policy reforms that favour the re-commoning of resources and a rebuilding of the commons approach. An alternative to protecting existing grazing commons from enclosure as a mitigation measure is for policy to recognise collective grazing arrangements, which would also avoid resource access conflicts between private property owners and pastoralists during droughts, which criminalises pastoralists and undermines consensus-based democracy.

To uphold consensus-based democracy in the governance of declining grazing resources, policy could also draw on the recommendation by the chief of Ildamat-Oloyiankalani that herders' dry-season grazing on private land should not be criminalised but that agreements should be encouraged between pastoralists and landowners. This would facilitate pastoralists' right to negotiate access to unutilised grazing resources in enclosures, protect owners' private land rights

and resolve resource-based conflicts and criminalisation of herders through trespass laws. Democratising water resources such as pipelines and groundwater through policy would also address distribution injustice by improving accessibility and distribution equity while enabling users to collectively manage water sources and their catchments. Policy reforms that restore the commons approach to water and grazing resources in the rangelands will lower pastoralists' vulnerability to climate stress caused by a lack of access to resources.

Second, mobility remains a critical pastoralist strategy to cope with the intersecting stresses of climate and environmental change. Pastoralists use available financial resources and build networks inside and outside of their domains to develop innovative collective grazing arrangements and to acquire exclusive grazing rights that enable them to adapt their traditional mobile livestock husbandry to their complex rangeland environment, which is fragmented by enclosures and recurring droughts. These innovative strategies encourage flexibility and facilitate continuous access to rangeland heterogeneity as a measure of mitigating risks against the increasingly variable and uncertain climate. The thesis thus argues that pastoralists are building adaptive capacity to the stresses of an uncertain climate and the changing environment by improving resource access through innovative strategies of collective grazing arrangements and the acquisition of exclusive grazing rights that enable mobility in their fragmented yet complex rangeland ecology.

Lastly, this thesis established that pastoralists are actively assembling to disrupt observed threats to their land sovereignty and the further privatisation of their grazing commons by neoliberal state and capital. Collective activism as opposed to violent approach illustrated Maasai pastoralists high degree of self-organisation towards disrupting privatisation. Pastoralists are resisting the state's neoliberal model of national economic growth through dispossession and marginalisation. The thesis argues that pastoralists are not against renewable energy transitions specifically but oppose the state's efforts to achieve its climate mitigation and sustainable economic growth goals by undermining their land rights and exacerbating their existing vulnerability to environmental pressure and climate change. Collective pastoralist disruption is a preventative mechanism to defend their land rights and grazing commons against the neoliberal state and private capital. Securing communities' right to land, livelihood and cultural practice should be as important to national goals of progress as are renewable energy transitions.

These insights show the importance of securing pastoralists' access rights to grazing and water resources that are under pressure of enclosure by privatisation in the Anthropocene. In conclusion, this research broadly finds that the enclosure of common resources by neoliberal state and private capital to facilitate extractive capitalism at the expense of pastoralists' access rights negatively affects their ability to cope with the intersecting impacts of climate and environmental stress. In a time of climate adversity, as pastoralists are being ecologically marginalised and common resources are rapidly transformed into private property for economic growth, policies governing environmental resources must facilitate the consensus-based democratic governance of grazing and water resources to safeguard equitable access for all users and protect remaining resource commons from enclosure. This will restore the commons approach and secure herders' resource access rights and lower their vulnerability to the risks of climate and environmental stress.

The concept of adaptation used in this study offers an alternative lens through which to view the neoliberal enclosure of common rangeland resources, assessing its effects on pastoralists' adaptive capacity to the intersecting impacts of climate and environmental stress. Climate is changing even as common resources remain under threat of state and private enclosure and exploitation, making it critical that scholarship addresses rural agrarian transformation and issues of political economy and ecology and to understand the mechanisms used by agrarian communities to cope with the consequences of neoliberal resource grabs. Understanding rural agrarian transformation from the perspective of adaptation brings us closer to understanding how agrarian practices such as pastoralism respond to the neoliberal enclosure of resource commons in the Anthropocene.

The state's vision of the commons as entities that needed to be privatised to facilitate nation building against communal practices has enabled its predatory relationship with the Maasai from the colonial period until to date. Where the state has sought to privatise the commons to expand its development agenda, it has altered policies and programs while ensuring systemic frustration through its legal systems to retain control over resources and resource use decisions against the vision of the Maasai and limit the democratic space in common resource governance. Whether the Westphalian state can cohabit harmoniously with the Maasai while expanding its development agenda is an important implication that can be dealt with on further studies. In addition, the qualitative matters that were researched on in this study can also be addressed by quantitative research on further studies.

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